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AMERICAN PEDIATRICS

A RETROSPECT AND A FORECAST *

L. EMMETT HOLT, M.D., LL.D.

NEW YORK

Twenty-five years ago the American Pediatric Society first honored me with the presidency. The intervening years have seen some interesting and important changes in all departments of medicine, in none more than in pediatrics. The present occasion suggests some comparisons between pediatrics of a quarter century ago and pediatrics of today.

The program of the meeting of 1898 included twenty-one papers. Of this number only one—by Dr. R. G. Freeman, on the pasteurization of milk—represented a laboratory investigation. All the others were what we would term clinical papers. Thirteen of them were case reports and discussions, and the remainder were general papers on clinical subjects. Many of these represented interesting studies and valuable original observations, but it was essentially a clinical meeting. This is in striking contrast to our program for this meeting, which includes fourteen papers representing laboratory investigations.

The most notable paper on the program of 1898 was the report of the Committee on the Collective Investigation of Infantile Scurvy, a disease which was then only just beginning to be generally recognized. In the report, 379 cases were compiled and analyzed. Up to that time, it was the most important clinical study of the disease that had been made. In presenting the majority report, the chairman, Dr. Crozer Griffith, stated that the conclusion reached was that the disease was of dietetic origin, and that sterilized, pasteurized or condensed milk or proprietary infant foods were the forms of feeding which most frequently preceded its development. He said, "We do not say that diet is the cause, but that, from the report, diet seemed to be the cause." This conclusion, however, was dissented from by one member of the committee, who presented a minority report in which he expressed the opinion that "infantile scurvy was due to a chronic ptomain poisoning," and that food per se was not responsible for the condition. Much careful work and many discriminating observations will be found in papers of the society at that period of its history. Let us not despise the contributions of those days; they are well worth our study. If today we have a broader vision of our science than the men of twenty-five years ago, it is not because our sight is better but because we stand on their shoulders.

* Presidential address, read before the American Pediatric Society, French Lick, Ind., May 31, 1923.

ADVANCES IN TWENTY-FIVE YEARS

American pediatrics was then only on the threshold of its development. Not half a dozen men practiced pediatrics exclusively as a specialty. Not a medical school in the United States had a separate department of pediatrics. When any instruction was given in this branch, it was usually as an appendage to that in obstetrics or general medicine. Laboratories for clinical, pathologic or chemical investigation of pediatric problems did not exist, except such as were devoted to a study of diphtheria. Antitoxin having been brought out only three years before, it was not yet in general use and its value was regarded by many as a subject for discussion.

The milk station or infant consultation station for the observation and supervision of healthy babies had not been organized in this country. There were no public health nurses, and there was not in the United States a state or a municipality with a special department of child hygiene or child welfare. Agitation for better supervision of the production and distribution of milk had just begun, the commercial pasteurization of milk was hardly thought of, and the value of home pasteurization was being urged.

The roentgen ray had been discovered only three years before, its application to bone surgery had just begun, and its present use in medical diagnosis was not dreamed of. Such things as basal metabolism were little more than a name. Lumbar puncture as a means of diagnosis was just beginning to be employed.

It is to laboratory investigators that most of the advances in our science in the last quarter century are due. Consider what has been added to our knowledge of diphtheria, poliomyelitis, cerebrospinal meningitis, infantile syphilis, rickets, tetany, diabetes, scurvy and the other deficiency diseases. In this period the new sciences of immunology and serology have developed, and almost the whole of biologic chemistry as applied to medicine.

REDUCTION IN MORTALITY FIGURES

But great as these advances are, they are not the only, or perhaps the greatest, achievements in pediatrics to which we can point. The mortality figures for New York (Boroughs of Manhattan and Bronx) for two years, 1921 and 1922, suggest some interesting comparisons with those of twenty-five years before. While the estimated population under 5 years of age has increased from 225,000 to 297,000, the actual number of deaths under 5 has decreased from 32,202 to 28,519, and the death rate has fallen from 14 to 9.6 per cent.

In the accompanying table are given for each of these periods the ten most common causes of death under 5 years.

The most striking change is that actual deaths from diarrheal diseases in children under 5 years have dropped from 7,224 to 1,942. These diseases, which have occupied first place in mortality figures for this time of life as long as our records are available, have now fallen to third place.

At the head of the list now stands "malformations and diseases of early infancy," while pneumonia has risen to second place. Pneumonia, which has been thought to be on the increase, has risen from third to second place, yet, if we combine the figures for pneumonia and bronchitis, we note a reduction for acute respiratory diseases from 7,051 to 3,584, nearly 50 per cent., a most surprising showing.

What has interested me has been not only the change in the position of these different causes of death, but also the *actual reduction* which is shown in all of them. To what causes can we attribute such a fall in mortality figures? In diphtheria and croup, it is clearly the result of the use of antitoxin. Also, for the reduction in the deaths from diarrheal diseases, there is an adequate explanation in what we have learned and applied regarding the means of prevention, such as

Causes of Death Under Five Years

Years 1896-1897		Years 1921-1922	
Cause of Death	No. of Deaths	Cause of Death	No. of Deaths
1. Diarrheal diseases	7,224	Malformations and diseases of early infancy	4,972
2. Malformations and diseases of early infancy	5,841	Pneumonias	3,413
3. Pneumonias	5,169	Diarrheal diseases	1,942
4. Diphtheria and croup	2,703	Measles	694
5. Acute bronchitis	1,892	Diphtheria and Croup	677
6. Measles	1,042	Whooping cough	337
7. Convulsions	1,010	Tuberculous meningitis	294
8. Tuberculous meningitis	919	Scarlet fever	240
9. Whooping cough	719	Acute bronchitis	171
10. Scarlet fever	655	Convulsions	24
Total deaths, all causes, under 5 years	32,202		28,519
Estimated population, under 5 years	225,000		297,000
Death rate, under 5 years	14 per cent.		9.6 per cent.

more intelligent feeding, pasteurization of milk, and cleanliness of the milk supply. The reduction in deaths from tuberculous meningitis may possibly be more apparent than real, owing to better diagnosis since the general use of lumbar puncture. No doubt, twenty-five years ago many cases of acute meningitis, due to the streptococcus, pneumococcus and other organisms, were reported as tuberculous. But why deaths from measles should fall from 1,042 to 694, those from scarlet fever from 655 to 240, and those from whooping cough from 719 to 337 is not so clear. For none of these can it be said that the drop is due to more accurate diagnosis or to new or special treatment.

Several possibilities suggest themselves: First, and perhaps most important of all, owing to better feeding and better hygiene we have a more vigorous generation of children, in consequence of which they have greater resistance to these infections. Probably also better nursing and the omission of the indiscriminate use of drugs have had some influence. I cannot resist the impression that there has been also a considerable reduction in morbidity due to better general hygiene, to the enforcement of quarantine, and to education. But all of these conditions taken together do not satisfactorily explain the facts I have stated.

ARE DISEASE TYPES CHANGING?

One who saw children's diseases as they occurred twenty-five years ago and as they occur now cannot resist the conclusion that for some reason, which does not appear, there is now a great change in the virulence of the active viruses with which these different diseases are associated.

Theobald Smith tells us that epidemic diseases of animals sometimes prevail for years with great severity and high mortality, and then gradually occur with less frequency and with diminishing virulence until they entirely disappear. "They have their day and cease to be." But it sometimes happens that after a considerable time they reappear and spread again with alarming frequency and severity.

The mere fact that the mortality of a disease, when it is seen with the greatest virulence, is high, may lead to an interment of virulent bacteria with the bodies of their victims, while the disease continues to spread through the community by the less virulent strains. A gradual adaptation of the human body to different types of infection is another hypothesis that merits consideration.

However we may speculate as to the true explanation, the fact remains that we are witnessing a remarkable reduction in mortality in infancy and childhood. We should all like to consider this a result of the advances in preventive medicine and in hygiene, and undoubtedly much of it is due to these causes. But there remains a large factor for which as yet we cannot satisfactorily account. For this reason it is difficult to predict whether this decline will continue. With a more general application of preventive hygienic measures it probably will. The reduction has already gone farthest in those countries and communities in which preventive medicine has been most highly developed and is most widely practiced. The fall in diarrheal diseases, malformations and diseases of early infancy, and pneumonias has been gradual and fairly continuous during the twenty-five years. They cannot be compared with influenza, cerebrospinal meningitis and poliomyelitis, which occur in widespread epidemics at considerable intervals. But the experience in the army camps has shown that even measles may under favorable conditions develop a very high degree of virulence; and the report has just been issued indicating a great increase in the severity of smallpox recently, the case fatality in 276 cities of the United States and Canada in 1922 being five times that of 1921.

THE PEDIATRICIAN OF THE FUTURE

What of the future? What forecast may one venture to make for pediatrics in the next twenty-five years? In my view, three distinct types of pediatricians will be needed in the future: first, the research man, who is likely to be a full-time head of a department in a university medical school; second, the man who applies our best science in the treatment of sick children in the home and in the hospital and dispensary, and, third, the public health pediatrician, who will organize and direct this special department in a state or city or county health board. It will be the duty of the latter to bring before the lay public and the general medical profession the latest and the best that science has to offer. He must not only be an administrator but also an educator, for he must work with teachers and school authorities as well as with physicians.

It is impossible to say of any one of these that he is the most important, for all seem to me to be equally essential. Just now the public health pediatrician seems to be most in demand. But we need them all, and all should be represented in this society. Instruc-

tion given in our medical schools must be by all of these groups and must fit men to enter each of these fields.

One subject that is likely to have much greater importance in the pediatrics of the future is that of mental hygiene. At present the profession is occupied chiefly with the later results of faulty mental hygiene, as in various types of mental instability and disease, the foundations for which are often laid in childhood and are due to a maladjustment not understood and not corrected. Many of the habits, the fears, the tempers, the night terrors, and the whims of children have a significance that few of us appreciate. When these patients are brought to us and we discover that the symptoms have no basis in the physical condition of the children, we are apt to pass them over as not deserving serious consideration. Yet, when in adolescence the symptoms of dementia praecox or other mental disorders have developed, it is found that a large portion of these patients have shown very early in childhood some indications of mental instability. Had the early manifestations been understood and had the child been placed in an environment and given an education in which these things were properly recognized, the outcome might have been very different. It is only in the earliest stages of these disorders that treatment can have much effect, and it is the early symptoms that are brought to the notice of the pediatrician or the family physician, very seldom, at this age, to the specialist in mental hygiene. In the ever increasing complexities of our modern life, cases of this kind are becoming more and more frequent.

FUNDAMENTAL IMPORTANCE OF PREVENTIVE MEASURES

The pediatrics of the future, like the general medicine of the future, will differ very much from that of the past. The great problems seem to me to relate to the acute infections and those associated with nutrition. It seems likely that more will be accomplished with the acute infections by the development and application of measures of prevention than by the discovery of specific remedies for their cure. What has been done in the control of smallpox, malaria, typhoid and diphtheria may be extended to many other diseases. The newer knowledge regarding rickets also has brought with it possibilities for prevention, the results of which we cannot now foresee but which lead to the hope that this disease of modern life may be, if not stamped out, at least so reduced in frequency and severity as to be shorn of its dangers.

But this result will be reached only when our scientific knowledge is generally applied. We know how infantile scurvy can with absolute certainty be prevented; yet this disease, so far from being eliminated, does not appear—at least in New York—to have notably decreased. In the last twenty-five years, the number of cases treated by five-year periods in my hospital experience has been four, fifteen, nineteen, forty-five and fifty. This is another instance of how far general practice lags behind knowledge.

We are a long way yet from reaching the results that are possible even from applying existing knowledge of infant feeding and hygiene. In the past we have measured our success in solving the problem of nutrition in early life by the declining death rate. But this is not the only result. We are now seeing that the effects of good nutrition in infancy are evident also in a generation of older children with improved health and better physical development and, in consequence, with a greater resistance to disease all through the period of growth. It is hard to estimate to what degree the standard of health and physical development of men and women could be raised by proper supervision and direction during the entire period of growth. But the same sort of continuous systematic observation as that which we are now endeavoring to give to infants must be given to children of all ages if we would secure the best results.

One of the most important measures to be developed is systematic, periodic physical examinations. This is fast becoming one of the most significant departments of public health. It makes possible the early recognition and correction of physical defects, the supervision of diet and the inauguration of proper hygiene. To save waste is one of the aims in modern business administration. We as physicians, should approach our problems with something of the same idea and in the same spirit.

THE PEDIATRICIAN AS A HEALTH TEACHER

What a saving of health and suffering would be possible if the common rules of health were known and practiced! This must come largely through educational measures. This is a department of pediatrics to which most of us have given too little thought, for we have been too much engrossed with the diseases that have resulted from the violation of these rules. Nowhere in the whole realm of preventive medicine is there such a field for usefulness as that which is open to the pediatrician.

The duty of the pediatrician, then, is not only to advance knowledge in all subjects related to the growth and health of children, but also to see that such knowledge is applied; for of what value is our knowledge unless it is used? We must be the teachers and leaders of the public in all these matters. This field we have neglected in the past; we have left the subject of popular health education too much to the nurse, the social worker and the nutrition teacher, and some of these groups, largely owing to our neglect, have gotten somewhat out of hand.

We as the possessors of special knowledge must teach not only the public but also the medical profession. We must combat even in our own ranks the propaganda of the commercial drug houses and the "patent medicine" venders and the manufacturer of commercial vaccines, vitamins or infant foods, with accurate, positive knowledge of disease, of hygiene and of food. Those of us who are instructing students in our medical schools must adequately present the educational aspects of the pediatrician's work, as well as teach the diagnosis and treatment of disease. It is often said that the physician does not know anything about health, that all his instruction and training are about disease. No doubt this has been true in the past. Most of our best medical schools now give some teaching in public health; but few give any proper place to the teaching of personal health, or to the hygiene and care of the healthy child.

I especially wish to emphasize health teaching as a very large part of the function of the physician, and especially of the pediatrician in the future. The hospital, the outpatient clinic, the milk station, the day nursery, the nutrition class, the school and the home must all be used for health education; for the early ages, it must be given to mothers and nurses; later, to the child himself.

We need not be apologetic when we compare the value of such work as this with that which relates to the determination of the velocity of the blood current or surface tension in the body cells. Though not neglecting or underestimating the importance of research in the fundamentals of our science, we must consider it a worth-while job to teach the public the value of what has already been demonstrated in the saving of life, the prevention of disease, and the promotion of normal growth and development. Comparatively few of the members of this society have had the training, or have now the opportunity or the resources for profitable scientific research in the laboratory. This grows more difficult every day. But all of us can have a share, and a large one, in this general campaign of education, which must form the basis of great achievements in the field of preventive medicine.

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THE RELATION OF INFECTIONS OF THE UPPER RESPIRATORY TRACT TO PYELITIS *

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It is a well established fact that pyelitis in infancy and childhood is often associated with, or secondary to, infection of the upper respiratory tract. The exact relationship is at present entirely unknown. It has been assumed that the infection of the nose and throat so lowers the resistance of the patient that it permits the colon bacillus to acquire a foothold in the urinary passages, where it then sets up an inflammatory reaction. Furthermore, pyelitis complicating infection of the upper respiratory tract, or other organs, is not caused by the bacteria producing the primary infection, but almost invariably by the colon bacillus.

By what route the colon bacillus reaches the urinary tract is still unknown, in spite of the great amount of work that has been done on the subject. In the many instances in which urinary cultures have been taken in cases of secondary pyelitis, the infecting organism was the colon bacillus. The primary infection of the upper respiratory tract was either the pneumococcus, a streptococcus or a staphylococcus. Certain authors have proposed the explanation that the primary invader was present in the urine in such small numbers that it was rapidly overgrown by the secondary invader, the colon bacillus. We have never been able to prove the presence of other organisms, even when high dilutions of the urine were used in making plates.

The work of Bumpus and Meisser [1] on the relationship of focal infection to pyelitis in the adult, particularly their experimental results with organisms obtained from the teeth, has opened up a new mode of investigation of this interesting problem. They were able to show that streptococci isolated from the teeth of patients suffering from pyelitis, when injected intravenously into rabbits, tended to localize in the kidney, and there produce focal lesions. Furthermore, they were able to show that, with the focus still intact, only the colon bacillus could be isolated from the urine. For a short time after the removal of the focus, both the streptococcus and the colon bacillus were present in the urine. The streptococcus remained but a short time, and then disappeared, to be followed after an interval by the colon bacillus and a complete clearing up of the pyelitis. These results were later confirmed by Rosenow and Meisser,[2] who were able to produce pyelitis in dogs by infecting the teeth. The teeth were bored into, infected and sealed. Nothing further was done to the animals, and almost without exception they developed pyelitis.

Such striking results made it desirable to conduct similar investigations as to the relationship of extra-urinary infection, and pyelitis in infancy and childhood, when pyelitis was secondary to infections of the upper respiratory tract. Four cases were carefully studied; two of the patients were infants who had developed pyelitis following acute otitis media; in one patient, pyelitis was secondary to acute tonsillitis; the fourth was an older child who developed pyelitis in association with badly infected tonsils and carious teeth. The mode of procedure was as follows:

Cultures in dextrose brain broth were taken from the ear or tonsils, and from the urine, and after twenty-four hours, injected intravenously into rabbits. As rabbits were repeatedly found with infections of the urinary tract,[3] only those animals were used whose urine, on culture, was found to be free from pus, albumin and bacteria. After the injections, the urine of the rabbits was examined at regular intervals for pus and bacteria, and the animals were killed after varying periods of time.

SUMMARY OF THE FOUR CASES

Case 1.—G. W., aged 2½ years, had had an acute attack of tonsillitis in February, 1921, with high fever and considerable adenopathy. After three days there was some improvement, and the temperature dropped to normal, but two days later, it rose again and an acute otitis media developed on the right side. There was a discharge of serosanguineous material, which, on culture, gave *Streptococcus hemolyticus* and a few staphylococci. The temperature gradually came down to normal in two days, only to go up again to 103. On that day the urine, which had been normal up to this time, contained pus 3 and innumerable colon bacilli in 0.5 c.c. of urine. No other organisms were found in the urine. Streptococci and staphylococci isolated from the ear, and colon bacilli from the urine, were injected singly and also in combination.

Case 2.—M. A., a girl, aged 9 months, had been well until one week before. During this week she was restless and the temperature rose to 102 F. An abscess of the middle ear was found and incised, and on culture yielded a hemolytic staphylococcus and nonhemolytic streptococcus. The urine, which on first examination was free from all formed elements, three days after the incision of the ear drum contained large amounts of pus and, on culture, a pure growth of colon bacilli. Animals were injected with cultures from the ear and urine.

Case 3.—R. S., aged 6 months, had had a severe cold for two weeks. Bowel movements had been somewhat more frequent than normal. On the last two days the temperature had risen to 104. At midnight of the night preceding admission, the child had become extremely sick, had rolled up its

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* From the Section on Pediatrics, Mayo Clinic.

* Read before the Section on Diseases of Children at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Bumpus, H. C., Jr., and Meisser, J. G.: Focal Infection and Selective Localization of Streptococci in Pyelonephritis, Study I, Arch. Int. Med. **27**: 326-337 (March) 1921; Foci of Infection in Cases of Pyelonephritis, Study II, J. A. M. A. **77**: 1475-1479 (Nov. 5) 1921.

2. Rosenow, E. C., and Meisser, J. G.: Elective Localization of Bacteria Following Various Methods of Inoculation, and the Production of Nephritis by Devitalization and Infection of Teeth in Dogs, J. Lab. & Clin. Med. **7**: 707-722, 1921-1922.

3. Helmholz, H. F., and Millikin, Frances: The Presence of Bacteria and Formed Elements in the Urine of Rabbits, J. Lab. & Clin. Med. **7**: 589-591, 1922.

eyes, but had had no convulsions. An acute tonsillitis and rhinopharyngitis, with acute redness of both ear drums, were found. Culture taken from the throat revealed a streptococcus and an occasional staphylococcus. The urine, taken at this time, was free from formed elements. A specimen, taken two days after the severe symptoms had arisen, contained pus, albumin and many bacteria, which on culture were found to be

weeks before, lasting about three weeks and then stopping. Two weeks before, the child was suddenly taken ill with severe pain in the left side, followed by vomiting and fever. Since then the temperature had risen to between 102 and 104 each day. There was slight tenderness in the left flank. There were several carious teeth, and infected tonsils with cervical adenitis. The examination otherwise was negative except for

TABLE 1.—*Injections of Colon Bacilli from Urine, and Staphylococci and Streptococci from Ear, Tonsils, Nasopharynx or Teeth of Patients with Pyelitis*

Patient	Organism Injected	Rabbit	Date Injected	Observations on the Urine				Date and Mode of Rabbit's Death		Necropsy					Notes
										Kidney					
				Date	Albumin	Pus	Bacteria			Abscess	Pyelitis	Staphylococcus	Streptococcus	B. coli	
1.	B. coli from urine	22	2/16	2/18	..	++	.....	2/23	Chloroformed	0	0	..	..	0	Blood culture, B. coli
				2/22	..	0									
	B. coli from urine	21	2/16	2/18	..	+	.....	2/20	Died	0	0	..	..	+	Blood culture, B. coli, pericarditis
	B. coli from urine	25	2/16	2/22	..	++	.....	2/22	Chloroformed	0	+	..	..	+	
	B. coli from urine, staphylococcus, and streptococcus from ear	19	2/16	....	..	..	.....	2/17	Died	0	0	0	0	+	Blood culture, B. coli
	B. coli from urine, staphylococcus, and streptococcus from ear	29	2/16	2/18	..	0	.....	2/18	Chloroformed	0	0	+	+	+	Blood culture, streptococcus, staphylococcus, and B. coli
	Staphylococcus and streptococcus from ear	21	2/16	2/18	..	++	.....	2/22	Chloroformed	+	+	+	0	..	
				2/22	..	+++									
	Staphylococcus and streptococcus from ear	30	2/16	2/18	..	+++	.....	2/23	Chloroformed	+	+	+	0	..	Abscesses of the muscle
2.	B. coli from urine	79	5/26	5/27	..	0	B. coli	5/29	Died	0	0	..	..	0	Blood and brain, B. coli, meningitis
	B. coli from urine	82	5/26	5/27	..	0	0								
				5/30	..	0	0								
				6/ 1	..	0	0								
				6/ 8	..	0	0								
	B. coli from urine, staphylococcus, and streptococcus from ear	83	5/26	5/27	..	+	Staphylococci	6/21	Chloroformed	0	0	0	0	0	Pus in knee joint
				5/30	..	+	Staphylococci								
				6/ 1	..	0	Staphylococci								
				6/ 8	..	+++	Staphylococci								
				6/15	..	+	0								
	B. coli from urine, staphylococcus and streptococcus from ear	84	5/26	5/27	..	0	Staphylococci and B. coli	6/ 1	Chloroformed	+	+	+	0	0	
				5/30	..	+									
	Staphylococcus and streptococcus from ear	85	5/26	5/27	..	0	Staphylococci	5/31	Died	0	+	+	0	..	Pus in knee joint
				5/30	..	++	Staphylococci								
	Staphylococcus and streptococcus from ear	86	5/26	5/27	..	0	0	6/ 3	Chloroformed	+	+	+	0	..	Abscesses of muscle and heart
				5/30	..	+	Staphylococci								
3.	B. coli from urine	263	7/19	7/21	..	0	0	7/31	Chloroformed	0	0	..	..	0	
	B. coli from urine	264	7/19	7/21	..	0	0	7/31	Chloroformed	0	0	..	..	0	
	B. coli from urine, staphylococcus and streptococcus from throat	262	7/19	7/21	..	+	B. coli and staphylococci	7/24	Chloroformed	+	+	+	0	0	Pus in knee joint
	B. coli from urine, staphylococcus and streptococcus from throat	265	7/19	7/21	..	0	0	7/31	Chloroformed	0	0	0	0	0	
	Staphylococcus and streptococcus from throat	266	7/19	7/21	..	+++	Staphylococci	7/28	Chloroformed	+	+	+	0	..	
	Staphylococcus and streptococcus from throat	267	7/19	7/21	..	+++	Staphylococci	7/24	Chloroformed	+	+	+	0	..	
4.	Streptococcus from swabbings of tonsils	194	3/23	3/24	++	Casts	.....	3/28	Chloroformed	0	0	..	0	..	
	Streptococcus from swabbings of tonsils	195	3/23	3/24	0	0	.....	3/28	Chloroformed	0	0	..	+	..	Old chronic nephritis
	Streptococcus from swabbings of tonsils	196	3/23	3/24	0	0	.....	3/28	Chloroformed	0	0	..	0	..	
	Emulsion of excised tonsils	197	3/29	....	..	..	.....	3/31	Chloroformed	0	0	0	0	..	
	Emulsion of excised tonsils	199	3/29	....	..	..	.....	4/ 1	Chloroformed	0	0	0	0	..	
	Streptococcus from excised tonsils	198	3/30	....	..	..	.....	4/ 1	Chloroformed	+	+	..	0	..	Abscess in papilla
	Streptococcus from excised tonsils	200	3/30	4/ 1	..	+	.....	4/ 1	Died	+	0	..	+	..	Old chronic abscesses in papillae
	B. coli from urine	201	4/ 1	....	..	..	.....	4/ 3	Chloroformed	0	0	..	..	+	
	B. coli from urine	202	4/ 1	4/ 4	..	+	.....	4/ 4	Chloroformed	0	0	..	..	0	
	B. coli from urine	203	4/ 1	....	..	..	.....	4/ 4	Chloroformed	0	0	..	..	0	
	Staphylococcus and streptococcus from teeth	209	4/ 7	4/14	..	0	.....	4/14	Chloroformed	0	0	0	0	..	
	Staphylococcus and streptococcus from teeth	210	4/ 7	4/14	..	0	.....	4/14	Chloroformed	0	0	0	0	..	
	Staphylococcus and streptococcus from teeth	211	4/ 7	4/14	..	0	.....	4/14	Chloroformed	0	0	0	0	..	

a pure culture of the colon bacillus. Animals were injected with a twenty-four hour culture obtained from the throat and urine.

CASE 4.—R. S., aged 8 years, whose past history was negative except for uneventful measles, pertussis and chickenpox, was brought for examination because of hematuria, fever, and pain in the left side. The onset had occurred about eight

a very large amount of pus, and occasional red blood cells in the urine, which on culture gave innumerable colon bacilli in pure culture. Roentgenograms of the kidneys were negative. Ureteral catheterization revealed pus 3 and innumerable colon bacilli in 0.5 c.c. of urine from the right side, and pus 3 and innumerable colon bacilli in 0.5 c.c. of urine from the left side. Animal inoculations were made with cultures taken

TABLE 2.—*Summary of Experiments*

Case	Animals Injected with B. coli from Urine: Number Injected	Animals Injected with B. coli from Urine: Number with Renal Lesions	Animals Injected with Staphylococcus and Streptococcus from Ear, Throat, Tonsils or Teeth: Number Injected	Animals Injected with Staphylococcus and Streptococcus from Ear, Throat, Tonsils or Teeth: Number with Renal Lesions	Animals Injected with B. Coli from Urine, and Staphylococcus and Streptococcus from Ear, Throat or Tonsils: Number Injected	Animals Injected with B. Coli from Urine, and Staphylococcus and Streptococcus from Ear, Throat or Tonsils: Number with Renal Lesions
1	3	1	2	2	2	..
2	2	..	2	2	2	1
3	2	..	2	2	2	1
4	3	..	10	2	..	..

from swabs of the tonsils, from the depths of the tonsil after removal, and from the organisms isolated from the carious teeth, as well as with the cultures isolated from the urine.

cultures is not in relation to the percentage make-up of the cultures. In practically all of the cultures injected, the predominant organism was the streptococcus, with only an occasional staphylococcus. It will be noted, however, that the organisms isolated from the kidney were almost invariably staphylococci, and that these staphylococci produced lesions in the cortex, medulla or pelvis. It is well known that any staphylococcus, on intravenous injection, tends to produce focal lesions in the kidney, muscles and heart. It seemed important, therefore, to perform a large series of control experiments in order to determine whether the staphylococci isolated in this way have any greater tendency to localize in the kidney than those from other sources. As may be noted in Table 2, a like number of control injections was made. In certain instances it

TABLE 3.—*Control Injections of Staphylococci and Streptococci from Ears, Tonsils and Throats of Patients Having no Pyelitis*

Patient	Organism Injected	Rabbit	Date Injected	Observations on Urine: Date	Albumin	Pus	Date and Mode of Rabbit's Death		Necropsy: Kidney: Abscess	Pyelitis	Staphylococcus	Streptococcus	Notes
100.	Staphylococcus from discharging ear	191	3/21	3/22	..	+	3/23	Chloroformed	+	0	+	..	
	Staphylococcus from discharging ear	192	3/21	3/22 3/23	+ ..	0 +	3/23	Chloroformed	+	0	+	..	Blood culture, staphylococcus
	Staphylococcus from discharging ear	193	3/21	3/22	..	0	3/23	Chloroformed	0	0	0	..	
154.	Staphylococcus and streptococcus from normal throat	271	8/ 1	....	..	..	8/ 4	Chloroformed	0	0	0	0	Chronic nephritis
	Staphylococcus and streptococcus from normal throat	273	8/ 1	8/ 4	..	+	8/ 4	Chloroformed	+	0	0	0	
175.	Staphylococcus from discharging ear	297	10/15	....	..	..	10/17	Died	+	0	+	..	Abscess in liver, blood culture staphylococcus
	Staphylococcus from discharging ear	298	10/15	....	..	..	10/16	Died	0	0	+	..	Blood culture, staphylococcus
	Staphylococcus from discharging ear	296	10/15	....	..	..	10/19	Died	+	0	+	..	Abscesses in liver, blood culture negative
12.	Staphylococcus and streptococcus from tonsils	56	3/24	....	..	..	3/28	Chloroformed	0	0	0	0	
	Staphylococcus and streptococcus from tonsils	57	3/24	....	..	..	3/29	Chloroformed	0	0	0	0	
15.	Staphylococcus and streptococcus from tonsils	62	3/26	....	..	..	4/ 1	Chloroformed	0	0	0	0	
17	Staphylococcus and streptococcus from tonsils	64	3/26	....	..	..	4/ 1	Chloroformed	0	0	0	0	Chronic nephritis
85.	Staphylococcus and streptococcus from tonsils	173	2/ 4	....	..	..	2/ 5	Chloroformed	0	0	0	0	
181.	Staphylococcus and streptococcus from throat	314	10/28	....	..	..	11/ 1	Chloroformed	+	0	+	0	Pus in knee joint
	Staphylococcus and streptococcus from throat	315	10/28	....	..	..	11/ 1	Chloroformed	0	+	+	0	
	Staphylococcus and streptococcus from tonsils	351	11/ 8	....	..	..	11/16	Died	0	0	0	0	
	Staphylococcus and streptococcus from tonsils	352	11/ 8	....	..	..	11/15	Chloroformed	0	0	0	0	
183.	Staphylococcus and streptococcus from throat	320	10/31	....	..	..	11/ 7	Chloroformed	+	0	+	0	Abscess in heart muscle
184.	Staphylococcus and streptococcus from throat	332	11/ 2	....	..	..	11/ 8	Chloroformed	+	0	+	0	
	Staphylococcus and streptococcus from throat	333	11/ 2	....	..	..	11/ 8	Chloroformed	0	0	0	0	
187.	Staphylococcus and streptococcus from throat	346	11/ 7	....	..	..	11/15	Chloroformed	0	0	0	0	
	Staphylococcus and streptococcus from throat	347	11/ 7	....	..	..	11/18	Chloroformed	0	0	0	0	
188.	Staphylococcus and streptococcus from tonsils	342	11/ 7	....	..	..	11/13	Chloroformed	+	0	+	0	Abscesses in heart and shoulder muscles; pus in knee joints
	Staphylococcus and streptococcus from tonsils	343	11/ 7	....	..	..	11/13	Chloroformed	+	0	0	0	

The results of the experiments in these four cases have been tabulated in Table 1, so that they may be readily compared. These experiments show clearly that the organisms isolated from the throat have a much greater tendency to localize in the kidney than do the colon bacilli isolated from the urine. This is in keeping with the experiments of Helmholz and Beeler,[4] in which colon bacilli isolated from the urine of human pyeltis tended to localize in the kidneys of rabbits in only about 12 per cent. of the experiments, and also tended to localize in the gallbladder and other regions. The frequency of localization of the ear and throat was found that the staphylococci isolated from the ears and other sources did not tend to localize in the kidney; in staphylococci isolated from individuals without renal lesions, there was a quite constant tendency to localize in the substance of the kidney. It was seen, therefore, that the apparent tendency of staphylococci to localize in the kidney in these cases was practically no greater than that of staphylococci obtained from other sources. The surprising fact was the almost total absence of the streptococci in the cultures from the kidney.

In only one of ten injections did the colon bacillus isolated from the urine produce lesions in the substance of the kidney or the pelvis, corresponding very closely to the 12 per cent. positive results of Helmholz and

4. Helmholz, H. F., and Beeler, Carol: Experimental Pyelitis in the Rabbit, J. Urol. 2: 395-419 (Oct.) 1918.

Beeler with similar cultures. In the six animals injected with mixtures, two had lesions, and in both, the staphylococcus was isolated from the renal lesions. In one instance in which there were no renal lesions, staphylococci, streptococci and colon bacilli were isolated from the heart's blood. Seven of the sixteen animals in which the organisms from the primary infection were injected received streptococci alone, and two of them had lesions. The other nine received injections of a mixture of streptococci and staphylococci, and six had lesions; in none of these was the streptococcus isolated. In the staphylococcus controls, the results vary. There were two infections of the kidney from nine injections with staphyloccocus from the tonsils, four from six cultures from the ear, and five from nine cultures taken from the throat. The entire group of experiments is summarized in Table 2 in order to show the comparative results of the experiments.

COMMENT

These experiments demonstrate that staphylococci have a tendency to localize in the kidneys of the rabbit on intravenous injection. The tendency is no greater in staphylococci isolated from patients with involvement of the urinary tract than in those patients without such involvement. When staphylococci and streptococci were injected, it was only exceptionally that the urine contained any bacteria other than staphylococci. If it were possible to transfer these results to human cases, it would mean that the primary acute infection has no direct bearing on the invasion of the urinary tract by the colon bacillus. Futhermore, in the infections studied, it is probable that the streptococcus, rather than the staphylococcus, was the organism responsible for the primary infection. Experiments with the colon bacillus isolated from spontaneous pyelitis in the rabbit show that the colon bacillus may take on specific powers of localization on intravenous injection; this has been successful only in exceptional instances with colon bacilli isolated from pyelitis in man. Elective localization with the streptococcus from human material in the rabbit has been repeatedly demonstrated. It would seem, therefore, as a result of our experiments that the growth of the colon bacillus in the urinary tract is the result of a favorable medium produced by a lowering of the resistance of the individual, rather than by a specific tendency on the part of the streptococcus, or staphylococcus, to localize in the kidney and prepare the soil for the colon bacilli.

It is questionable, furthermore, whether the pyelitis of infancy complicating an acute infection is to be compared with the chronic cases studied by Bumpus and Meisser, particularly since the removal of the primary focus in the cases studied was associated with the temporary appearance of the organism in the urine, and then with the clearing up of the pyelitis.

It has been repeatedly observed that chronic pyelitis which persists in the presence of infected tonsils will clear up with their removal. Case 4 is a case in point. The treatment was discontinued after the removal of the tonsils and the carious teeth, and the pyelitis, which had persisted in spite of treatment up to this time, cleared up. In like manner, Marriott [5] and Langstein [6] have called attention to a group of nutrition disturbances complicated by pyelitis in which the pyelitis clears up as soon as the nutritional condition of the infant is improved. Thus, the lowered resistance of the respiratory infections and nutritional disturbances seems to predispose to pyelitis, rather than some specific infection of the kidney, which locally prepared the way for the colon infection. Only when we know definitely that the colon bacillus is carried to the kidney by the blood stream and not to the pelvis by a reflux from the bladder through the incompetent ureteral valve, shall we be able to assume that there is a local action of the primary infection in the kidney.

TABLE 4.—*Summary of Control Experiments*

Animals Injected with Staphylococci and Streptococci		
Source of Cultures	Number Injected	Number with Renal Lesions
Tonsils	9	2
Ear	6	4
Throat	9	5

CONCLUSIONS

1. In four cases of pyelitis secondary to upper respiratory infection, the organism causing the primary infection did not reveal a tendency to localize in the kidney when injected intravenously into rabbits.

2. No evidence was found that would tend to show that the primary infection acts specifically; but it probably produces a general lowering of resistance of the urinary tract to the colon bacillus, and gives it an opportunity to develop and produce inflammation.

ABSTRACT OF DISCUSSION

DR. LANGLEY PORTER, San Francisco: The points brought out illustrate what an enormous amount of experimental work properly equipped men can do to prove facts that are perfectly obvious clinically. One of the things that have been known ever since Ashley first taught us anything about the clinical side of this subject is that a child may develop a pyelitis, and apparently be cured; but whenever it develops ear or a throat trouble, or an infection of any other part, there comes a lighting up, so to speak, of the pyelitis. One of the most tricky things we have to deal with in clinical medicine undoubtedly is that fact, a fact that has caused many a good man to tumble, satisfied with a diagnosis of pyelitis, which was merely secondary. The points brought out experimentally by Dr. Helmholz bear out the work that Barhardt, who unfortunately died early in his career, reported about twenty years ago from the London Hospital. He was one of the men who first described the multiple honeycombed infected kidney, which also bears the name of Brewer of New York, the Barhardt-Brewer kidney. In those cases it was noted many times that the only organism unduly prominent was the colon bacillus, while the kidney lesions themselves brought other organisms, of various kinds. Of course, bacteriology of that date was not nearly so accurate an art as it is at present. The work of Dr. Helmholz bears that out. Also, investigations show that we shall find one kidney infected, carrying a great many colon bacilli in the urine, and another kidney carrying a very few streptococci.

DR. H. F. HELMHOLZ, Rochester, Minn.: I should like to add that, through the work of Churchman on the use of dyes, we now have a better method of studying urinary cultures. By the addition of acid fuchsin, it is possible to kill off practically all of the colon bacilli in the urine, and it is possible that, in some instances, we may now be able to get the so-called primary infecting organisms that we were formerly unable to obtain, owing to an overgrowth of the colon bacillus.

5. Marriott, W. M., in discussion on Treatment of Pyelitis, J. A. M. A. **79**: 299 (July 22) 1922.

6. Langstein, L.: Zur Therapie der Pyelitis im Säuglingsalter, Therap. Halbmonatsh. **34**: 695, 1920.

TYPHUS FEVER IN SOUTHERN CALIFORNIA *

L. M. POWERS, M.D.
LOS ANGELES

My purpose is to call attention to the danger of typhus fever becoming endemic in the southwestern portion of the United States, and to urge the local authorities to action in preventing such a condition. Therefore, this paper is limited in its scope.

The first recognized and recorded cases of typhus fever in southern California occurred in the summer of 1916, when many Mexicans came to this section during a civil war in their own country. Many of these were of the peon class and came from districts of Mexico where this disease was endemic. The first case seen in Los Angeles came from a laboring camp of the Santa Fe Railroad in Arizona. The patient had visited El Paso on the border of old Mexico, and he was dead when I saw him. I made the diagnosis in collaboration with the necropsy surgeon of Los Angeles County. The patient's wife was taken to a Phoenix hospital from her home in Arizona as a suspected case of typhoid, and died. One of the first cases occurred in a young lawyer who had a large Mexican clientele and who also had visited the Mexican border. He had a light form, and recovered. No vermin were found on him. Several cases were brought into the Los Angeles County Hospital from railroad camps. Most of them had become infected before having come to southern California. Few secondary cases occurred.

Typhus at Los Angeles

Case	Age	Sex*	Taken Sick	Entered Hospital	Nativity	Length of Residence in County	Laboratory Findings
1	59	♂	7/ 4/22	7/11/22	U. S.	21 yrs.	Weil-Felix reaction positive
2	24	♂	3/ 6/22	3/13/22	U. S.	2 yrs.	Weil-Felix reaction positive
3	69	♂	.....	7/13/22	U. S.	1 mo.	Weil-Felix reaction positive
4	..	♂	.....	.....	.....	.....	Negative (?)
5	23	♂	10/ 7/22	10/15/22	Canada	3 yrs.	Weil-Felix reaction positive
6	29	♂	10/13/22	10/21/22	U. S.	3 mo.	Weil-Felix reaction positive
7	22	♂	10/15/22	10/24/22	Mexico	4 mo.	Weil-Felix reaction positive
8	22	♂	11/ 5/22	11/13/22	Mexico	2 yrs.	Weil-Felix reaction positive
9	19	♀	11/15/22	11/18/22	Mexico	2 yrs.	Negative (?)
10	36	♀	12/ 4/22	12/11/22	Russia	2 yrs.	Weil-Felix reaction positive
11	72	♂	3/11/23	3/11/23	England	4 yrs.	Weil-Felix reaction positive

* In this column, ♂ indicates male; ♀, female.

Because of the low intelligence of many of these peons, they were not allowed to stop in the city, but were taken by the railroad company to camps along the railroad, where they could be educated to follow instructions and to protect themselves from accident. For this reason, we presume, no definite spread of the disease occurred in the city.

Soon after the first appearance of typhus in California, the United States government established quarantine and disinfecting stations at the border. Together with the state, it secured cooperation at the various railroad camps along the different railroads in the state in delousing the inmates of the camps, thereby preventing further extension of the disease.

There have been reported to the state board of health twenty-eight cases since the spring of 1916. Of these, twenty occurred in southern California. The United States Public Health Service and the state board of health, by prompt activities, succesfully prevented epidemics of the disease.

In Los Angeles, in the last eighteen months, several cases have occurred among a different class of people from those who first brought the disease to southern California. All of those who have had the disease during the last eighteen months were residents of the city, and many of them were ordinarily clean and free from vermin; but they had visited Mexican settlements or traveled on public conveyances.

Dr. H. B. Keyes, an intern at the County Hospital of Los Angeles, has kindly furnished me with full reports of eleven cases treated in that hospital during the last eighteen months. A summary of these is given in the accompanying table.

The histories show that all the patients were residents and that they were taken sick at different times and in different locations; so far as we can learn, there has been no common source of infection among this group of cases. Evidently each patient was infected by the louse, but where and how we do not know. Nor do we know how long a louse will live in clothing or in a house, or how long, after having been infected, the louse can convey the disease.

There is danger of the disease becoming endemic, particularly if a mild form is introduced, which might not be recognized on all occasions, thereby infecting localities in different cities, and the necessary precautions would not be taken to arrest and prevent the extension of the disease. It is the duty of each community, therefore, to be on guard against this disease and to adopt such measures as will prevent its spreading and becoming endemic. The public should be taught the necessity of precaution against this loathsome insect, because it conveys not only typhus but also other diseases. The public is not aware as to how typhus fever is transmitted, consequently, the people are ignorant of the necessary means to be taken to prevent this disease from becoming endemic in their community.

The destruction of lice in the schools, in lodging houses, and in fact wherever the louse may be found, is essential for the protection of the general health.

The history of typhus has shown that the mild or latent form becomes more virulent during war time, famine, or other lowered condition of the general health. Each community should protect itself by establishing delousing stations at its hospitals, clinics and jails.

We hope to see an organized crusade against the louse in every community bordering on Mexico, the source of our infection.

The health commissioner has recommended the following to the authorities of Los Angeles:

HYGIENIC STATION

There is much need of an institution for improving the personal hygiene of a class of people who are dirty and infected, and who have no regard for cleanliness and no fear of bringing dangerous troubles to others.

These people, if they had a will or desire to be clean, have no facilities. A properly installed institution, equipped with means of sterilizing or delousing, with wash tubs and baths

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

having hot and cold water, should be provided, so that any person who wishes to wash his clothing, sterilize the same and take a bath may do so. Those who do not wish to be cleaned may, by ordinance, be forced to clean up. These people are as dangerous to the public as those infected with any form of disease.

ABSTRACT OF DISCUSSION

DR. WALTER M. DICKIE, Sacramento, Calif.: Although typhus fever has been endemic in southern California, we have felt very little alarm with reference to it on account of the efficiency of the health department there, and also on account of the climatic conditions existing in that part of the state. It is very difficult to control or eradicate this disease when it appears in our large cities, especially on account of public opinion and also on account of the expense that is necessary to carry on an extensive campaign of sanitation; and, of course, that is very difficult at the present time, as it is not compatible with the wave of economy that is spreading through this part of our country, as well as through the country as a whole. I believe that investigations into these cases should be made in the district within which they are found, especially in the district in which the patients live, and that these investigations should cover quite an extensive area, and that all cases of recent sickness should be investigated and a bacteriologic examination made of the people living within that district. Also, if cases are found after a bacteriologic examination, the disinfestation of the people should be undertaken, and a general vigorous campaign of sanitation at the same time. It may be necessary, after finding infestation, that the individual be removed from the district and a thorough disinfection and cleaning up follow. I believe also, as Dr. Powers has suggested, that it would be necessary to have a delousing station. Of course, it is a good deal easier to handle these cases when they occur among large groups, for instance, in the army, or where people come from ships and can be controlled absolutely. Probably it would be very difficult to get people to go voluntarily through delousing stations. It would also be difficult to round them up. I believe, however, that it is important that we have such a station, but that the individual investigation from an epidemiologic standpoint is probably the most essential undertaking.

DR. WILLARD J. STONE, Pasadena, Calif.: Although I have not seen all of the patients with typhus fever treated in the Los Angeles Hospital in the last two or three years, I have seen a sufficient number to warrant a brief review of the clinical symptoms. Most of these patients were admitted on an incorrect or tentative diagnosis, usually measles or typhoid. It has always been a question in the hospital as to whether or not some of these cases diagnosed, eventually, as typhus fever were not, in fact, instances of Rocky Mountain spotted fever. I think the question may be brought up also as to whether some of the cases occurring farther north that were diagnosed as Rocky Mountain spotted fever may not have been typhus. The interesting fact, so far as the mild types of the disease are concerned, is that in some instances typhus was not recognized as such until the patient had been in the hospital two or three days, and yet there were no instances of cross infection. The main symptom in the early diagnosis of this condition is the rash, larger and smaller maculopetechial spots occurring in the same area. There is also a peculiar erythematous mottling that is quite characteristic. In many cases the temperature is not high, that is, no more than a degree or two of fever. There is a tendency to delirium and mental cloudiness, which is also quite characteristic. A relative lymphocytosis and leukopenia usually are present, with a negative Widal reaction and a negative typhoid blood culture. In all cases in which the diagnosis of typhus fever has been made in the Los Angeles County Hospital, so far as I am informed, there has been a positive Weil-Felix reaction.

DR. J. W. KERR, Washington, D. C.: In times past, typhus fever has been regarded as one of the great epidemic diseases of the world, and provision has been made annually for its prevention since in the early eighties when Congress first made provision for the control of this and other major quarantinable diseases. It was generally regarded as a ship-borne disease. It is also a disease of disturbed times. Until recently, we, as health officers, gave little thought to the danger of the disease from over our borders. At all the maritime ports we have quarantine stations, and we have had the necessary preparation for taking care of outbreaks of typhus aboard ship. Typhus fever has occurred endemically in Mexico since shortly after the conquest. Many outbreaks of the disease occurred in Mexico in the nineteenth century; perhaps the worst was in 1861. Notwithstanding the close proximity of Mexico to the United States, during the Civil War we were notably free from occurrences of this disease among the troops of either the Confederate or the Union army. Only when conditions in countries become such as to give rise to famine and squalor does typhus fever attract attention. In 1911, the Public Health Service actually authorized and carried out an expedition into Mexico to determine the identity of "tabardillo" and Rocky Mountain spotted fever. These two diseases proved to be different. The investigators, however, were fortunate in determining the identity of tabardillo and the so-called Brill's disease. The fact that a disease had been recognized in New York as new and case after case reported for a period of twenty years by men so eminent as Dr. Brill, shows how difficult its recognition is, and how possible it is for endemic foci of disease to occur without recognition. The louse is the single carrier of the disease. We speak rather loosely, however, of delousing. The general impression seems to be that delousing is about as simple as taking off one's clothes. It is not a simple matter. Passengers from Mexico enter by two or three main routes. The patients that are likely to transmit typhus fever are the peons, who have been brought to this country to overcome the labor shortage on the railroads and in the mines. The railroads, being interested, have established observation stations in cooperation with the state and federal authorities, and they have declined to carry passengers who have not complied with the regulations prescribed. This has been a wonderful help to the health authorities in the control of the disease. But, even with these precautions, measures taken on the border cannot be 100 per cent. perfect. If we make it 100 per cent. perfect, we limit commerce and defeat the purpose which one is attempting to accomplish, because it is difficult to patrol 1,500 or 2,000 miles of border. Therefore, the most important single thing to do to prevent typhus fever in the Southwest is for physicians to become familiar with the manifestations of the disease, in order that it shall not appear in the mountains of the southern section in an essentially endemic form as it did in New York for almost twenty years. We are now making use of a diagnostic test on which federal health officers have relied greatly, namely, the Weil-Felix reaction. If the reaction is positive, the quarantine officer is almost in duty bound to hold the passenger, sometimes at great disadvantage to the ship. Typhus fever disappears during the hot season, and it is not a disease of the tropics. We therefore have the problem before us of determining the maximum temperature and other atmospheric conditions under which this disease develops and continues. There is one area of the Rio Grande Valley from which cases have been reported, the so-called attenuated disease "Rio Grande fever." This disease deserves greater study. It may be analogous to the cases of Brill's disease which occurred in New York.

DR. S. W. WELCH, Montgomery, Ala.: Last summer we had four cases in isolated districts in Alabama that gave the Weil-Felix reaction and all of the clinical symptoms of typhus fever. They were confirmed by competent authority as being cases of typhus fever. The patients were residents of the community in which they lived, and had not been away from those communities, in two instances, in more than two years. None had been in contact with typhus fever. Subsequent to that we had an outbreak of dengue fever in Alabama, and in the course of the summer a number of other cases gave the Weil-Felix reaction. I am throwing these facts out as a suggestion for contemplation.

DR. L. M. POWERS, Los Angeles: What we are anxious to do and are more particularly concerned about is to prevent the disease becoming endemic in the larger cities around the

borders of old Mexico. Unless these cities take notice and prevent the spread of this disease it will become endemic, if it has not already become so in Los Angeles and some of the southern parts of California. I know of no better means of control than the establishment of delousing stations, because the louse transmits the disease. Of course, we all know that Los Angeles is the haven of tramps, and of every one else, so far as that is concerned. If, with the cooperation of the police, we could delouse a portion of the lousy, and if other cities would do the same, we should be prepared to meet the epidemic whenever it would arise. As it is, many of these cases are seen by some one who never saw a case of typhus fever and has no idea of it. There may be no eruption or anything to cause the attending physician to suspect this disease. Some of the cases are diagnosed as pneumonia, some as influenza, some as typhoid fever, and some as measles. The chances of our getting hold of those cases in time to prevent the spread are very remote.

EXPERIMENTAL SCARLET FEVER*

GEORGE F. DICK, M.D.
AND
GLADYS HENRY DICK, M.D.
CHICAGO

A nurse who was taking care of a patient with scarlet fever acquired the disease in a mild but typical form. Two days before the onset of symptoms, she noticed that she had a sore finger. On the second day of the disease, when the rash was intense, a few drops of pus were obtained from the lesion on her finger.

Gram, Giemsa and Levaditi stains were made of direct smears of this pus. They contained many polymorphonuclear leukocytes and numerous single and paired gram-positive cocci; also an occasional gram-positive diphtheroid bacillus. Cultures of the pus were made on the surface of freshly prepared sheep's blood agar plates. Anaerobic cultures were made in tubes of ascites broth which contained pieces of fresh rabbit kidney, and on human blood agar slants. Smears and dark field preparations of the anaerobic cultures were examined at frequent intervals during two weeks' incubation. No organisms were found in them other than the hemolytic streptococcus and the diphtheroid bacillus, which grew on the aerobic blood agar plates.

At the end of twenty-four hours' incubation, the aerobic sheep's blood agar plates showed many colonies of a hemolytic streptococcus and a few colonies of the diphtheroid bacillus noted in direct smears. The hemolytic streptococcus colonies were about 2 mm. in diameter, with a hemolyzed area about 4 mm. across. They were translucent gray, with an even outline and an umbilicated surface. On these first plates there was no green color around the colonies. In later plates of a pure culture of the hemolytic streptococcus, a faint green ring was frequently seen at the periphery of the hemolyzed zone. This streptococcus produced acid constantly in mannite, dextrose, lactose, saccharose, maltose, galactose, dextrin, salicin, and raffinose fuchsin broth, and in milk. It did not ferment dulcite or inulin.

An apparently pure culture of the streptococcus was obtained by plating out single colonies. During the two months following its isolation, no organisms other than the hemolytic streptococcus were demonstrated in this culture. It was repeatedly plated out and single colonies were again plated out. Various types of anaerobic cultures were made and examined in the dark field. Gram, Giemsa and Levaditi stains of the various types of subcultures were examined at frequent intervals, without result.

Five volunteers selected and observed, as reported in previous experiments,[1] were inoculated by swabbing on the tonsils and pharynx 4 day old cultures of the hemolytic streptococcus grown on sheep's blood agar slants.

Three of these experiments were entirely negative. In one volunteer the inoculation was followed by a sore throat and fever without a rash.

This was a young man, aged 27. He had no symptoms or fever on the first and second days after inoculation. On the third day, fifty-four hours after inoculation, he complained of a sore throat and headache and some general malaise. The pharynx was reddened. The tonsils were swollen. The cervical lymph glands below the angle of the jaw on each side were slightly enlarged and tender. The temperature by mouth was 100 F. There was no rash on the soft palate or on the skin. The next day the highest temperature by mouth was 99.6. The general condition was better. The throat was still red, and the cervical lymph glands were larger. On the fifth day after inoculation, the temperature was normal, the throat was less red, and the cervical lymph glands were less tender. The patient made a rapid and complete recovery.

The fifth volunteer, who had been inoculated with the hemolytic streptococcus after it had been grown on artificial medium three weeks, developed typical, mild scarlet fever.

This was a woman, aged 25. Forty-four hours after inoculation, she complained of a sore throat, headache, backache and general malaise. She was nauseated, but did not vomit. Her temperature by mouth was 100.8 F. There was a faint rash on the skin of the abdomen and chest. During the afternoon, the temperature rose to 101. There was a rash on the soft palate. The rash on the skin had become more intense and spread to the arms and legs. It was a typical scarlatinal rash. The leukocyte count at this time was 18,600, with 76 per cent. polymorphonuclear leukocytes. On the fourth day after inoculation and the second day of the disease, the highest temperature was 101.2. The rash was still intense. On the third day of the disease, the patient felt better. Her highest temperature that day was 100. The rash had not faded. On the fifth day the temperature returned to normal, and the rash began to fade. Recovery was uncomplicated. On the second day of illness there was a trace of albumin in the urine. During convalescence, the urine was normal. On the tenth day, the skin at the tips of the fingers began to break. During the third week, definite desquamation of the fingers and toes began. At the end of the third week, the hands and feet presented a ragged appearance, owing to the tags of skin hanging from them. By the end of the fourth week, desquamation was almost complete.

Bottles of sheep's blood agar were prepared by adding a quantity of bouillon to the agar before it solidified. This resulted in a large amount of condensation fluid. These bottles were inoculated with the hemolytic streptococcus and incubated four days. The condensation fluid was then passed through Berkefeld V filters. Part of each filtrate was cultured and part was immediately swabbed on the tonsils and pharynx of a volunteer. Cultures of the filtrates were uniformly sterile. During the second month after its isolation, filtered cultures of the hemolytic streptococcus were inoculated into five volunteers. During the ten or twelve days that followed the filtrate inoculations, all of these volunteers remained well. They had no sore throat, fever or rash.

On the eleventh day following inoculation with the filtrate, four of the volunteers were inoculated with an

* From the John McCormick Institute for Infectious Diseases.

1. Dick, G. H., and Dick, G. F.: Experimental Inoculations in Scarlet Fever, J. A. M. A. **77**: 782-785 (Sept. 3) 1921.

unfiltered 4 day old culture of the hemolytic streptococcus. After this second inoculation, two remained well without any evidence of scarlet fever. One complained of some general malaise and sore throat fifty-four hours after inoculation with the unfiltered culture. The temperature by mouth was 100 F. The anterior pillars of the fauces were reddened, and the tonsils were somewhat swollen. There was no rash on the palate or on the skin. The next morning, the temperature was 101.4. The throat was still red, but there was no rash. During the afternoon of that day, the temperature fell to normal. There were no further symptoms.

One volunteer remained well until the fifth day following inoculation with the unfiltered culture. On that day he complained of a sore throat. The pharynx was reddened, and the cervical lymph gland below the angle of the jaw on the right side was slightly enlarged but not tender. There was no fever and no rash. The next day the throat felt better. No further symptoms developed.

The other volunteer of this series, a woman, aged 23, was inoculated with an unfiltered culture of the hemolytic streptococcus on the thirteenth day after inoculation with the filtered culture.

Just forty-eight hours after inoculation with the unfiltered culture, she complained of a slight sore throat and some general malaise. Four hours later the temperature by mouth was 99.4 F. Her face was flushed. The pharynx and anterior pillars were reddened. In the evening of the third day after inoculation with the unfiltered culture, there was a faint, but definite, scarlatinal rash over the chest and abdomen and in the axillae. On the morning of the fourth day after inoculation and the second day of illness, the temperature was 100.8. There was a rash on the soft palate. The tonsils were moderately swollen. The cervical lymph glands on both sides were enlarged and tender. The rash was more intensely red and had spread over the entire body. It was a typical scarlatinal eruption of moderate intensity. The leukocyte count was 17,800, with 81 per cent. polymorphonuclear leukocytes. The next day the highest temperature was 99.8. The rash was still present. On the fifth day following inoculation and the third day of the disease, the temperature fell to normal. The urine was normal except for a trace of serum albumin on the second and third days of the disease. The rash began to fade on the fourth day. There was some early desquamation on the body. The skin at the tips of the fingers began to show small, opaque white areas at the beginning of the third week. By the end of the third week, desquamation of the hands and feet was marked. It was complete at the end of five weeks.

COMMENT

The two cases of experimental scarlet fever reported were probably caused by the hemolytic streptococcus or by some unrecognized organism closely associated with it in cultures.

The second case reported indicates that, if such an unrecognized organism was present, it did not pass through a Berkefeld V filter.

These experiments do not justify the conclusion that all cases of scarlet fever are caused by the hemolytic streptococcus described.

Rest a Prescriptive Medicine.—Rest is really a potent medicine, to be prescribed and "dosed out" only according to the requirements of each individual case and with discretion, by physicians who understand its use. Discipline, regulation of life, is really the keynote to success in treatment—with rest always the basis.—A. K. Krause: Rest and Other Things, p. 17.

STUDIES ON ANEURYSMS

II. ANEURYSMS OF THE AORTA*

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AND
MARION HAGUE REA, A.B., M.D.
PHILADELPHIA

In a previous paper we[1] have presented statistical data on the incidence, relative frequency in different countries, location, race, age, sex and number of aneurysms in general, and of 321 internal aneurysms in particular which were studied postmortem at the Philadelphia General Hospital and the Hospital of the University of Pennsylvania.

The present paper treats of 263 aneurysms of the aorta, with especial reference to their shape, size, position, direction and effect on neighboring structures. The aneurysms of the several customary anatomic subdivisions of the vessel are analyzed separately. The exact shape, size, location and direction of the aneurysms was not always recorded in the protocols; in our tables we have therefore stated the number of cases in which such data were obtainable.

The incidence of sex and color has been stated separately in each of the several groups of aneurysms. Since, however, multiple aneurysms are of frequent occurrence not only in any one of the groups, but particularly in different groups, the total number of aneurysms studied will exceed the number of persons that bore them. Thus, the 263 aortic aneurysms of our present series occurred in 217 persons; of these, 184 were males (117 white, fifty-five black, twelve, color not stated) and thirty-three were females (twenty-two white, six black, five, color not stated). These figures are proportionately similar to those we have previously published for aneurysms in general. They show the preponderance of the male sex and the relatively high incidence in the negro (since in 5,000 admissions to the medical wards of the Philadelphia General Hospital the ratio of whites to negroes was about 15 to 1).

The size of the aneurysms was often recorded in terms of a familiar object (walnut, apple, man's head); for the sake of uniformity, we have transposed such values into approximate metric measurements; the dimensions given in our table apply to the greatest external diameter of the dilatations. The effects on neighboring structures have been considered under the headings: adhesions, compression, erosion and rupture. It will be noted that erosion of any tissue is always accompanied (and preceded) by adhesion to the structure to be eroded, and that commonly the aneurysm has also produced compression. In bones only erosion seems to take place without *grossly* demonstrable compression. The distribution of the aneurysms is as follows: Sixty-two involve the ascending arch; twenty-three, the junction of the ascending and transverse arch; forty-six, the transverse arch; forty-two, the descending arch; nineteen, the entire arch; thirty-one, the thoracic aorta; forty, the

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* From the McManes Laboratory of Pathology, University of Pennsylvania, and the Pathological Laboratory, Philadelphia General Hospital.

* Read before the Section on Pathology and Physiology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Lucke, Baldwin, and Rea, Marion H.: Studies on Aneurysm, 1, General Statistical Data on Aneurysm, J. A. M. A. **77**: 935 (Sept. 17) 1921.

abdominal aorta. In other words, 191 aneurysms are located in the aortic arch and twenty-one in the thoracic and abdominal aorta. The detailed results of this study are concisely arranged in tabular form for ready reference (Tables 1 to 7); no additional explanatory text seems necessary.

TABLE 1.—*Ascending Arch*

62 ANEURYSMS OCCURRED IN 59 SUBJECTS
(3 subjects had multiple aneurysms of ascending arch)

SEX AND COLOR:
48 males (31 white, 12 black, 5 color not recorded)
11 females (6 white, 3 black, 2 color not recorded)

TYPE OF ANEURYSM (recorded in 61 cases):	
Saccular	56
Fusiform	2
Dissecting	3
SIZE OF ANEURYSM (recorded in 54 cases):	
Small (from 1 to 4 cm.)	19
Medium (from 5 to 9 cm.)	20
Large (from 10 to 14 cm.)	11
Huge (over 15 cm.)	4
LOCATION OF ANEURYSM (recorded in 43 cases):	
Beginning (first 2 cm.)	20
Middle portion	15
Upper portion	7
Entire ascending arch	1
DIRECTION OF ANEURYSM (recorded in 41 cases):	
To the right	12
To the right, anterior	4
To the right, posterior	4
To the right, downward	3
To the right, upward	3
Anterior	7
Anterior, upward	1
Anterior, to the left	1
To the left	2
To the left, posterior	1
To the left, upward	1
Posterior	2

EFFECT ON NEIGHBORING STRUCTURES

	Adhesion	Compression	Erosion	Rupture
Pericardium	.	.	.	11
Superior vena cava	1	1	1	1
Pulmonary artery	1	1	1	1
Left auricle	1	.	.	.
Right auricle	1	1	.	.
Left lung	.	1	.	.
Right lung	4	3	1	1
Left pleura	.	.	.	1
Left bronchus	2	2	2	2
Right bronchus	.	1	.	.
Trachea	1	3	.	.
Ribs or clavicle	7	.	3	.
Sternum	3	.	2	.
Heart (displacement)	2	.	.	.
Externally	.	.	.	1

TABLE 2.—*Junction of Ascending and Transverse Arch*

23 ANEURYSMS OCCURRED IN 23 SUBJECTS

SEX AND COLOR:
19 males (8 white, 10 black, 1 color not recorded)
4 females (4 white)

TYPE OF ANEURYSM	
Saccular	19
Fusiform	4
SIZE OF ANEURYSM (recorded in 21 cases):	
Small (from 1 to 4 cm.)	1
Medium (from 5 to 9 cm.)	5
Large (from 10 to 14 cm.)	11
Huge (over 15 cm.)	4
DIRECTION OF ANEURYSM (recorded in 9 cases):	
To the right, anterior	3
To the right, posterior	1
To the right, upward	3
To the left, anterior	2
To the left, upward	1

EFFECT ON NEIGHBORING STRUCTURES

	Adhesion	Compression	Erosion	Rupture
Auricles	1	.	.	.
Superior vena cava	.	1	.	.
Innominate vein	.	1	.	.
Left vagus nerve	1	1	.	.
Left recurrent laryngeal nerve	.	2	.	.
Right bronchus	1	1	1	1
Left bronchus	1	2	1	.
Trachea	4	2	2	1
Left pleural cavity	.	.	.	1
Right lung	.	1	.	.
Left lung	1	1	.	.
Esophagus	.	1	.	.
Sternum	5	.	1	.
Ribs or clavicle	5	.	5	.
Heart (displacement)	.	1	.	.

TABLE 3.—*Transverse Arch*

46 ANEURYSMS OCCURRED IN 45 SUBJECTS
(One subject had multiple aneurysms of the transverse arch)

SEX AND COLOR:
39 males (20 white, 15 black, 4 color not recorded)
6 females (2 white, 2 black, 2 color not recorded)

TYPE OF ANEURYSM (recorded in 44 cases):	
Saccular	43
Fusiform	1
SIZE OF ANEURYSM (recorded in 41 cases):	
Small (from 1 to 4 cm.)	2
Medium (from 5 to 9 cm.)	10
Large (from 10 to 14 cm.)	24
Huge (over 15 cm.)	5
LOCATION OF ANEURYSM (recorded in 11 cases):	
Apex of transverse arch	1
Beginning	1
Near origin of left subclavian artery	2
Near origin of left carotid artery	1
Near origin of innominate artery	6
DIRECTION OF ANEURYSM (recorded in 23 cases):	
To the right	2
To the right, upward	2
To the right, downward	1
Anterior	4
Anterior, to the right	1
Anterior, to the left	1
Anterior, upward	2
Anterior, downward	1
To the left	1
Posterior	4
Posterior, to the right	1
Posterior, to the left	1
Posterior, upward	1
Posterior, downward	1

EFFECT ON NEIGHBORING STRUCTURES

	Adhesion	Compression	Erosion	Rupture
Pericardium	.	.	.	1
Esophagus	3	1	2	2
Trachea	5	5	2	1
Left subclavian vein	.	3	.	.
Right lung	3	2	.	.
Left lung	3	4	1	2
Chest wall (anterior)	2	.	.	1
Left pleural cavity	.	.	.	2
Right pleural cavity	.	.	.	1
Sternum	8	.	7	.
Ribs or clavicle	5	.	1	.
Vertebrae	1	.	1	.
Pulmonary artery	.	1	.	.
Vessels of neck	.	1	.	.
Left bronchus	.	1	.	.
Heart (displacement)	.	1	.	.

TABLE 4.—*Descending Arch*

42 ANEURYSMS OCCURRED IN 38 SUBJECTS
(4 subjects had multiple aneurysms of the descending arch)

SEX AND COLOR:
35 males (25 white, 6 black, 4 color not recorded)
3 females (2 white, 1 black)

TYPE OF ANEURYSM:	
Saccular	40
Fusiform	2
SIZE OF ANEURYSM (recorded in 39 cases):	
Small (from 1 to 4 cm.)	10
Medium (from 5 to 9 cm.)	10
Large (from 10 to 14 cm.)	13
Huge (over 15 cm.)	6
LOCATION OF ANEURYSM (recorded in 31 cases):	
Beginning	15
Middle portion (opposite 2d and 3d dorsal vertebrae)	4
Lower portion (opposite 4th dorsal vertebrae)	4
Entire descending arch	8
DIRECTION OF ANEURYSM (recorded in 22 cases):	
Posterior	7
Posterior, to the left	6
Posterior, upward	3
Posterior, to the right	1
To the left	3
To the left, upward	1
Anterior	1

EFFECT ON NEIGHBORING STRUCTURES

	Adhesion	Compression	Erosion	Rupture
Esophagus	4	2	3	3
Left lung	4	4	1	1
Left pleural cavity	.	.	.	5
Left bronchus	1	1	1	.
Right pleural cavity	.	.	.	1
Right bronchus	1	.	1	1
Subcutaneously (anterior)	.	.	.	1
Trachea	2	1	.	.
Spinal cord	.	1	.	.
Heart (displacement)	.	1	.	.
Left subclavian vein	1	1	.	.
Vertebrae	16	.	16	.
Ribs	8	.	8	.
Sternum	1	.	1	.

TABLE 5.—*Entire Arch*

19 ANEURYSMS OCCURRED IN 19 SUBJECTS

SEX AND COLOR:
17 males (12 white, 3 black, 2 color not recorded)
2 females (1 white, 1 black)

TYPE OF ANEURYSM:	
Saccular	6
Fusiform	13
SIZE OF ANEURYSM (recorded in 18 cases):	
Medium (from 5 to 9 cm.)	8
Large (from 10 to 14 cm.)	9
Huge (over 15 cm.)	1
DIRECTION OF ANEURYSM (recorded in 8 cases):	
Posterior	1
Posterior, upward	4
Anterior	1
Anterior, to the left	1
Anterior, to the right	1

EFFECT ON NEIGHBORING STRUCTURES

	Adhesion	Compression	Erosion	Rupture
Trachea	1	.	.	.
Left lung	1	1	.	.
Left bronchus	.	1	.	.
Sternum	3	.	3	.
Vertebrae	3	.	3	.
Ribs	3	.	3	.

TABLE 6.—*Thoracic Aorta*

31 ANEURYSMS OCCURRED IN 27 SUBJECTS
(3 subjects had multiple ansurysms of the thoracic aorta)

SEX AND COLOR:
25 males (16 white, 8 black, 1 color not recorded)
2 females (2 white)

TYPE OF ANEURYSM:	
Saccular	26
Fusiform	4
Dissecting	1
SIZE OF ANEURYSM (recorded in 27 cases):	
Small (from 1 to 4 cm.)	7
Medium (from 5 to 9 cm.)	8
Large (from 10 to 14 cm.)	10
Huge (over 15 cm.)	2
LOCATION OF ANEURYSM (recorded in 25 cases):	
Beginning (level of 4th and 5th dorsal vertebrae)	7
Middle portion (level of 6th to 8th dorsal vertebrae)	3
Lower portion (level of 9th and 10th dorsal vertebrae)	5
Entire thoracic aorta (level of 4th to 10th dorsal vertebrae)	10
DIRECTION OF ANEURYSM (recorded in 17 cases):	
Posterior	4
Posterior, to the right	2
Posterior, to the left	3
To the left	6
To the right	2

EFFECT ON NEIGHBORING STRUCTURES

	Adhesion	Compression	Erosion	Rupture
Diaphragm	2	.	.	.
Vertebrae	17	.	16	.
Ribs	7	.	7	.
Left pleura	.	.	.	6
Left lung	4	4	.	1
Anterior chest wall	1	.	.	.
Abdominal cavity	.	.	.	1
Left bronchus and trachea	.	2	.	.
Heart (displacement)	.	3	.	.
Esophagus	.	1	.	.

TABLE 7.—*Abdominal Aorta*

40 ANEURYSMS OCCURRED IN 38 SUBJECTS
(2 subjects had multiple aneurysms of the abdominal aorta)

SEX AND COLOR:
32 males (22 white, 9 black, 1 color not recorded)
6 females (5 white, 1 color not recorded)

TYPE OF ANEURYSM (recorded in 34 cases):	
Saccular	30
Fusiform	3
Dissecting	1
SIZE OF ANEURYSM (recorded in 37 cases):	
Small (from 1 to 4 cm.)	9
Medium (from 5 to 9 cm.)	11
Large (from 10 to 14 cm.)	9
Huge (above 15 cm.)	8
LOCATION OF ANEURYSM (recorded in 37 cases):	
Just below diaphragm	11
At or near celiac axis	11
Lower portion	13
Entire abdominal aorta	4
DIRECTION OF ANEURYSM (recorded in 21 cases):	
Posterior	2
Posterior, to the left	5
Posterior, upwards	2
Anterior	6
Anterior, lateral	2
Anterior, to the right	1
To the left	3

EFFECT ON NEIGHBORING STRUCTURES

	Adhesion	Compression	Erosion	Rupture
Diaphragm	6	.	6	.
Vertebrae	20	.	17	.
Ribs	1	.	.	.
Retroperitoneal tissues	5	.	.	5
Peritoneal cavity	.	.	.	5
Left pleural cavity	.	.	.	2
Right pleural cavity	.	.	.	3
Left adrenal gland	2	.	1	.
Stomach, pancreas, intestines	.	.	.	.
Kidney, liver—each	1	1	.	.
Heart (displacement)	.	1	.	.
Left lung	.	.	.	1

POINTS OF ELECTION FOR AORTIC ANEURYSMS

It is generally agreed that aneurysms arise because of two factors; namely, disease of the vessel wall and the pressure of the blood against this weakened focus. There are certain points of election where aneurysms are particularly apt to occur. This has been especially emphasized by von Rindfleisch,[2] who asserted that aneurysms were located chiefly at certain levels of a spiral line which begins on the ventral aspect of the bulbus aortae, gradually ascends and curves to the right, and traverses the convexity of the arch just to the right of origin of the innominate artery; from here the line descends in a long sweep on the posterior (and mesial) aspect of the thoracic and abdominal aorta. This line does not correspond to areas where the aorta meets less external resistance from neighboring structures, since it is directed, for a considerable part, against the nonyielding vertebral column. Rindfleisch maintained that the spiral corresponds to the line of greatest impact of the whirling aortic blood stream. It is not clear from his writing whether he merely assumed this to be a fact or had experimental evidence for his belief. We shall take up the points of election seriatim, first giving for each group the location and direction according to Rindfleisch and then contrasting our findings with his.

1. Aneurysms at the first point of election (of Rindfleisch's line of impact) arise from the ventral aspect of the aortic bulb and point toward the pulmonary artery; they rupture into the pericardium. In our series, twenty of the forty-three cases had this location, and eleven of the eighteen cases in which rupture occurred perforated into the pericardium.

2. The second point of election is about the middle of the ventral aspect of the ascending arch; the aneurysms point toward the sternum, which is eroded at the manubriogladiolar junction; rupture takes place externally. In our series, fifteen of the forty-three cases were located at this level; they pointed chiefly to the right and anteriorly, but in the total series of sixty-two aneurysms the sternum was eroded only twice and external rupture took place only once. Indeed, we have found external rupture in only two of seventy-six cases of ruptured aneurysm.

3. The third point of election corresponds to about the junction of the ascending and transverse arch, the aneurysm pointing to the right, eroding into the right lung. In our series the chief extension was to the right, and the respiratory tubes and the lungs were most often involved by the extending aneurysm.

4. The fourth point of election lies on the dorsal aspect of the transverse arch, between the innominate and the left carotid arteries; extension of the sac occurs to the right and upward toward the trachea. The

2. Von Rindfleisch, E.: Lehrbuch der pathologischen Gewerbelehre, Ed. 6, Leipzig, 1886, p. 227 et seq.

aneurysm rarely exceeds in size a hen's egg and ruptures into the trachea. We find that, in twenty-three cases, eleven pointed anteriorly, eight posteriorly, five to the right, and one to the left. Of forty-one cases, thirty-four attained a size ranging between 5 and 14 cm. The sternum and the ribs were most often eroded, and rupture into the trachea occurred in only one case.

5. Aneurysms at the fifth point are located on the dorsal aspect of the descending arch; they extend between the left subclavian and the aortic isthmus to the left of the vertebral column; they are often cylindric. We find the majority in our series to be saccular and directed posteriorly to the left.

6. The remaining aneurysms of the aorta all point more or less posteriorly toward the vertebral column, and since they erode the bones but slowly, they usually expand laterally, with eventual fatal hemorrhage into the pleural or peritoneal cavities. The aneurysms lying just above the diaphragm may protrude into the muscular parts of the thoracic wall and attain huge size, without perforation. The majority of the aneurysms of the thoracic and abdominal aorta in our series extended posteriorly; we did not have any examples of extension into the thoracic muscles.

We find, then, that the aneurysms of our series were frequently located along the line of impact of von Rindfleisch, but in every group there were many exceptions.

SUMMARY

The distribution of 263 aneurysms of the aorta, studied postmortem at the Philadelphia General Hospital and the Hospital of the University of Pennsylvania, was as follows: Sixty-two involved the ascending arch; twenty-three, the junction of the ascending and transverse arch; forty-six, the transverse; forty-two, the descending, and nineteen, the entire arch; thirty-one, the thoracic, and forty, the abdominal aorta. The following generalizations have reference only to the behavior of the majority of the aneurysms, and indicate the conditions most frequently encountered; for details, reference must be made to the data presented in the tables.

1. Aneurysms of the ascending arch are of relatively small size; they arise most frequently in the lower portion of the vessel, extending to the right and anteriorly. They become adherent to, compress or erode the neighboring great vessels, the respiratory structures, the ribs, right clavicle and the sternum. Rupture most commonly occurs into the pericardium or the respiratory organs.

2. A considerable number of aneurysms are located at the junction of the ascending and transverse arch. They attain considerable size, extend commonly to the right, and affect especially the neighboring vessels, nerves and respiratory organs, and rupture into the latter.

3. In the transverse arch, aneurysms often attain large size; they arise near the orifices of the great vessels, and extend with equal frequency anteriorly or posteriorly. They commonly affect the sternum and the ribs, compress the trachea and esophagus, and rupture into these structures or into the pleural cavities. External rupture is uncommon.

4. The aneurysms of the descending arch are located most commonly near its junction with the transverse arch. Their extension is mainly posterior and to the left. They frequently involve the esophagus and the left respiratory organs; many cause erosions of the vertebrae and ribs. Rupture takes place especially into the left respiratory organs and the esophagus.

5. The entire arch is most often the seat of large saccular or fusiform dilatations, which extend both anteriorly and posteriorly. The sternum, vertebrae and ribs are the structures eroded.

6. In the thoracic aorta the aneurysms are commonly large and extend posteriorly and to the left, eroding the vertebrae and ribs, and rupture into the left pleura and the lung. Rupture into the abdominal cavity also occurs.

7. In the abdominal aorta, the aneurysms may attain very large size. They are chiefly located just below the diaphragm, at or near the celiac axis, or above the bifurcation. They extend with equal frequency posteriorly or anteriorly, and commonly erode the vertebrae. Rupture takes place with equal frequency into the abdominal cavity, the pleural cavities or the retroperitoneal tissues.

8. The location of the aneurysms in our series corresponds to the so-called points of election along the spiral line of impact described by Rindfleisch in only about one-half the cases; in particular, many aneurysms fail to conform in their direction to Rindfleisch's rules.

ABSTRACT OF DISCUSSION

Dr. F. D. Weidman, Philadelphia: The really valuable part of statistical studies like Dr. Rea's consists in the final analysis and deductions which come after the various data have been distributed. In these final analyzings I found that we can visualize things, and by a very simple expedient; i. e., by staining and marking variously shaped sticks so that each shape and mark will represent some disease feature. Thus, in Dr. Rea's aneurysm work, perhaps a curved stick might represent an "ascending" aneurysm, an angulated stick a transverse aneurysm, and then a red mark on such sticks might represent rupture of an aneurysm, and so on. Then when it comes to analyzing the cases afterward we can gather together all the sticks of one shape or all the sticks that happen to have a red mark or happen to have any symbol on them which has been allotted to a particular feature of aneurysm, and thus analyze the cases by a direct visual method instead of having to keep a great many pros and cons of the subject in one's mind at the same time.

Evolution of Medical Department.—While from the beginning of our history as a nation the medical department of the U. S. Army has great traditions in the line of professional attainments, of devoted service to sick and wounded, and of gallantry in action, . . . good medical department organization was of slow growth and did not flower till fertilized by experience in the Civil War. The story of the medical department of our army in our first war, the Revolution, adds nothing to that of its development to the stage when we entered the World War. Possibly one exception might be made to this statement, for the lack of medical organization in the Continental armies demonstrated that no matter how skilful the doctors, . . . their services were largely wasted with bad organization. From the British we had inherited an organization which distinguished sharply between hospital surgeons and troop surgeons. Baron von Steuben, who wrote our first army regulation, in 1780, maintained the distinction between surgeon, physician and apothecary. These lines of cleavage operated seriously against a united medical department. But the jealousies of the different colonies were even more powerful in preventing a centralized administration, with all medical officers merely parts of a whole, working for the common good. . . .—The Medical Department of the United States Army in the World War, **1,** War Department, 1923.

TECHNIC FOR QUANTITATIVE ESTIMATION OF SUGAR IN VERY SMALL AMOUNTS OF BLOOD*

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A number of methods for the quantitative determination of sugar in small amounts of blood have been described.[1] Of these the method of Folin and Wu [2] is probably the best, because of its simplicity and accuracy. The amount of blood used, though small, is such that it cannot readily be obtained except by venipuncture. This is often a matter of considerable difficulty with infants. When consecutive determinations are to be made within a short time, it is often impossible. For this reason, blood sugar determinations have heretofore been made in this laboratory by the Bang [3] method. This method has the single advantage of requiring only about 100 mg. of blood for a single determination. The technical difficulties of the sugar determination itself are, however, so great that we have recently been compelled to devise a more simple procedure. We have therefore so modified the technic of Folin and Wu that only from 0.05 to 0.1 c.c. of blood is required for a single determination (a quantity that can easily be obtained from a finger prick). In going over the literature we have found descriptions of several modifications of the Folin and Wu method.[4] None of these, however, require less than 300 mg. of blood for a single determination.

TABLE 1.—*Comparison of Results Obtained by Original Folin and Wu Method and by Authors' Technic*

BLOOD SUGAR IN MG. PER 100 C.C. OF SERUM (ANTIPNEUMOCOCCUS)	
Folin and Wu	Authors' Technic
54	53.3
61.4	61.8
58.1	56.5
56.2	57
PIG'S SERUM	
128	125
123	122
111	119
128	128

DESCRIPTION OF THE METHOD

The finger is thoroughly cleansed by means of alcohol and ether, and made to bleed by pricking with a lancet or myringotomy knife. One-twentieth or one-tenth cubic centimeter of blood is drawn into a pipet graduated at 0.05 and 0.1 c.c. When the sugar content of the blood is expected to exceed 100 mg. per hundred cubic centimeters of blood, only 0.05 c.c. of blood is required. The blood is transferred from the pipet to a small tube graduated at 2 c.c. and containing 1.5 c.c. of distilled water, in order to produce complete hemolysis. The water is drawn into the pipet several times to make sure of getting all the blood. To precipitate the proteins, 0.1 c.c. of 10 per cent. solution of sodium tungstate, followed by 0.1 c.c. of two-thirds normal sulphuric acid solution is added. The tube is rolled between the palms of the hands until the mixture changes to a dark brown. The volume is made up to 2 c.c. with distilled water, and the tube is rolled again. It is then allowed to stand for five minutes and is centrifugated for two or three minutes. The supernatant fluid is pipetted off and transferred to a 10 cubic centimeter glass stoppered graduate. If 0.05 c.c. of blood is used, 1.5 c.c. of tungstic acid supernatant fluid is obtained, and 1.4 c.c. of fluid when 0.1 c.c. of blood is used. The fluid is transferred to a Folin-Wu sugar tube graduated at 6 c.c. as well as 12.5 and 25 c.c. To two similar tubes is added 1 c.c. of the standard sugar solution containing 0.1 mg. of sugar. With low blood sugars, an additional standard containing 0.5 c.c. of the standard solution is used.[5] Two cubic centimeters of the alkaline copper solution is added to each tube. The tubes are transferred to a boiling water bath and heated for six minutes. They are then removed from the boiling water bath to a cold water bath and allowed to remain for three minutes. Two cubic centimeters of the molybdate solution is added to each tube. A rubber stopper is inserted, and the contents are mixed thoroughly and then compared in the colorimeter. The standard is first set at 15 and read against itself. One standard is then replaced by the unknown, and several readings are taken in the usual manner.

TABLE 2.—*Sugar Concentration in Blood of Patients Suffering from Various Diseases*

Patient	Diagnosis	Blood Sugar in Mg. per 100 C.c. of Blood
1	Acute nephritis	115
2	Furunculosis	107
3	Tuberculous meningitis	111
4	Cerebrospinal syphilis	100
5	Pertussis	120
6	Tetany	102

CALCULATION

The calculation of the amount of sugar in the sample is carried out as follows: If the amount of sugar in 1.4 c.c. of supernatant fluid representing 0.07 c.c. of blood gives a reading of 18 against a 0.1 mg. standard set at 15, the proportion is:

$$15 : 18 :: x : 0.1 = 0.0833 \text{ mg. of sugar in } 0.07 \text{ c.c. of blood}$$

The complete calculation is as follows:

$$\frac{15 \times 0.1 \times 1000}{18 \times 0.7} = 119 \text{ mg. of sugar per 100 c.c. of blood.}$$

The reagents are prepared in the same way as in the original method of Folin and Wu.

TABLE 3.—*Diabetes Mellitus (Blood Sugar of Patients Treated with Insulin)*

No.	Diagnosis	Blood Sugar in Mg. per 100 C.c. of Blood	Units of Insulin	Time	
7	Diabetes mellitus	272*			
	Diabetes mellitus	210	20	4:30 p. m.	2/27/23
	Diabetes mellitus	163	50	10:30 a. m.	2/28/23
	Diabetes mellitus	161	..	4:30 p. m.	2/28/23
	Diabetes mellitus	102	40		3/ 3/23
	Diabetes mellitus	82	165		3/16/23
8	Diabetes mellitus	153	...		
	Diabetes mellitus	109	52		
9	Diabetes mellitus	300	..		
	Diabetes mellitus	144	254		

* Folin and Wu.

RESULTS

Table 1 gives the results of a series of comparative determinations on antipneumococcus serum by the original Folin and Wu method, and by our modification using 0.1 c.c. of serum.

Table 2 gives the results of sugar determinations on the blood of a small series of nondiabetic patients.

Table 3 illustrates the value of the method in following the effects of insulin on the blood sugar.

The results obtained by this method agree well with those obtained when larger amounts of blood are used.

* From the Department of Pediatrics, Johns Hopkins University.

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5. Additional standards containing 0.75 and 1.25 c.c. of standard sugar solution may be prepared to approximate the unknown.

The special pipets and blood sugar tubes may be obtained of Emil Greiner, 115 Fulton Street, New York.

A COMPARATIVE STUDY OF THE CRYPT CONTENT OF TONSILS OF MAN, PIG AND COW

WITH ESPECIAL REFERENCE TO THE ACTINOMYCES-LIKE GRANULES *

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In the crypts of the human tonsil, characteristic bodies, commonly called actinomyces-like granules, often occur. They are found, roughly, in about 30 per cent. of extirpated tonsils, and they probably appear at times in the crypts of all tonsils. They are small, nonadherent, grayish yellow, somewhat brittle, and foul smelling, and are often multiple and bilateral. On section they reveal a raylike arrangement of filaments, with peculiar brushlike structures at the margins. Smears indicate that they are made up of several varieties of organisms, the most conspicuous of which are coarse, unbranched filaments, coccal forms, fusiform organisms and many large spirochetes. Since descriptions of these bodies have already been published,[1] further details need not be given here.

These bodies, because of their raylike character, have been mistaken for true *Actinomyces*. Their structure, however, is very different from the latter, and they are easily differentiated from it. In an examination of granules from many hundred human tonsils, we have not as yet encountered a single instance of *Actinomyces* occurring in the crypts. In spite of a general impression that actinomycosis of the tonsil is not uncommon, a search of the literature reveals few cases of true primary actinomycosis of this organ. It is extremely rare.[2]

In relation to this subject are certain data in the literature, reported, in large part, years ago, concerning the occurrence of *Actinomyces* in the tonsils of lower animals, notably the hog.[3] In view of these observations it was thought important to investigate further the nature of such bodies in the hog, especially in the light of the recent data obtained with human tonsils. To do this, an adequate supply of material was necessary; this was made available through the courtesy of Dr. Day, U. S. Inspector at the Union Stock Yards, Chicago. Five hundred tonsils were obtained and submitted to examinations. In this work I had the cooperation of Dr. Alice K. Hall.

A few statements should be made with reference to the anatomy of the hog's tonsils. These organs are large, flat and rather smooth, measuring approximately 3 by 4 cm., and in depth from 0.5 to 0.75 cm. The crypts are numerous, numbering 100 or more for each tonsil. The openings are small, and the crypt extends downward nearly to the base. On microscopic examination the crypts are seen to be lined with an epithelium, as a rule thoroughly infiltrated with lymphoid cells quite like the human tonsil. The surface of the organ is covered with a layer of dense, squamous epithelium, which may dip down into the mouths of the crypts for a little distance. The follicles are numerous, located close beneath the epithelium, and have a conspicuous germinal center.

In the gross examination of the hog's tonsils it was common to see plant fibers projecting from the crypt lumen. At times, several might be found in one tonsil. They consisted usually of small pieces of straw or grass. On these fibers, found projecting or embedded in the crypts, *Actinomyces* granules were very commonly seen. Often they appeared separate from the fiber, but usually were either in close apposition to it or growing on it along the margin. At times the filaments extended well into the fiber, and the growth was observed along the tubules of the plant structure as seen in the accompanying illustration. The granules appeared in every way typical of *Actinomyces*. Clubs were in evidence at the periphery, and gram-positive, branching filaments appeared in the centers. In hematoxylin and eosin preparations, the clubs stained red and the central filaments blue.

In the 500 tonsils examined, the percentage of embedded fibers, the percentage of fibers associated with *Actinomyces*, and the number of tonsils containing caseous plugs were noted. Several of the tonsils containing the organisms were sectioned and studied histologically in preparations stained with dilute carbolfuchsin, hematoxylin and eosin, and by an acid-fast stain. Cultures were made of buried and surface vegetable fibers and also of suspicious crypt material.

Seven per cent. of the tonsils examined contained embedded straws, and 4.7 per cent. contained *Actinomyces*. The latter occurred far more frequently along or attached to those fibers which were buried deep in the substance of the tonsil. More than 50 per cent. of the tonsils contained from one to several caseous or purulent plugs similar to those commonly appearing in human tonsils. The latter do not contain *Actinomyces* organisms. It should be stated that the percentage of tonsils containing straws and *Actinomyces* is no doubt considerably higher than that given above. In a gross examination one might easily overlook deeply embedded fibers or occasional granules in the crypt. No doubt, too, the fibers are continually being expressed, so that probably every tonsil at some time is infected with *Actinomyces*.

Cultures were taken from deeply embedded and from surface straws; also of caseous plugs and surface smears. The straws were washed several times in sterile physiologic sodium chlorid solution, in order to remove as many contaminating organisms as possible. Three per cent. dextrose agar was used, to which 2 c.c. of human blood serum was added to each 20 c.c. tube of medium. The agar was melted and cooled, the material for inoculation being placed in the center of a large tube just before the agar solidified. The tubes were sealed with paraffin, thus furnishing partial anaerobic conditions, and were allowed to remain at room temperature. After two weeks, yellowish white nodules, about 1 mm. in diameter, were seen along the straws, of which cultures were taken. No growth was noted in the tubes inoculated with material from caseous plugs or surface smears. After one month the tubes were broken, and the straws removed and examined. They were found to be covered with *Actinomyces*, the fungus appearing in large numbers even on those fibers on which it was not observed before cul-

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* From the Department of Pathology and Bacteriology, University of Illinois College of Medicine.

* Read before the Section on Pathology and Physiology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

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2. Castellani, A.; Douglas, M., and Thompson, T.: J. Trop. Med. **26**: 19 (Jan. 15) 1923.

3. Schlegel, in Kolle and Wassermann's Handbuch, Ed. 2, 1913, p. 346.

tures were made. Subcultures were made, the same growth appearing in from ten to fourteen days. The morphology and staining characteristics of the cultivated organisms were similar to those observed on the fibers originally.

Of interest is the reaction that appeared about the infected fibers in the crypts. Many polymorphonuclear leukocytes were seen around the fibers within the crypts, which on pressure were forced out with the fibers as a small drop of purulent exudate. In sections of the tonsil, however, the leukocytes are seen outside the epithelium and do not invade the tissue proper. No example of invasion of the tissue was seen in any specimen, and no noteworthy alteration appeared in the crypt epithelium. In this connection it may be stated that primary actinomycosis of the hog's tonsil is rare, in spite of the very common localization of the organisms here (Kitt).

In view of the fact that the human crypts so commonly harbor large numbers of fusospirochetes [1] both in granules and outside them, a search was also made for them in the hog's tonsil in ordinary smear preparations stained heavily with carbolfuchsin. The smears were made both by inserting into several crypts a wire loop, thus obtaining the crypt exudate, and by compressing the tonsil and thus forcing to the surface the grayish crypt contents. Careful inspection of the slides revealed the following: In smears from fifty tonsils, definite spirochetes were seen in twenty, or 40 per cent. They were not numerous, as a rule, though in a few specimens large numbers were encountered. In morphology they are rather coarse organisms, with several spirals, and stain readily with carbolfuchsin. They appear somewhat smaller than those seen in human tonsils, though in general they have the same morphology. Along with the spirochetes are fusiform bacilli in greater or less numbers. Usually they are not very conspicuous, being decidedly less numerous than in human tonsils. A small number of bacteria, usually gram-positive diplococci and gram-negative bacilli, are seen. On the whole, the total number of bacteria is less than appears in smears from human tonsils. In no instance were granules similar to the human type seen in the crypts of the hog's tonsil.



Typical Actinomyces from the crypt of a hog's tonsil; some are attached to the plant fiber; slightly reduced from a photomicrograph with a magnification of 180 diameters.

The streptococci are of two types, the hemolytic and the nonhemolytic. In about 50 per cent., hemolytic cocci of the beta type are found at times in practically pure cultures on aerobic blood plates, in this respect, therefore, being similar to the human cocci. Nonhemolytic streptococci of the viridans type, and colon bacilli are also commonly found in cultures made from the crypts.

In the cow the conditions are somewhat different. The cow's tonsil is a somewhat spherical organ from 3 to 5 cm. across, with a circular tube a centimeter or more in diameter, into which the numerous and rather course crypts open. A very large amount of mucus is secreted by the adjacent epithelial surfaces.

Eighty-six tonsils of cows slaughtered at the Union Stock Yards were obtained fresh and examined for granules and by smear preparations. Grossly, the tonsils were cut by numerous transverse incisions, and the crypts inspected. In only three of the eighty-six were pieces of vegetable fiber found, and they showed no evidence of *Actinomyces* growing on them. These consisted of pieces of straw or hay. No definite granules, either actinomycetic or of the human type, were found. Small grayish cheesy or purulent plugs were seen in practically every tonsil, often in large numbers. At times, small encapsulated abscesses appeared with a yellow purulent content. In all these tonsils, microscopic examination of these plugs revealed no evidence of *Actinomyces*.

Smear preparations were made from the crypts of the forty-eight cows' tonsils, some from the grayish plugs, others from the crypts and epithelial surface. They were stained with carbolfuchsin and also by Gram's stain. In no instance were spirochetes or typical fusiform bacilli found. A few cocci, chiefly diplococci and ovoid bacilli, were seen. The bacterial flora in the cow's tonsils is not rich.

Klarenbeek [4] was not able to find spirochetes in the mouth and about the teeth of the cow.

Aerobic blood agar plates were made of the depths of the cow's tonsils. Hemolytic streptococci of the beta type were found in 24 per cent. of seventeen tonsils examined. In two they were in nearly pure culture. Nonhemolyzing streptococci and *Streptococcus viridans* were practically constant, often in large numbers.

SUMMARY

In man, the granules found in the crypts are for the most part composed of radiate, nonbranching, mycelial structures, fusiform bacilli, spirochetes and cocci. Characteristic brushlike terminals appear in the margin. True *Actinomyces* does not occur. Food particles and lime may be found in these granules. They are an important habitat for spirochetes, fusiform bacilli and streptococci.

In the hog, granules are very common, especially attached and adjacent to straws, and plant fibers are found frequently in the tonsil crypts. These are true *Actinomyces,* being composed of radiate, gram-positive, branching filaments with definite clubs. Here is an important normal habitat for this fungus. Spirochetes and fusiform bacilli may be found, but not constantly. Granules of the human type are not found in the hog.

4. Klarenbeek: Arch. f. Protistenkunde 43: 211, 1923.

In the cow's tonsil, neither the human nor the hog type of granule is found. Here occur chiefly soft, fatty, yellow masses and occasionally plant fibers. Spirochetes are not found.

ABSTRACT OF DISCUSSION

DR. HENRY ALBERT, Reno, Nev.: I should like to ask Dr. Davis for more information in regard to the pathogenicity of his *Actinomyces "suis."* He stated that there is but little evidence of pathologic change in the immediate neighborhood of the organism. Nevertheless, it seems to me that the presence of as large a number of the type of cells which he has described as occurring immediately around the organisms in the crypts is evidence of irritation other than would be caused by foreign bodies. I should like to ask whether he has had an opportunity of performing experiments and seeing whether there is any pathogenicity; also whether, by means of cultures or other methods, he has determined the relationship between this organism and *Actinomyces bovis.*

DR. OLIVER P. TERRY, Lafayette, Ind.: Many of these slides look very much like smears from Vincent's angina, and I should like to inquire what the relationship is between these organisms and Vincent's angina.

DR. DAVID J. DAVIS, Chicago. These organisms have been cultivated. One may pick out these infected straws from the tonsils of the hogs, and these organisms will grow in sugar agar under anaerobic conditions. They appear to conform to the ordinary *Actinomyces bovis.* I have injected guinea-pigs and also rabbits with these organisms, and so far have obtained no results. That is not very surprising, however, because we know the difficulty of obtaining experimental actinomycosis when using strains isolated from human or bovine cases. With reference to the question concerning Vincent's angina, these fusospirochetes seen in tonsils apparently are quite the same as the organisms that cause Vincent's angina, excepting that Vincent's angina is caused presumably by a more pathogenic strain.

MENTAL RETARDATION AND DUCTLESS GLAND DISEASE

A REPORT OF TWELVE CASES *

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AND
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Mental retardation is found in children of most diverse types, showing varying physical stigmas. Hereditary factors can be traced not infrequently. Various organic conditions and toxic and infectious states at times are wholly or partly responsible for the mental retardation. Nutritional disorders may have some causative relation at times. Probably a multitude of conditions, prenatal and postnatal, cast shadows across the paths of development that lead to mental inferiority. Certain it is that many of these children will disclose outspoken endocrine disturbances. The relationship between the mental retardation, psychic abnormality and ductless gland disease may be accidental, coincidental. Pathology of mind and psyche, and dystrophies of glandular origin are both sufficiently common, so that their presence together in the same person need not occasion surprise. It would, indeed, be premature and bold to assume a hormone etiology in all such instances. It may be pointed out, however, that we have become rather accustomed to think of the imbecility in cretinism as closely dependent on thyroid deficiency. Indeed, we have been fortified in such an attitude by the extraordinary mental advancement produced by thyroid feeding in such patients. The results are often magical, but not invariable. Comparable changes in the mental sphere have not often followed therapy with other glandular products. It would be unwise to deduce from such failures that no relationship exists. Are not the failures due rather to the lack of therapeutic potency in the products at present available? Diabetes was not cured by pancreatic extracts until insulin was achieved. The time may arrive when an "insulin" of the pituitary gland will be discovered, and then comparable results in the treatment of pituitary dystrophies will be forthcoming. Until then we had best be conservative about assuming pituitary responsibility for some instances of mental retardation, and likewise conservative about condemning such a relationship. The proof is not yet.



Fig. 1 (Case 1).—Appearance of patient, aged 15 years; mental age, 11 years; preadolescent hyperpituitarism, with large genitalia for age.

Meantime, it may be interesting and not entirely futile to record some cases of mental retardation in which outspoken ductless gland disorders could also be detected.

PREADOLESCENT HYPERPITUITARISM (GIGANTISM)

CASE 1.—An overgrown boy, aged 15 years (Fig. 1), referred in July, 1921, had become increasingly indifferent to his surroundings after an attack of mumps four years before, would not associate with boys and girls in the neighborhood, and was unsocial, shut-in, and dull in school. No one in the family was peculiar in stature or weight. The mother's brother was peculiar and unsocial; otherwise there was no history of mental disorder in the family as far as she knew. Three other children were well and totally unlike this lad in disposition. The patient seemed to change, following the mumps. He grew very rapidly between 10 and 13 years of age. He did not have a large appetite. He would sleep from ten to twelve hours if the opportunity offered.

By the Binet scale, the mental age of the patient was 11 years, a retardation of four years—indicating a borderline defective. He was self-conscious, irritable, depressed, very reticent, hypersensitive, and suspicious. He weighed 135 pounds (61 kg.); he was tall for his age, 67 inches (170 cm.); span 68½ inches (174 cm.); upper measurement, 32 inches (76 cm.); lower measurement, 35 inches (84 cm.); in other words, long arms and legs, big hands and feet. His voice had changed to the adult pitch; he had just begun shaving; he had the axillary and pubic hair of an adult. The genitalia were decidedly large for his age. His general posture was poor; he slumped over. The systolic blood pressure was 135; diastolic, 65. The urine was normal. A roentgenogram of the skull showed the sella rather large, within normal limits. The basal metabolism was 23.8 per cent. plus

The conclusion was: mental retardation; abnormal personality; gigantism.

CASE 2.—A lad, aged 14 years, applied in July, 1920, because of increasing prominence or deformity of the lower sternum.

* From the Ductless Gland Clinic, Department of Medicine, University of California Medical School.

* Read before the Section on Nervous and Mental Diseases at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

The members of the mother's side of the family were short. The father was huge, tall, and weighed between 285 (129 kg.) and 300 pounds (136 kg.). The father's brother was described as "a small sized elephant." The father's mother weighed over 300 pounds. The boy had had measles, whooping cough, mumps and chickenpox. A mastoid operation was performed when he was 4 years old and drained for about a year. The tonsils and adenoids were removed at the age of 6. He had grown rapidly the past year.

The mental age was 11 years, three years' retardation; he ranked as a backward boy of the "dullard" type. His memory and reasoning were rather inferior: the slow plodding type of mind. He lacked alertness and initiative, was timid and apologetic. He was shy, and did not play with other children.

He was overgrown, being 5 feet 6½ inches (169 cm.) high, with poor posture, marked lordosis, large hands and feet of the acromegalic type, and marked bulging of the sternum from the fourth rib to the ensiform cartilage. He wore a 9½ shoe. The genitalia were large for his age. The systolic blood pressure was 125; the diastolic, 80. The urine was normal. Fluoroscopic examination of the chest detected nothing in the chest to account for the deformity of the sternum. A roentgenogram of the skull was negative.

The conclusion was: mental retardation, abnormal personality, gigantism and acromegaly.

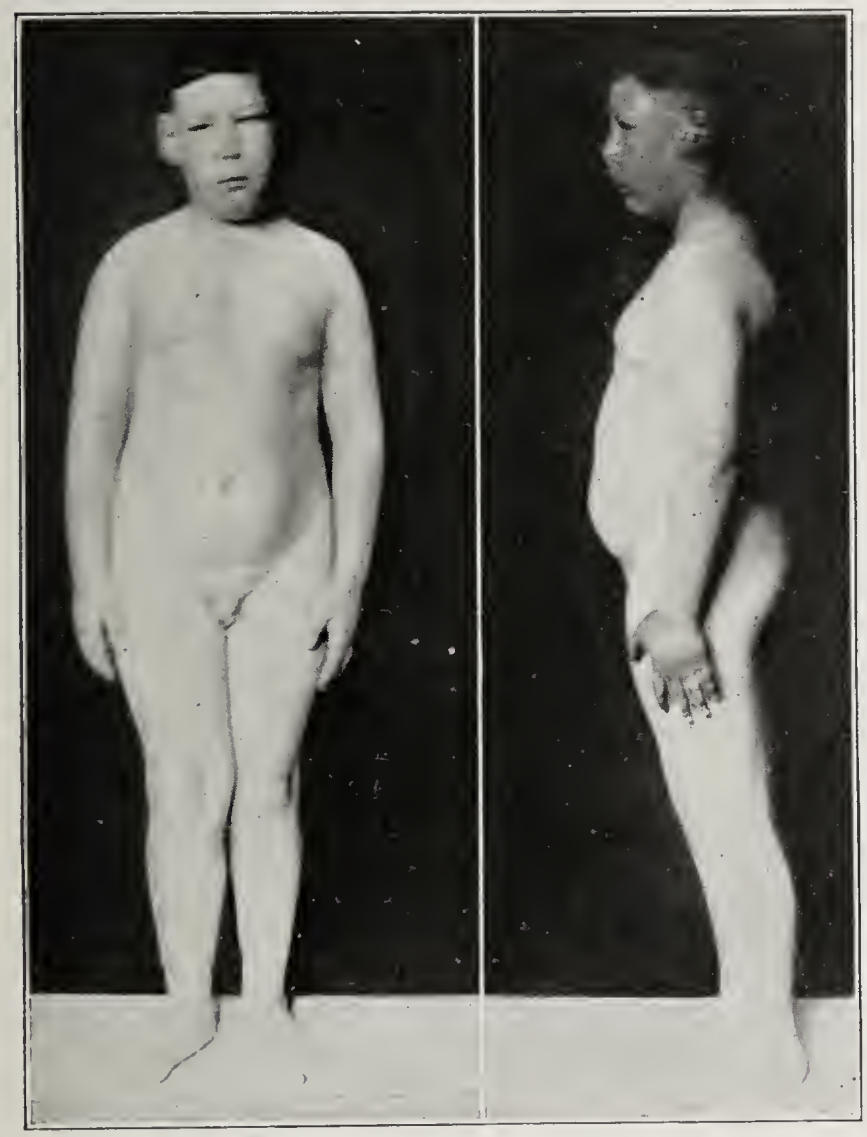


Fig. 2 (Case 6).—Appearance of patient, aged 11 years; intelligence quotient, 56; narrow palpebral apertures; puffy upper lids; feminine type of obesity, with prominent breasts, prominent mons veneris and infantile genitalia; protuberant abdomen and prominent breasts.

PREADOLESCENT HYPOPITUITARISM (ADIPOSOGENITAL DYSTROPHY)

CASE 3.—A boy, aged 10 years, had not increased in height for three years. His mother, who was mentally aged 8 years, died of sepsis at the age of 37; there was a history of obesity on the mother's side. He was full term, with normal delivery and had been breast fed for one year; he had his first tooth at 7 months; he sat up before 1 year; he walked and talked at 1 year; he had measles at 5, mumps at 8, and varicella at 9. The patient was the second of four children, the oldest being a girl, who was bright mentally and not obese. The boy was bright up to 7 years of age; since then he had progressively deteriorated; he had steadily grown fatter, but not in height for the last three years. He had been in the first grade in school for three terms without advancement.

He was stupid, but good natured and affectionate. His height was 4 feet, ¼ inch (122.6 cm.); weight, 101 pounds (46 kg.); the skin was rough and dry, with some tendency to



Fig. 3 (Case 6).—Hyperextensibility of joints; hypotonicity of muscles.

scale; the mammary glands were prominent; the abdomen, protuberant and very fat, with a prominent mons veneris; the genitalia were infantile, the testes rudimentary; there were choreiform movements of both arms, more marked by motion and when he attempted to grasp anything. Rectal examination showed a possibly tiny, rudimentary prostate; but it was almost impossible to be sure by palpation whether a prostate was present or not.

The mental age was 4 years—six years' retardation. Natural ability was seriously lacking; the boy could not count four objects, or repeat six syllables. His information was that of a small child. The blood count was normal; the Pirquet test and Wassermann reaction were negative; the urine was normal. The blood sugar curve was: 0.102, 0.119, 0.115, 0.099. The urine sugar curve was normal. Fluoroscopic examination of the chest gave no evidence of a thymus gland. A roentgenogram of the skull disclosed a small sella, with the sutures permanently closed.

The conclusions were: adiposogenital dystrophy, with marked mental retardation.

CASE 4.—A fat boy who was one of twins, full term, first talked at the age of 2½ years, and first walked at 3. He had always been fat and heavy, and never played with other children. He was good natured; was mentally apathetic, with the eyes always crossed; could not read; spoke only phrases (no sentences); was neither constructive nor destructive; had a ravenous appetite, and was sleepy. He had measles, pertussis, and pneumonia three times; circumcision, tonsillectomy and adenoidectomy had been performed. He had a large, quadrangular skull; coarse, dry hair; a female contour, with broad pelvis, enlarged mammae, and marked mons veneris. The external genitalia were of the female contour, with the penis in the position of an enlarged clitoris. There was no hypospadias. The external genitals were infantile. The feet were large, the hands pudgy, with marked muscular hypotonicity. Tache cérébrale and dermatographia were noted. No prostate was felt rectally. The mental age was from 3 to 4 years, or six years' retardation. The systolic blood pressure was 118; diastolic, 62. The urine was normal. The blood

picture, Wassermann reaction and Pirquet test were negative. The blood sugar curve was: fasting, 0.103 per cent.; one-half hour later, 0.129 per cent.; one and one-half hour, 0.107 per cent.; two and one-half hours later, 0.088 per cent. The renal sugar curve was negative. The eye fundi were normal. Roentgen-ray examination of the sella and skull were negative. The sphenoidal angle was 152 per cent.



Fig. 4 (Case 8).—Appearance of patient, aged 12 years; mental age, 5½ years: skeletal overgrowth, with tremendous obesity and genital infantilism; small hands, with short, tapering fingers (acromicria).

The conclusion was: feeblemindedness, with adiposogenital dystrophy.

CASE 5.—The twin brother of the preceding patient gave similar findings as to history, physical examination, mental examination and laboratory tests, except that Patient 4 was fatter, weighing 7 pounds (3.2 kg.) more, and being 1 inch taller, and the sphenoidal angle was 155 degrees. The figures for the blood sugar curve were 0.116, 0.149, 0.139 and 0.106.

The conclusion was: feeblemindedness associated with adiposogenital dystrophy.

CASE 6.—A boy, aged 11 years (Figs. 2 and 3), whose family history was negative, sat up at the age of 6 months and walked at 18 months; he was slow in talking. He was mentally retarded, and was in the low second grade, making practically no progress; he was timid and irritable, and did not get along with other children.

He was 4 feet and 6 inches (137 cm.) tall, and weighed 94 3/5 pounds (42.9 kg.). The upper eyelids were puffy; there were fat pads over the frontal region of the head and on the abdomen; the hands were pudgy. The skin was dry, slightly rough and somewhat thickened. The hair was very coarse and dry. There was a typical hyperextensibility of all the joints, with hypotonicity of the musculature. There were practically no eyebrows over the outer half. The thyroid was palpable. The prostate was from one-half to one-fourth the normal size, and much thinner than would be expected; no secretion was expressed on massage. The left testis was about the size of an almond kernel; the right testis was atrophied.

The intelligence quotient was 56; information was exceedingly poor; he failed in almost all questions of the information questionnaire, knowing only the name of the first President. He took no interest in anything; he was dull and indifferent. A roentgenogram of the skull revealed the sella of normal size and shape; the frontal sinuses, small; the antrums, large.

The conclusion was: feeblemindedness; adiposogenital dystrophy.

PREADOLESCENT HYPOPITUITARISM—LORAIN TYPE

CASE 7.—A boy, aged 15 years, had not grown for two years The family history was essentially negative except for a sister, aged 17, who had secondary sex characteristics, but was quite short and fat and mentally aged about 3. The boy had had measles and mumps; the tonsils and adenoids had been removed. The patient felt well.

He was underdeveloped and slender. His height was 4 feet, 6¼ inches (137.8 cm.); weight, 65¼ pounds (29.7 kg.). He appeared physically to be about 8 years old; the genitalia were infantile; there were no secondary sex characters; the prostate was very small.

The mental age was 9 years, or six years' retardation. Information was meager and vague, both for simple facts of school knowledge and for general information. His native ability was generally inferior. His memory and reasoning were both poor.

The urine and the blood picture were normal. The Pirquet test was positive. The blood and spinal fluid Wassermann reactions were negative. The urine sugar curve was negative. The blood sugar curve was: 0.067, 0.135, 0.122, 0.113.

The conclusion was: high grade defective; Levi-Lorain type of hypopituitarism.

PREADOLESCENT DYSPITUITARISM

CASE 8.—A markedly obese boy, aged 12 years (Fig. 4), at the age of 1½ weighed 30 pounds (13.6 kg.) and was still increasing in weight; at this time he began to be drowsy, and seemed sleepy all the time; when we saw him he slept fifteen hours a day. He walked at 4½ years. He had always had a ravenous appetite. At the age of 11 years he began to have convulsive attacks occurring two or three times a day; the attacks lasted a few seconds, followed by drowsiness. He made almost no progress in school. He was nervous, irritable and stubborn. He was a great lover of music; he paid no attention in school to anything but singing. He had a good memory for certain things.

He was tall and very adipose, with large, pendulous breasts; the hair was curly, crinkly and very dry. There was hypotonicity of the joints. The testes were small; there was no true prostate (infantilism). He weighed 253⅗ pounds (115 kg.). His height was 63½ inches (160 cm.). His span was 65 inches (165 cm.); upper measurement, 33 inches (84 cm.); lower, 30 inches (76 cm.).



Fig. 5 (Case 11).—The smaller of the children, at the left, is the patient at the age of 8: dwarfism and cretinoid facies. The larger child is 4 years of age.

The mental age was 5½ years; the boy was irritable, stubborn and uncooperative. His auditory memory carried him far above what his mental age would otherwise be in the Binet tests.

A roentgenogram of the skull revealed the sella normal. There was marked disproportion between the anterior and posterior portions of the cranial fossa. Roentgen-ray examination of the hands showed them normal for his age, with rather slender terminal phalanges.

The hemoglobin and erythrocytes were normal; leukocytes, 14,200. Differential count gave: neutrophils, 48 per cent.;

large mononuclears, 37 per cent.; lymphocytes, 37 per cent.; eosinphils, 12 per cent; basophils, 1 per cent. The urine and stool were negative.

The conclusions were: mental retardation with preadolescent dyspituitarism; skeletal overgrowth; enormous obesity; sexual infantilism.

CASE 9.—A girl aged 16 years, complained of "epilepsy." The family history was negative. Menstruation began at 12,



Fig. 6 (Case 11).—Patient at age of 9 years and 9 months, just before thyroid treatment was started. The mother has hypothyroidism, with a basal rate of 24 per cent. minus.

was never regular, occurred at intervals of six or seven weeks, and was always scanty, only two or three pads being required in two to three days. The first attack was at the age of 12 years, and she had had about one attack a month. She did well in school until about the age of 15. She was 61 inches (155 cm.) tall, and weighed 141¾ pounds (64 kg.). The fat distribution was general, not definitely girdled. The skin was dry all over the body, especially on the shins. The thyroid was of normal size. The psychiatric examination showed considerable mental deterioration; she repeated five digits, but failed on six. In repeating a story she could recall only a few facts, omitting details. She was emotionally indifferent; she had poor reasoning power and judgment.

The basal metabolism was 8.3 per cent. plus.

Roentgen-ray examination of the skull revealed prominent convolutional markings in the frontal region. The posterior clinoids were tilted slightly backward.

The conclusion was: epilepsy; mental deterioration; preadolescent dyspituitarism.

CHILDHOOD MYXEDEMA

CASE 10.—A girl, aged 14 years, who talked and walked at the normal period, had had measles at 3 years, whooping cough at 6, mumps at 9 and chickenpox at 10, all without complications. The teeth came slowly. Menstruation began at 12 years. The periods were irregular, the second period occurring six months after the first, and thereafter at intervals of about three months. The flow, however, was then copious, lasting about seven or eight days. When an infant, the child cried most of the time. She had always been extremely constipated, often going several days without a stool. Her appetite had always been poor, in spite of which she had maintained good weight. The skin had always been coarse and dry, thick and rough, and her hair likewise had been coarse and dry. She was irritable at times, sensitive about her condition, and cried easily. Her mental condition when seen in March, 1921, was about as follows: The mother described her as being interested in things about her, liking to play with dolls, but preferring to be alone and not in the company of other children. Formerly she played with other children, but always with those younger than herself. She rarely said much. The mother said that she had been in school in all about thirty-six months at irregular periods, and had recently been placed in the fourth grade.

The appearance of the child was very striking. She was heavy set, with thick, dull, stupid features, broad, thick, saddle-nose, puffy eyelids and swollen lips. The skin generally was dry and coarse. The hair grew low on the forehead and was very dry, straight and coarse. There was a heavy growth between the eyebrows. The shape of the skull resembled that of a monkey. The breasts were unusually well developed and abnormally large for her age. There was a slight growth of pubic hair. The mandible was almost infantile, and the lower part of the face was poorly developed. The thyroid gland could not be felt. The abdomen was enlarged and protuberant. The height of the patient was 4 feet, 6 inches (137 cm.); weight, 71 pounds (32 kg.).

The intelligence quotient was 50. The child was ignorant of every-day facts of school knowledge and general information. Her native ability was markedly inferior; there was general impairment of the faculties. She was slothful and apathetic.

The conclusions were: low grade moron; childhood myxedema.

CASE 11.—A girl, aged 17½ years (Figs. 5, 6, 7 and 8) was first seen by us in September, 1922, because of listlessness and mental retardation. There was no similar disturbance in the family. A brother, aged 29, and a sister, aged 31, were apparently normal.

The patient was born at full term, of normal birth. The birth weight was 9½ pounds (4.4 kg.). The first tooth came at 2 years, and the rest all came slowly. She did not walk until almost 3 years. She began to say "mama" and "papa" between 3 and 4 years of age. She was not an irritable child—she "just sat." She looked like a "little old woman." Her hair and skin were very dry. Her growth was very slow, and she was physically and mentally backward.

At 9 years and 9 months her height was 2 feet, 10 inches (86 cm.). At this time a physician in Sacramento recognized her condition as "childhood myxedema" and instituted treatment with thyroid extract. For the following seven years she took 3 grains (0.2 gm.) of thyroid extract daily. The changes were astounding. She is said to have grown 18 inches during the first year of treatment, and then slowly after that. The mother discontinued treatment nine months before consulting us.



Fig. 7 (Case 11).—Patient at age of 10½ years, having grown 6 inches.

Menstruation began at the age of 15½ years; it was regular for two months, then ceased for four months, and then was regular for six months. For four months prior to consulting us, no menstrual periods had occurred.

The appetite was poor; the bowels were badly constipated; the patient was always sleepy, sluggish and listless. Despite her poor appetite she had gained weight steadily. She felt "cold all the time."

Her mental age was 9 years and 3 months, or eight years' retardation. She was graded as feebleminded (moron).

Her skin was dry, rough, scaly, coarse and cold. Her hair was coarse, dry and brittle. The secondary sex characters were well developed. A normal sized uterus was felt rectally. Her weight was 106½ pounds (48 kg.). Her height was 4 feet, 9 inches (145 cm.); span, 54 inches (137 cm.); upper measurement, 31 inches (78.7 cm.); lower, 26 inches (66 cm.), showing very short arms and legs.

The red blood cells numbered 3,300,000; white blood cells, 6,400; hemoglobin, 77 per cent.; polymorphonuclears, 44 per cent.; lymphocytes, 50 per cent.; large mononuclears, 3 per cent.; basophils, 1 per cent.

A roentgenogram of the chest was negative for substernal thyroid or thymus shadows. Roentgenograms of the skull and of the hands were negative; epiphyseal development was normal for the patient's age.

The basal metabolism was 26.45 per cent. minus.

The conclusion was: mental retardation, associated with childhood myxedema.

PLURIGLANDULAR DYSTROPHY

CASE 12.—A woman, aged 44 years, had never menstruated. She had always been severely constipated, and always pale and cold. The patient was small, slender and short, with a peculiar, thick, deep masculine voice; her height was 57 inches (145 cm.); upper measurement, 26½ inches (66 cm.); lower measurement, 30½ inches (76 cm.). The skin was dry, thin and wrinkled; the hair, plentiful on the scalp, but very scanty on the eyebrows, axillae and pubis. The patient had a saddle nose, and expressionless eyes with heavy eyelids. There were many wrinkles round the eyes, mouth and forehead. The facial appearance was monkey-like. The thyroid was not palpable. The breasts were practically undeveloped. There were infantile external genitalia. No uterus was palpable rectally. There was a cordlike mass spanning the pelvis suggesting a rudimentary uterus. There was a small round object, the size of a bean, in the right broad ligament, probably an ovary.

The systolic blood pressure was 90; diastolic, 60. The urine was normal. The blood count indicated marked anemia. The blood and spinal fluid Wassermann reactions were negative. Roentgenograms showed a normal sella turcica, and the epiphyses of the hands and feet joined. The sugar curve was normal. The basal metabolism was 6 per cent. below normal. The mental age was 9.

This patient showed pluriglandular deficiency involving the pituitary, thyroid, ovaries and suprarenals. The face was cretinoid; but the skeletal undergrowth without adiposity and aplasia of the genitalia resembled that of Lorain infantilism.

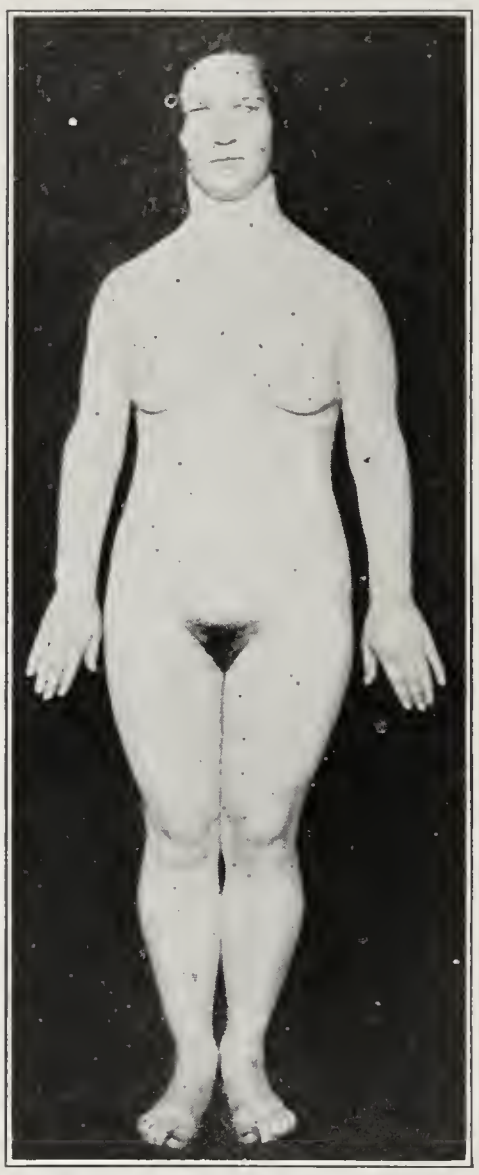


Fig. 8 (Case 11).—Patient at age of 17½ years; mental age, 9 years and 3 months; short arms and legs; well developed secondary sex characters.

SUMMARY

These twelve cases speak for themselves, and require no elaborate discussion. The mental retardation is definite in all, and the endocrine disturbances are likewise obvious. It has already been indicated that a glandular origin for the mental retardation must remain for the present an unproved theory. It is to be noted, however, that thyroid feeding definitely advances the intelligence of mentally defective subjects of congenital myxedema. When pituitary extracts of similar potency are available, comparable results may be achieved in mental defectives, the subjects of dyspituitarism. Since the proof of such a contention hinges on mental improvement by appropriate organotherapy, it may be stated that considerable experience with pituitary preparations now available has resulted in suggestive and encouraging results in a few instances, but not sufficiently striking or consistent to prove the foregoing hypothesis at present.

ABSTRACT OF DISCUSSION

DR. C. E. REYNOLDS, Los Angeles: A man, between 40 and 50, had been suffering from epilepsy for two years and had had recently several attacks of petit mal followed by automatism every week. The roentgenogram showed a very small enclosed sella turcica. He had been under dietetic treatment, so that my only treatment was to put him on pituitary whole gland substance. He improved immediately and has not had an attack for a year. His blood pressure was 190, but shortly after treatment it came down to about 140 and stayed there. Another suggestive case is that of a boy who developed very severe grand mal attacks immediately after whooping cough four years before I first saw him. On this date he had three seizures. He had not grown an inch since he had the whooping cough. Stereoroentgenograms showed a very shallow and enclosed sella turcica. Pituitary extract had no effect on him, but after suboccipital operation he suddenly grew a foot in the ensuing year and his seizures gradually diminished to the extent that he has not had one since Nov. 22, 1922. What the relation could be between an operation for basal arachnoiditis and cyst, and the activation of the pituitary gland, I do not know, but such are the facts.

DR. WALTER TIMME, New York: There is a certain class of endocrine disorder which may be known as the status hypoplasticus in which there is, as Dr. Lisser well described, a hyperextension of all joints. The sacro-iliac ligament is lax, and the ligaments in the foot are lax. The heart is small and tubular; the vessels seen in the retina are small; and, as a result of that hypoplastic state, or concomitant with it, the blood picture is wrong. The polymorphonuclear count is low and the carbon dioxid combining power is lower. The blood sugar becomes lower after fatigue, and as a result of that, we know, in conjunction with the investigation that has been made with insulin (when insulin brings the blood sugar down below 0.04, the tendency to convulsion, especially of the epileptic type, is quite pronounced), that in these cases of status hypoplasticus attacks of epilepsy occur occasionally. When efforts are made to remedy the blood sugar content, often there is an improvement in results. But one must be very careful to realize that these cases are not pituitary in origin, but that they are hypoplastic cases; and when that condition is remedied, the symptoms change for the better.

DR. HAROLD W. WRIGHT, San Francisco: It has been found by those working in diabetes insipidus that the treatment with pituitary gland has not been effective unless it is put up in tablets coated with phenyl salicylate, because of disintegration in the stomach.

DR. CHARLES E. NIXON, San Francisco: The presence of endocrine disturbance in epileptics and the feebleminded has long been noted. It is not a mere fortuitous occurrence. The relationship may be very much that of the blood picture and the nervous symptoms in pernicious anemia. They doubtless have a common etiology in many instances. That may be true in these cases of epilepsy and feeblemindedness. It certainly aids in the treatment if we recognize the ductless gland disturbance. That is why persons who have an outspoken endocrine disturbance, when treated for that disturbance, improve. In certain of these conditions the etiologic relationship is more definite. It has long been noted that, in pituitary disease, patients have peculiarities resembling, and doubtless many cases have been diagnosed as, epilepsy when the basis has been some pituitary disease. In reference to the use of capsules coated with phenyl salicylate, most of these patients who

have had pituitary extract by mouth received it in these capsules. We have to be very careful in drawing any conclusion in regard to results of treatment, as to whether that gland of which the extract is being given is the gland at fault. We are merely getting a certain pharmacologic effect, as when we give atropin or some other drug; it may be that in those cases in which we get results with ductless gland administration, it does not necessarily mean that those glands are at fault. I think it is extremely important to make a diagnosis of any outspoken ductless disturbance in feebleminded patients and treat that as we can.

GIANT-CELL TUMOR OF THE LOWER END OF THE RADIUS

REPORT OF CASE

FERDINAND P. HERFF, M.D.
SAN ANTONIO, TEXAS

Probably no medical subject presents greater uncertainty than the study of bone neoplasms. Even a cursory examination of the literature reveals decided differences in classification and treatment, incident to which there is considerable confusion. An outstanding feature in these observations is a tendency toward conservatism in dealing with new growths of bony structures. To illustrate this, it may be well to preface our subject proper by a few general remarks and a recapitulation of some axioms of Bloodgood and



Fig. 1 (July 6, 1921).—Considerable bone still present in capsule surrounding growth.

others. Vagueness as well as apparent disagreements may be explained, at least in part, by:

1. The comparative infrequency of bone tumors. Since only a limited number of cases have been studied, statistical values are only relative.

2. Dependence on roentgen-ray findings which have not been accurately correlated with clinical and laboratory data. Take, for example, the fallacy of trying to make a positive differential diagnosis roentgenologically between benign bone cyst, central giant-cell tumor and central sarcoma.

3. Continued use of misleading terms. Under this caption we may refer to the employment of the expression "central giant-cell sarcoma" when speaking of a benign giant-cell tumor. Practically every authority admits that this is a benign growth; many writers have pointed out the fallacy of calling it a sarcoma, but with



Fig. 2 (September 5).—Entire bony capsule has disappeared, leaving only the thin periosteal shell.

few exceptions have continued to employ this misnomer. Clearly, great harm can be done by employing so deadly a name for a comparatively innocent neoplasm. This applies more particularly to the occasional bone surgeon, who no doubt has often been misled from indicated conservatism to radicalism by laboratory reports resorting to the foregoing misnomer. I believe that the term "myeloma" should not be used in referring to the disease mollities ossium, which is a constitutional marrow disease and in a true sense not a tumor. Further, it is advisable to abandon the expression "giant-cell sarcoma," even when dealing with a truly malignant type, and instead employ "sarcoma with giant-cell infiltration." We would thus entirely drop a term which has been used interchangeably for malignant and benign neoplasms with consequent confusion. Foreign writers, in speaking of the benign giant-cell tumor, are largely limiting themselves to the expression "osteitis fibrosa."

4. Employment of unpractical classifications, namely, those depending didactically on cell differentiations and not taking into account that certain definite cell arrangements exhibit dissimilar tendencies in different locations. For example, Bloodgood has demonstrated that myxomatous tissue found in neoplasms of the long pipe bones implies a high degree of malignancy, which is not the case when this tissue is found in the phalanges of either the feet or the hands. Therefore, a practical clinical classification is necessary as a working basis for the general surgeon who encounters occasional bone surgery. Laboratory outlines alone are often confusing.

Observations that should influence every bone surgeon are:

1. Since the most radical measures have given a small percentage of cures in true malignancies, they



Fig. 3 (November 17).—Shortly after the first currettement: reappearance of bony tissue in capsule.

should be positively proved before one resorts to amputations. "The burden of proof is to demonstrate that the lesion is malignant" (Bloodgood).



Fig. 4 (December 1).—After second currettement: drainage tube in situ; increase of bone in capsule.

2. In all doubtful bone cases, the patient is to be treated for syphilis. Even in the presence of a negative Wassermann reaction, intensive antisyphilitic treatment should be given for several weeks.

3. Roentgenograms should be made of the lungs and the entire skeleton if there is the least doubt of a true diagnosis.

4. Bone hyperplasias are more apt to be benign than malignant. Central growths show a greater ratio of malignancies than periosteal forms.

5. Perforation of the capsule of a central growth is suggestive, but not diagnostic, of malignancy.

6. An Esmarch bandage should always be applied in the exploration of growths. One should be prepared to carry out any procedure, from cauterization to resection.

7. Spontaneous fracture is highly suggestive of bone neoplasms, under the age of 15 years being almost pathognomonic of benign cyst; above that, the ratio of possible bone malignancy increases with age.

8. One should beware of myxomatous tissue when exploring lesions situated in the long pipe bones. It is almost certainly significant of an underlying malignancy.



Fig. 5 (December 23).—After third currettement: cavity filled with bismuth paste: thickening of capsule.

9. Lesions beginning on the cartilaginous surfaces of the joints are nearly always inflammatory, tuberculous or syphilitic.

10. Systematic roentgen-ray examinations and treatments should be instituted after removal of a bone tumor, whether malignant or benign.

Giant-cell tumors are usually posttraumatic. The general tendency today is to consider them inflammatory. They occur rarely below the age of 15, more often between 15 and 20, commonest between 20 and 30, and occasionally after 30. As a rule they are central, but a few periosteal ones have been described. They are really benign in character, although local return may take place. This recurrence does not signify malignancy any more than does a like tendency in keloids. One is led to doubt the diagnosis when metastasis is said to have occurred. There are undoubtedly some cases in which it is difficult to differentiate between benignancy and malignancy.

Whether these cases are merely examples of a close microscopic resemblance demanding very exact technic or whether they prove that there is a true transition from the giant-cell tumor to the true central sarcoma is a debatable question. Since central giant-cell tumors practically always follow injury, and since many sarcomas can be traced to traumatic origin, it perhaps leads to the unsettled point of the relation of chronic inflammations to incipient malignancies in general. Giant-cell tumors are usually located at an epiphysis; hence the absence of spontaneous fracture.

Macroscopically, the giant-cell tumor consists of friable tissue varying from a pinkish to a reddish hue. It is readily broken up with a curet, and in its recent state contains no bone formation. Microscopically it is really not a tumor, in a true sense of being actually a granuloma or a mass of inflammatory tissue. The giant cells present, according to general belief, are caused by a union of numerous phagocytic leukocytes, which have gathered about a particle of bone or some



Fig. 6 (March 15, 1922).—Continued bony thickening of capsule.

other loose matter and thus have become fused into one great cell.

The diagnosis cannot be based entirely on the presence of this benign giant cell, since it is also found in truly malignant growths in conjunction with the giant cell having a polylobular nucleus. The pathologist, therefore, must depend in large part on the presence of mitotic bodies in determining the nature of the lesion.

Giant-cell tumors may terminate in several ways:

1. Spontaneous calcification of the granulomatous mass occasionally takes place. This amounts to a cure.
2. The mass usually increases gradually in size, and, in the end, absorbs all the bone cortex, causing an ultimate collapse of the shell and invasion of the soft tissue with infection and destruction of function.
3. True malignancy is said to intervene.
4. Eradication by surgical means may end the new growth.

TREATMENT

As has been mentioned, the growth has a tendency to local recurrence; but, since it has no metastatic properties, it cannot be considered malignant. The treat-



Fig. 7 (June 2).—Progressive bone deposit.

ment should therefore be a conservative one. Briefly, it may be summed up thus:

(*a*) Free opening and thorough curetting of the involved bone.



Fig. 8 (Jan. 9, 1923).—Gradual calcification of mass: marked increase of bone tissue at junction of healthy shaft with tumor mass.

(*b*) Pure phenol (carbolic acid) or actual cauterization of the remaining cavity.

(*c*) Crushing in of the shell, if feasible.

(*d*) Treatment of the remaining cavity by the open method. I would condemn filling the cavity with bone wax and other compositions and treating by the closed method because such a step does away with the possibility of attending properly to the remaining osteomyelitic cavity. One reported case[1] brings out this by citing a collapse of the involved bone more than a year after the cavity had been treated with bone wax and closure.



Fig. 9.—Present condition of patient; the lateral view shows only slight enlargement.

(*e*) Employment of the roentgen ray or radium. I prefer the roentgen ray because of its accessibility to the involved area and because of its stimulative effect on the healthy bone. Employing the roentgen ray or radium without previously curetting does not give us the advantage of removing sections for accurate microscopic diagnosis.

If there is a return of the growth, curettement should be repeated. This recurrence may be recognized by: (1) return of swelling; (2) continued discharge; (3) pain and inflammatory reaction, and (4) the roentgen-ray picture.

Several curettements are advisable before resection of bone is considered. However, the advisability of deciding on an earlier resection depends on which bone is involved. It is to be remembered that the restoration of a normal functioning joint with a fibular graft in case of the removal of the lower end of the radius is a difficult matter; hence, in this location, resection should be put off as long as possible. In dealing with the lower end of the ulna, more prompt resection may be employed because of the lesser interference with the wrist joint.

REPORT OF CASE

L. Z., a man, aged 23, whose family and personal history were negative, injured the right wrist while holding a horse, Jan. 2, 1921. For two days the wrist was painful, but neither swollen nor tender. He worked for a month, the wrist feeling normal, when he noticed marked tenderness on hyperflexing the hand. He used a leather wrist support.

April 1, there was a slight swelling at the lower end of the radius, which pained when in motion and in a month became markedly tender and larger.

July 6, the patient consulted a surgeon, when the first roentgenogram was taken (Fig. 1). All blood tests were negative, including the Wassermann. The urine was negative. Antisyphilitic treatment was given for six weeks, including mercury, the iodids and neo-arsphenamin. No impression was made on the growth.

October 6, the tumor was explored. It was opened on the radial side, and the contents were found to be friable and of about the consistency and color of calves' brains, and entirely free from bone formation. There was profuse bleeding when the shell was reached. This shell was perforated on the ulnar side of the cavity. The cavity was cauterized with phenol. Considerable reaction followed the curettage. There were pain and throbbing for several days. Treatment was given for a month by gauze packing and with iodin and surgical solution of chlorinated soda, and similar solutions. The tumor remained elastic and tender and did not decrease in size. Laboratory diagnosis was giant-cell bone tumor (osteitis fibrosa). The discharge for six weeks was bloody and watery.

November 18, the cavity was again curetted. Considerable granulation tissue was removed. The character of the discharge from now on resembled olive oil. Roentgen-ray treatments were given and pictures made at frequent intervals. By Jan. 1, 1922, the mass had hardened and the wrist had decreased considerably in size, but on March 25 a streak of lymphangitis appeared, extending from the wound to the lymph nodes situated on the sheath of the brachial artery. A small amount of pus was evacuated. One week later the cavity was again curetted and a fair amount of tumor tissue was found to have returned. Since then the patient has steadily improved, and at present the wrist seems practically normal in every way with the exception of a slight interference with the motion of the joint. There is no pain or tenderness, no discharge, and no tumor is apparent. The patient uses the hand, and the bone remaining is extremely solid and hard. Were it not for the roentgenograms, we might consider this case cured; still, the last picture, taken October 20, shows a continued vacuolar state of the bone. Further calcification will probably take place.



Fig. 10.—Present condition of patient; the anteroposterior view shows absence of tumor.

1. Bancroft, F. W.: S. Clin. N. Am. **1**: 1747 (Dec.) 1921.

CONCLUSIONS

1. Nomenclature has had a certain confusing effect in the handling of bone tumors, and the literature should be definitely purged of misleading terms.

2. The name "giant-cell sarcoma" should be entirely eliminated and replaced by the expressions "giant-cell tumor," "osteitis fibrosa" or "benign tumor with giant-cell infiltration" when referring to benign growths. In case of a true malignancy, the expression "sarcoma with giant-cell infiltration" should be employed.

3. A mixed clinical and cytologic classification is necessary to guide the surgeon.

4. All benign central tumors should be primarily treated by the open method. The wound should not be closed without drainage. This allows frequent explorations with the curet for the return of the growth and prevents ill results from the remaining osteomyelitic cavity. Resection should be resorted to only if there is a recurrence after repeated curettements. One should adhere to conservatism according to the degree of functional disturbance liable to result from the removal of the particular bone end involved.

5. Even the most apparently benign tumors should be given roentgen-ray treatments.

City National Bank Building.

CHRONIC ACTINIC CHEILITIS *

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LOS ANGELES

The purpose of this brief report is to call attention to a chronic inflammatory disorder of the lip, due apparently to the actinic or chemically active rays of sunlight. In a review of available literature and of current textbooks on diseases of the skin, no mention could be found of sunlight playing an etiologic rôle in chronic cheilitis. Montgomery and Culver [1] mention "the scurfy, scaly lip of the outdoor worker," as seen especially in the hot, dry interior regions of California, but they apparently attribute the effect to "wind and weather," without any specific mention of chemically active light. Dry heat and wind no doubt do cause a drying and an eczematous condition of the lips, just as it may affect the skin. That sunlight may exert a very pronounced effect on the lips is a matter of common observation to many city folk after their first excursion to the beach in the summer. The acute "sunblisters" represent an inflammation which is due almost entirely to the ultraviolet or chemical rays, rather than to the heat rays.

In experimental confirmation of this view may be cited the instances of herpes developing within a few hours after accidental exposure of the lips to the mercury vapor quartz lamp during treatment of the face. In one instance coming under my own observation, in which, through faulty technic, the lip was not entirely covered, herpes of the vermilion surface developed a few hours after a single exposure of one and one-fourth minutes at a distance of 8 inches from the air-cooled lamp, and was not entirely healed for twenty-three days. The patient afterward stated that she developed herpes of the lips very easily after exposure to sunlight. It does not require a great stretch of the imagination to conceive how such a susceptible person, exposed constantly or repeatedly to strong sunlight, might develop a chronic inflammation of the lip which would be rebellious to all treatment as long as the exposure continued. In fact, such a condition would probably be considerably aggravated by anything but the mildest sort of treatment, and simple protection from sunlight would probably be of more benefit than anything else.

Since rational treatment depends on a recognition of the cause of a disease, it would seem desirable to set aside cases of this sort as constituting a distinct disease entity based on etiology. The fact that treatment differs very materially from that used in ordinary cheilitis exfoliativa is an additional argument for segregating this group. On the other hand, dermatologic nomenclature is so surfeited with complicated names for unimportant subdivisions and variations of diseases, that one hesitates to add to the already unwieldy vocabulary. Possibly the parenthetical designation "actinica" or "actinica chronica," after the diagnosis "cheilitis exfoliativa," would suffice for recognition.

The diagnosis of chronic actinic cheilitis should not be difficult. The intimate association of the disorder with exposure to sunlight is the most striking point in the history. It is usually recurrent, occurring during the summer months, especially in localities where sunlight is most intense, as in the mountains, at the beach, and in southern California, even in the cities. It occurs by preference in those people who are habitually exposed to the sunlight, such as farmers, pedlers and golfers. It is really a variety of cheilitis exfoliativa. The attack frequently begins with a group of vesicles on the vermilion surface of the lower lip, which soon become confluent, crusted, scaly, and sometimes fissured. When chronicity has become established, the lip presents merely the picture of a crusting and scaling inflammation, sometimes with slight swelling. Treatment is demanded not only for the discomfort and disfigurement, but also for potential malignancy. All of the cases seen thus far have been in blonds or partial blonds. It has been impossible to study the histologic structure, since none of the patients were willing to submit to a biopsy.

Other disorders of the lip which should be considered before making a final diagnosis are: cheilitis exfoliativa due to other causes, as the seborrheal type; cheilitis glandularis apostematosa, characterized by increase of mucous gland tissue of the lip with dilatation and hypertrophy of the ducts and an excessive mucopurulent, sticky secretion; [2] Fordyce's disease; leukoplakia; lupus erythematosus, and a variety of disorders in which the lip is involved as part of a more generalized disease, such as chancre or mucous patches of syphilis, and stomatitis of pellagra, sprue, pemphigus, erythema multiforme and chronic arsenic poisoning.

REPORT OF CASES

CASE 1.—L., a man, aged 64, a junk pedler, had been troubled for four months (May, June, July and August) with a crusted lesion of the lower lip. There had been two previous attacks during the same months of the preceding two years, with complete freedom during the winter. The first attack began about four months after the patient had come

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* From the Department of Dermatology, White Memorial Hospital.
* Read before the Section on Dermatology and Syphilology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Montgomery and Culver: M. Rec. **98**: 141 (July) 1920.

2. Sutton, R. L.: Diseases of the Skin, St. Louis, C. V. Mosby Company.

to southern California from St. Louis, where he had lived for many years. Treatment of the other attacks, which had consisted in the application of various drugs, and other measures, including the actual cautery, had for the most part considerably aggravated the condition. During the past two months of the present attack he had received from another physician four roentgen-ray exposures, which seemed to irritate the lip considerably; the last exposure was two and one-half weeks before I saw him, following which the lip had been worse than ever.

Examination showed, in the first place, that the lower half of the patient's face was heavily tanned, in marked contrast to the upper part of the face, which had been shaded from the sun by a cap. The patient was a semiblond, having blue eyes and dark hair. Only the lower lip was affected. There was a linear crusted, fissured, oozing area extending along the junction of the vermilion surface with the true mucous membrane. The entire lip was somewhat puffy and redder than normal. There were no lesions elsewhere on the cutaneous surface, and no seborrhea in the scalp.

A soothing lotion of phenol (carbolic acid), zinc oxid and lime water was used for about three weeks with very striking improvement. The use of hydrous wool fat for another week witnessed a complete return to normal. During treatment, the patient wore a broad-brimmed straw hat which shaded the entire face. In reply to a letter of inquiry written a year later, the patient stated that his lip had not bothered him during the past year, except for slight dryness during the summer. This had been relieved by an occasional application of compound tincture of benzoin. The lip was normal at present. It is, of course, a matter of speculation as to whether the roentgen-ray treatments had rendered the lip incapable of responding in the usual manner to sunlight, a possibility strengthened by the fact that the patient had not been very conscientious in the matter of wearing his broad-brimmed hat.



Fig. 1.—Appearance of lip in Case 2.

CASE 2.—O., a man, aged 44, a peddler, and a friend of Mr. L., reported above, was having his second attack of sore lip. He had lived in Los Angeles for two and one-half years, having come from New York, where he had worked indoors. The first attack occurred during the summer, beginning a few months before his arrival and lasting about two months, finally disappearing without treatment. The present attack began in May, and had lasted ten weeks. He had had no treatment. The lesions began as "fever blisters," which later became crusted and scaly. He had been wearing a cap that protected only the upper half of his face. Other parts of the skin had never been affected.

The lower lip showed a linear, crusted, slightly scaly lesion or series of lesions along the junction of the mucous and vermilion surfaces, with slight scaling over the vermilion surface. There was very little swelling.

The patient was given a paste containing zinc oxid, corn starch and petrolatum, and advised to wear a broad-brimmed hat. The lip was practically normal within a week. The patient has not been seen again, and a letter of inquiry written a year later was not answered.

CASE 3.—S., a man, aged 40, a timekeeper, had had trouble with his lips for the past twenty years. He had lived in southern California for the past eighteen years, but thought that the eruption began several years before coming West. He had worked outdoors most of his life, and felt quite certain that exposure to sunlight caused the inflammation. It had always been better during the winter or during rainy or cloudy weather. Twelve years ago, for a period of three years, while engaged in indoor work, the lip was entirely well most of the time. Two and a half years ago the lip was treated by means of radium tubes. After the reaction had subsided there was improvement for about six months, but during three months of this time the patient was sick in the hospital with typhoid. Since then the lip had been scaly, crusted and oozing most of the time. He had never noticed any true vesicles resembling herpes. The lips itched and burned considerably. A proprietary ointment gave some relief.

The vermilion surfaces of both lips, especially the lower one, showed diffuse, superficial, closely adherent, small crusts. There was no oozing. There was a moderate superficial atrophy, such as might have been caused by radium. It is of interest to note that although the patient protected his face from the sun last summer by wearing a sombrero, his lip was no better. This suggests the possibility that his cheilitis, ordinarily due to sunlight and relieved by protection from sunlight, had given place to a mild chronic radiodermatitis. The backs of the hands showed a dry, fissured eczema; the body showed generalized diffuse scratch marks from a pruritus of four years' duration. The patient was to have returned for a general examination, but failed to report.

CASE 4.—C., a man, aged 30, a medical student had been troubled with an inflammation of the lower lip nearly every summer for the past fourteen years. The patient was living in Michigan at the onset; he had lived in southern California for the past three years. The disorder occurred only when the patient was working out in the sun, usually lasted about six weeks, and was rebellious to all treatment except protection from sunlight. It began with redness, swelling and pain; usually there were no vesicles. The lesions were usually limited to the junction of the vermilion and mucous surfaces. In a few days, scaling and crusting developed, and persisted until the patient ceased to work in the sunlight. Roentgen-ray or radium treatment had never been tried. The patient said that he tanned readily, in spite of his blond complexion.

At the time of examination, the patient had not been exposed to sunlight, and the lip was entirely normal, although the summer just passed had been as warm and bright as usual.

CASE 5.—K., a youth, aged 14, a student, had been having trouble with his lips and skin for the past four summers. The disorder usually began in June, lasting three or four months, and affecting only those parts of the cutaneous surface exposed to the sunlight, clearing entirely in the winter. The lymph glands draining the affected areas were nearly always enlarged.

The lower lip was slightly swollen, superficially eroded, crusted, and scaly on the vermilion surface. The upper lip showed a sharply defined scaly patch, extending from the vermilion surface on the skin to a zone approximately midway between the lip and the nose. The skin over the lower half of the nose was reddened, thickened and excoriated. The skin of the extensor aspects of the forearms and hands was somewhat thickened, and covered with excoriated papules, confluent, crusted, eczematous looking areas, and small pea-sized scars from previous attacks.

COMMENT

The underlying cause of photosensitiveness is unknown. Meyer-Betz [3] of Königsberg, in an exuberant spirit of scientific research, succeeded in sensitizing himself to sunlight by the intravenous injection of 300 c.c. of a saline solution containing 0.2 gm. of hematoporphyrin. The experiment on himself was preceded by similar experiments on mice. After the injection, Meyer-Betz found himself extremely photosensitive, a condition which lasted about six weeks. Even the briefest exposure to sunlight resulted in most intense edema, pain and redness, followed by desquamation and tanning. Peeling and serous exudation of the lips

3. Meyer-Betz, F.: Photodynamic Action of Hematoporphyrin, Deutsch. Arch. f. klin. Med. **112**:476, 1913.

was pronounced. As long as he remained in the dark, he was apparently normal; diffused daylight did not seem to be harmful. Accompanying the acute reaction from exposure to sunlight, there was a moderate leukocytosis, chiefly due to an increase in the polymorphonuclears. No enlightenment was offered as to possible sources of hematoporphyrin under natural condition. Experiments with the bile pigments found in jaundice failed to induce photosensitiveness.

The important rôle of sunlight in the production of disease is worthy of more general recognition and research. Such diseases as xeroderma pigmentosum, seborrheal keratoses, epithelioma, hydroa aestivale, summer prurigo, pellagra, and a type of chronic, exfoliative cheilitis are due either wholly or in part to the chemically active, short radiations found in sunlight. In some of these disorders, a condition of photosensitiveness of unknown origin is probably an essential part of the process.



Fig. 2.—Inflammatory areas in Case 5.

SUMMARY

A chronic scaly, crusted inflammation of the lips, especially of the lower lip, is apparently caused by the chemically active or actinic light in sunlight, and may be designated "cheilitis actinica chronica," or "cheilitis exfoliativa (actinica chronica)."

This disorder is usually recurrent during the summer months.

Protection from sunlight, and soothing local applications, offer the best method of prevention and treatment.

Since the etiology and treatment of this variety of cheilitis differ from other varieties, it is felt that this disease should be recognized as a distinct entity.

Westlake Professional Building.

ABSTRACT OF DISCUSSION

DR. KENDALL P. FROST, Los Angeles: Dr. Ayres deserves credit for drawing this entity to our attention. There is nothing special to add to his remarks. Certain individuals appear much more susceptible to sunlight than others, and it is a certain phase of this group that Dr. Ayres has covered. It is probable that many people have mild forms of this disorder, but consider it a more or less normal condition. They do not appear for medical treatment, but use mild applications of their own invention for relief.

DR. H. M. GREEN, Portland, Ore.: Dr. Ayres is to be congratulated for naming this disease. I was called to the border in 1913 with some troops from Utah, and the captain of our artillery had a very bad attack of this sort and came to the physician for relief. I painted his lip with petrolatum without any result, but noticed that it occurred on days when we were out on march, so I advised him to wear a cigaret paper over the lip on those occasions. The condition never recurred as long as he wore the cigaret paper. I have also found that the keratoses in an old roentgen-ray burn have been increased by sunlight.

DR. EVERETT S. LAIN, Oklahoma City: I think it is important to remember this condition, for those of us who practice in the South and Southwest see many of these cases. The ordinary laborer refers to it as "sun burned lip" but I believe that it predisposes to epithelioma. The treatment Dr. Ayres has suggested is helpful in a temporary way, but I think he will get better results from the quartz lamp. As he mentioned, it makes it worse at first, but if he will repeat the doses over several weeks he will get an immunity that will protect the patients from future attacks.

DR. FRED WISE, New York: The cases that Dr. Ayres has presented are rather uncommon in the north temperate zone and are also uncommon in New York. I wish to know whether Dr. Ayres thinks we cannot distinguish these cases of actinic cheilitis from the ordinary exfoliative cheilitis cases which are very resistant to all methods of treatment — the quartz lamp, roentgen rays, ointments, and everything else. I once spent several months in the Southwest; the first case of this disorder that I saw was in an albino Navaho Indian. What Dr. Ayres said about blonds brought this case to mind. There are a number of albino Indians in the Navaho reservation, but I found many cases among the ordinary brunette Indians, many of whom have bleeding lips from exposure to the sun. I was interested in the treatment, especially in the remark made by Dr. Lain regarding the ultraviolet light. Having had no experience in treating the disorder in this way, I question whether this method does not do harm in the actinic cases. Is the healing by ultraviolet rays due to the actual application of the light or to a cauterizing effect per se? In my experience, even the cautery is not efficacious in many cases.

DR. JAMES HERBERT MITCHELL, Chicago: I have had cheilitis exfoliativa for several years and have also had experience with the cheilitis due to sunburn, or sunlight, if I go out in the spring or early summer and submit myself to sunlight for too long the first time. If I go out early, before the sun becomes very bright, and expose myself for short periods repeatedly, I do not have the trouble; but on a number of occasions I have gone on a vacation and exposed myself for an entire day, riding, or playing tennis or golf, and have had a great deal of trouble. The cheilitis in my case has readily receded with the use of salicylic acid and sulphur, and that due to sunlight is relieved by remaining indoors. I am also subject to herpes, and that will occur on exposure to wind. Since coming out to this dry country I have developed the exfoliative type. After driving most of yesterday, I awoke this morning with an attack of herpes.

DR. FRED D. WEIDMAN, Philadelphia: I can substantiate everything Dr. Mitchell has said. I am not at all subject to sunburn, but after visiting the Grand Canyon of Arizona I immediately developed sunburn of the skin and lips, and also herpes simplex.

Dr. Harry E. Alderson, San Francisco: As an old Californian, I wish to protest against the suggestion that sunshine produces all these lesions. As a matter of fact, we see a variety of conditions which are produced, or aggravated, by sunlight no matter where the patient may be when exposed to the sunlight. I have seen something similar in New York, London, Berlin, Honolulu and other places. I think the subject is very important and, as the discussion has demonstrated, it is something in which we are all very much interested. I was glad when Dr. Ayres brought up the question of tissue chemical changes, as underlying factors in the disease causing sensitization of the patient to sunlight, for I think that this is most important. We know that certain foods and drugs will render the skin more sensitive to actinic light.

Dr. Jesse Ettleson, Portland, Ore.: In Oregon we see these things very frequently. In fact, every Monday morning we usually see some cases in people not accustomed to exposure to reflected sunlight. For instance, many people climb Mount Hood. The experienced usually paint their faces with ordinary grease paint, and many others mix up many things with cold cream and apply it. We let them alone, and they readily get well.

Dr. Moses Scholtz, Los Angeles: I hope that this disorder will not become known as a California disease. We do see a number of people who show various degrees of intolerance of California sunlight. As to the classification of the condition described, I would not consider it a separate entity. I believe it should be placed in the group of Hutchinson summer recurrent dermatitis of a peculiar localization. As to the treatment, I have tried in a few cases quinin ointment, recommended by French dermatologists, as a preventive of actinic burn, apparently with good results.

Dr. Louise E. Taber, San Francisco: We see many of these cases in connection with people exposed to the rays of the sun, and I have found that the use of the ordinary lip rouge helps to protect the skin against exposure to sunlight and wind.

Dr. Samuel Ayres, Jr., Los Angeles: I was interested particularly in the remarks of Dr. Lain about increasing the tolerance, and shall try that out. I do not believe people will refuse to live in California on this account, for there are enough reasons for coming here to counteract this drawback.

MATCH AND MATCH-BOX DERMATITIS *

O. H. FOERSTER, M.D.
MILWAUKEE

In 1918, Rasch [1] of Copenhagen directed attention to the occurrence of a localized or extensive, often severe and distressing, dermatitis due to irritation induced by contact of the skin with the material composing the striking surface of certain safety match-boxes. This report led to the recognition in Denmark [2] and other countries, including the United States,[3] of the same etiologic basis for a number of instances of dermatitis of hitherto obscure origin. It seems that similar cases had been observed in Germany [4] and the United States,[5] and that the etiology was recognized in some [6] before Rasch's article appeared; the general interest in the subject which has led to the reports of additional cases, however, is attributable entirely to Rasch's first and subsequent [7] publications. As nearly as can be ascertained, all of the cases reported in the literature thus far have been due to contact with chemicals contained in the striking surface of safety match-boxes. In this contribution I record the occurrence in six patients of an acute dermatitis of variable intensity due to chemical irritation of the skin induced by carrying loose matches in the pockets—a match instead of a match-box dermatitis—and also an instance of exceptionally severe and extensive match-box dermatitis.

It will be of interest in this connection to refer briefly to the subject of match manufacturing so far as it bears on the etiology of match and match-box dermatitis. The introduction of matches followed some time after the discovery of white or yellow phosphorus by Brandt of Hamburg in 1669, and their manufacture on a commercial scale began in England in 1827, in Austria in 1831, and in the United States in 1836. Distinct advances in the industry occurred following the isolation of amorphous or red phosphorus by Schröter of Vienna in 1845, and the demonstration by Sevène and Cahen in France in 1898 that the nonpoisonous sesquisulphid of phosphorus could be substituted for the poisonous white phosphorus.[8] Among the materials used in the manufacture of matches are white and red phosphorus, phosphorus sesquisulphid, sulphur, antimony sulphid, chromium compounds, potassium chlorate, glue, rosin and powdered glass, all of which may produce dermatitis.

Two types of matches are to be considered here:

1. The "safety," or Swedish, match, first made in Bohemia in 1854, is a nonpoisonous match that ignites only on a prepared surface and contains in its head and as its chief ingredient potassium chlorate or other compounds rich in oxygen. In the manufacture of certain safety matches in Sweden, the paste used contains from 3 to 6 per cent. of chrome salt, calculated by Rambousek as equivalent to about 0.5 mg. for each match-head.[9] The striking surface on the box is made of a paste of glue and powdered glass or sand containing red phosphorus and at times antimony sulphid.[8] Owing to war conditions, the formula of the paste used for certain European brands of safety match-boxes was changed by replacing the red phosphorus by phosphorus sesquisulphid,[10] and this has been held responsible for the cases of match-box dermatitis reported by Rasch and others.

2. The "strike anywhere" match is made with a nonpoisonous paste containing 6 per cent. phosphorus sesquisulphid, 24 per cent. potassium chlorate, and zinc oxid, red ochre or other pigment, powdered glass, glue and water.[8] This type of match is in general use in this country, and is the etiologic factor in the cases reported here.

The old "parlor" or "lucifer" match, made with a paste of from 5 to 7 per cent. poisonous white phosphorus, potassium chlorate, pigments, zinc oxid, powdered glass and glue, ignites when struck with friction against any rough surface. It is no longer manufactured in this country. The old fashioned "sulphur" match has never been popular because of the disagreeable sulphur fumes produced on ignition, and it is seldom used now.

The white or yellow phosphorus is very poisonous, and has been the cause of much suffering in the match

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* Read before the Section on Dermatology and Syphilology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Rasch, C.: Ugesk. f. Læger **80**: 258 (Feb. 14) 1918.
2. Barfoed, Olivarius, Lomholt, Jacobsen and others: Ugesk. f. Læger **80**: 349 (Feb. 28) 1918.
3. Fox, G. H.: J. Cutan. Dis. **36**: 530 (Nov.) 1918. White, C. J.: J. Cutan. Dis. **37**: 125 (Feb.) 1919.
4. Loeb: Dermat. Ztschr. **24**: 240, 1917. Stranz, H.: Münchener. med. Wchnschr. **68**: 548, 1921.
5. Eaton, W. E.: U. S. Nav. M. Bull. **11**: 540 (Oct.) 1917.
6. Frei, W.: Med. Klin. **17**: 461 (No. 16) 1921.
7. Rasch, C.: Ugesk. f. Læger **83**: 1119 (Aug. 25) 1921.
8. Oliver, Thomas: Diseases of Occupation, Ed. 3, New York, E. P. Dutton & Co., 1916, p. 35.
9. White, R. P.: Occupational Affections of the Skin, Ed. 2, New York, Paul B. Hoeber, 1920, pp. 83 and 93.
10. Strandberg, J.: Acta Dermato-Venereologica **1**: 116, 1920.

industry.[11] This led, in 1906, to the introduction in some countries, including Argentina, Great Britain, Canada, France, Italy, Norway and Spain, of legislation prohibiting its use in the manufacture of matches. The Congress of the United States passed the White Phosphorus Match Law in 1912, which placed a prohibitive tax on white phosphorus matches, and made their importation and exportation illegal after Jan. 1, 1914. In consequence, these matches have disappeared from the market. White phosphorus has been replaced in the match industry in this country by phosphorus sequisulphid, which, though nonpoisonous, may act as an irritant and cause dermatitis, conjunctivitis, and edema of the eyelids. Workers in French factories engaged in the manufacture of the sesquisulphid are required to bathe the eyes and douche the nose with sodium bicarbonate solution twice daily, which effectively prevents the inflammatory disorders.[8] The sesquisulphid may at times contain a trace of red phosphorus. Frei[6] found that chemically pure phosphorus sesquisulphid produced an inflammatory reaction of the skin, and attributes the irritant effect to the development of an as yet unknown volatile body. White[9] states that the sesquisulphid sometimes causes erythema and that, according to Legge, the "dippers" who handle or lean over the match paste develop a troublesome pustular eruption.

Among the workers in certain of the match factories in Sweden where chrome salts are used, perforations of the nasal septum and chrome dermatoses are not uncommon.[9] The chromates may be absorbed by the skin and mucous membranes, causing pit-like and burrowing phagedenic ulcers which are painful and difficult to heal. These lesions resemble syphilitic ulcers, and are most frequently located on the hands. Eczematous eruptions are also produced by chrome compounds.[12]

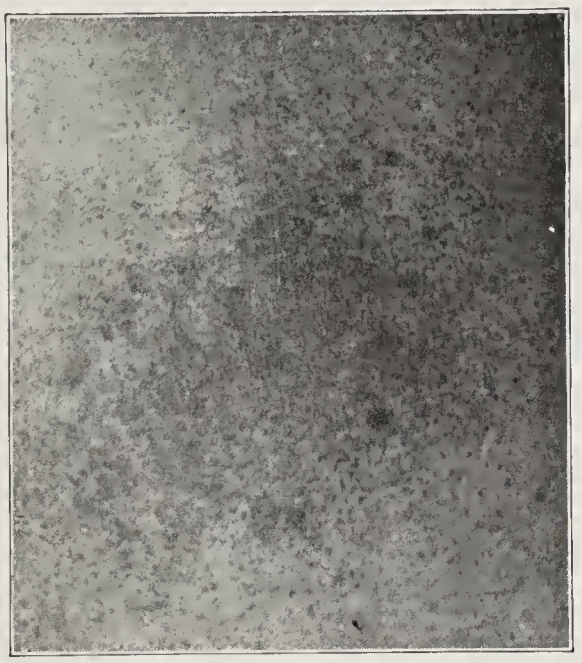


Fig. 1 (Case 1).—Dermatitis of erythematopapular type, due to matches.

White,[9] quoting Herxheimer, says that "the paraffin on matches causes eczema on the hands of girls packing the matches in boxes," but suspects that rosin contained in the mixture is the real irritant.

In 1918, Rasch[1] of Denmark reported seven cases of match-box "eczema" occurring as mild burns on the thighs with associated lesions on the hands and face. Immediately following this, similar cases of previously unrecognized origin were reported in Denmark by Barfoed, Olivarius, Lomholt, Jacobsen and others,[2] and credited to the publication of Rasch's article and attributed to a certain Swedish brand of safety match-boxes. Rasch's experiment indicated the presence of white phosphorus in the striking surface of the box as the active etiologic factor in the production of the dermatitis. Johanne Christiansen,[13] after making numerous chemical analyses of these boxes, leaves the question undecided as to whether phosphorus sesquisulphid or additions of white phosphorus are the irritants.

In 1920, Rasch[14] stated that a recurrent blepharoconjunctivitis was a fairly constant symptom in the cases observed by him.

In 1921, Rasch reported thirteen cases of match-box dermatitis in match factory workers and in others, caused by phosphorus sesquisulphid in the material of the striking surface of the boxes of a Swedish brand of safety matches bearing the picture of a ship. Some of these patients showed severe dermatitis of the fingers, neck and face, that resembled more or less closely a primula dermatitis.

In 1918, Fox[3] called attention to Rasch's publication, and in 1919 White[3] reported two cases of probable, though previously unrecognized, match-box dermatitis, and a third, proved case.

In 1920, Levin[15] presented a patient with match-box dermatitis before the section of Dermatology of the New York Academy of Medicine, and in the discussion Williams and Highman mentioned having seen similar cases.

MacKee[16] relates the history of a case that was unrecognized until after the appearance of Rasch's article.

Antedating all of these publications and reports, including those of Rasch, but unfortunately published in a government bulletin with a very limited circulation, is the brief report by Eaton[5] of five cases of match-box dermatitis of localized character, occurring during hot weather over cutaneous areas in apposition to shirt or trouser pockets in which boxes of safety matches were carried. This dermatitis responded to local applications, but recurred until the causative agent was discovered and removed. In one case a dermatitis also was present on the fingers of one hand and about one eye.

I have succeeded in producing a dermatitis experimentally on the thigh by carrying a box of safety matches in the trouser pocket for three days during hot and humid weather. A continuous sensation of intense burning and itching preceded by thirty-six hours the appearance of a localized erythematopapular eruption, and subsided during six days in which the dermatitis, after removal of the match-box, gradually disappeared, though an itching sensation recurred in the affected area during the following two weeks whenever the skin was hot and moist.

The following case reports include six of match dermatitis and one of match-box dermatitis.

REPORT OF CASES

CASE 1.—A manufacturer, aged 54, seen, Dec. 1, 1921, had had an itching inflammation of two years' duration, confined to the front of the left thigh. This area was at first pruritic without visible change in the skin; later it showed a moderately inflammatory eruption, which had varied in severity and had at times been entirely absent. The pruritus also had been intermittent, recurring suddenly after an absence of one or two months. The pruritus and inflammation had appar-

11. Andrews, J. B.: Phosphorus Poisoning in the Match Industry, Bull. 86, U. S. Bureau of Labor, Washington, D. C., January, 1910, p. 31.
12. Bulletin 100, U. S. Bureau of Labor, Washington, D. C.
13. Christiansen, Johanne: Ugesk. f. Læger, 1918, No. 14.
14. Rasch, C.: Dermat. Ztschr. **30**: 313, 1920.
15. Levin, O. L. A.: Match-Box Dermatitis, Arch. Dermat. & Syph. **2**: 92 (July) 1920.
16. MacKee, G. M.: X-Ray and Radium, Philadelphia, Lea and Febiger, 1921, p. 360.

ently been more pronounced when the skin was warm, as when heavy underwear was worn. There had never been an exudation or pronounced desquamation, and there had been no manifestations of cutaneous disease other than a recent itching of the skin of the eyelids without visible inflammation. The patient had been in the habit of carrying matches in the left trouser pocket; and though he discontinued smoking a year previously, he usually carried a few matches, and had several matches in the left trouser pocket at the time of examination. The matches were of the large "strike anywhere" variety, and had a strong sulphurous odor. He occasionally carried a box of Swedish safety matches, but had not associated his symptoms or the eruption with the presence of matches on his person.

Examination showed a well defined area of inflammation, the size of a large hand, on the anterior surface of the left thigh opposite the bottom of the left trouser pocket. The eruption was bright red, almost scarlet, with the exception of two oval areas about 1½ by 2 inches in size, where the lesions were confluent and dusky red, and showed a branny desquamation. The remaining area was studded with closely set, discrete, millet-seed sized, more or less conical papules, some of which were follicular. Some of the papules appeared polished and faceted; many were capped with tiny scales. These papules were set at irregular distances from one another, and some were closely grouped in a circinate arrangement. Toward the two oval areas of greater inflammatory intensity the papules tended to fuse and were deeply congested, though not exudative. At the periphery, the papules were scattered at wider intervals. The entire involved area was elevated, owing to inflammatory edema. There were a few excoriations, chiefly about the periphery of the patch.



Fig. 2 (Case 3).—Dermatitis of edematous and scaly type, due to matches.

Further contact with matches was avoided, the pocket was replaced by a new one, and a zinc oxid and calamine emulsion was applied locally, resulting in improvement within a few days and complete healing after ten days. Some pigmentation was present for several weeks. The dermatitis was later experimentally reproduced when matches of the same brand were carried in the pocket for one day.

CASE 2.—A bank clerk, aged 24, of light blonde type, seen, Jan. 5, 1920, had had an acute pruritic dermatitis for several weeks. The eruption began acutely with erythema, edema and exudation over the eyebrows, followed in about ten days by a papular and vesicular eruption, with later exudation, over the outer side of the left thigh, and then by a similar eruption on the dorsal surfaces and webs of the fingers of both hands.

This patient had been seen three years before, at which time he presented an irritant erythematovesicular and vesicopapular dermatitis on the lateral surfaces of the thighs, and a few similar lesions on the flexor surface of the left arm. The history indicated that the eruption had first appeared about eighteen months before on the lateral surface of the right thigh, and then over the right lower abdomen as a vesicular and vesicopustular dermatitis. This condition responded to symptomatic treatment, but showed occasional exacerbations of variable severity at intervals of several months, until his second visit, in January, 1920. Examination at this time showed a well defined oval patch of dermatitis, measuring about 4 by 6 inches, over the outer surface of the left thigh, consisting of closely set, flat, scale-topped red papules of pinpoint to pinhead size, scaling macules, infiltration, and some pigmentation. The webs and the dorsal surfaces of the fingers of the left hand, the forehead, the sides of the face, the region about the ears, and portions of the scalp showed an erythematosquamous dermatitis.

The upper and outer surface of the left thigh was usually the first site in which erythema developed during recurrent attacks, and this area was found to be in direct apposition to the left trouser pocket. The patient stated that he usually carried loose matches in this pocket. The dermatitis disappeared after avoiding contact with matches and under sedative local applications. He was seen again in December, 1922, for a seborrheic dermatitis of the face and scalp. At this time he stated definitely that pruritus and inflammation of the previously involved skin of the left thigh had always occurred shortly after he carried loose matches in the left trouser pocket, and that this eruption did not occur when matches were carried in a metal match-box.

CASE 3. — A real estate agent, aged 48, seen, Feb. 11, 1921, had had a localized inflammation of twenty-six days' duration, situated on the right thigh and associated with sensations of itching and burning. On the anterior surface of the right thigh there was a slightly raised, tender lesion, the size of an adult's palm, and of normal color except in six dime-sized and smaller areas with an urticaria-like, edematous infiltration. The latter lesions were scaly, red, and in part petechial, and had appeared gradually and increased slowly in size and in intensity of inflammation. There were no other cutaneous lesions, and the past medical history was entirely negative. The patient frequently carried loose matches of the "strike anywhere" variety in the right trouser pocket, the bottom of which was in direct approximation with the area of inflammation.

The dermatitis responded satisfactorily to local soothing medicaments and removal of the causative agent; and, except for a tendency to local irritability and congestion of the involved area when the skin was overheated, the eruption had disappeared when the patient was last seen, seven weeks after his first visit.

CASE 4.—An insurance agent, aged 35, was seen, Oct. 15, 1922, with a well defined, palm-sized patch of erythematopapular dermatitis situated over the right lower abdomen directly opposite the lower right vest pocket. The eruption was intensely inflammatory and pruritic, and was composed of pinhead-sized, rounded red papules on an erythematous and slightly exudative base. The first symptoms had appeared five days before, and since then the lesion had increased rapidly in size and in the intensity of the pruritus and inflammation. The pruritus was of an intensely burning or stinging type, described by the patient as similar to the sensation pro-

duced when the finger is cut with a sharp-edged piece of paper. He had been carrying loose matches of the "strike anywhere" variety in the right lower vest pocket for nine days before the first manifestation of the dermatitis. For at least two years previously he had been constantly carrying small packets of safety matches in this pocket, but was quite positive that he had never before carried loose matches. The eruption subsided quickly on removal of the matches and the application of a phenolated calamine emulsion, and there has been no recurrence to the present time.

CASE 5.—A musician, aged 29, who had been treated by me for scabies nine years before, was seen, April 24, 1923, with an inflammatory lesion on the abdomen of three weeks' duration. This was a fairly well defined, angular, approximately palm-sized area of dermatitis over the right lower abdomen, exactly opposite the right lower vest pocket. The patch was acutely inflammatory and desquamative, with irregular superficial fissuring insufficient to induce exudation, and without papule formation. The eruption was said to be less intense and less pruritic at the time of examination than it had been a short time before, and there had never been vesiculation or exudation. There were no lesions elsewhere. The patient said that he frequently and had recently carried loose matches in the pocket referred to, but carried none at the time of examination. He was advised to avoid contact with matches, and the dermatitis soon disappeared under local applications without recurrence to date.

CASE 6.—A factory manager, aged 42, married, developed an intensely itching and burning patch of dermatitis as large as the palm of the hand, on the anterior surface of the left thigh, and shortly afterward noticed tingling, itching, redness and swelling of the skin of the eyelids and malar regions. The inflammation subsided and recurred at irregular intervals, was exudative at times on the thigh, and within six weeks after the onset had appeared on the trunk and genitalia in erythematous patches, and on the webs and lateral surfaces of several fingers as an itching and burning erythema with swelling. The patient was treated under the diagnosis of nervous eczema without securing relief, and when first seen by me, June 27, 1919, presented the following symptoms: The eyelids and the skin of the cheeks and temporomalar regions were swollen, dusky red, exfoliating in small, thin flakes, and fissured on the lids and at the canthi. Covering the upper half of the anterior surface of the left thigh was an edematous, partly moist and partly crusted and scaling patch of dermatitis, with the inflammatory features most intense in its central portion and growing less toward the periphery of the patch. In the groins and on the genitalia were smaller, though less highly inflammatory, patches with crusts and scales; and blotchy erythematous patches were scattered over the sternal region, abdomen and flanks, with numerous discrete, chiefly follicular, inflammatory papules of pinhead size. The lateral surfaces and webs of the fingers were swollen, red and excoriated, as the result of rubbing. The patient complained bitterly of an intensely itching and burning sensation, referred especially to the lesions on the face, thigh, genitalia and hands, which was continuous and at times paroxysmal. The patient was in poor physical condition and extremely nervous, owing to loss of sleep and the torture occasioned by itching, and had required sedatives. He was a smoker, usually carried a box of safety matches in the left trouser pocket, and at the time of examination had a box of safety matches in the left pocket of his dressing gown in direct apposition with the patch of dermatitis that was more intensely inflammatory than any of the others. A diagnosis of match-box dermatitis and infectious eczematoid dermatitis was made, and under ordinary local applications and wet compresses for drainage of the crusted lesions the disorder subsided. Although he was warned not to carry matches on his person or to handle matches, the patient did so on several occasions during the next four months, and the dermatitis recurred promptly or exacerbated after each exposure. Itching was usually most intense on the face about the eyes, and the suffering during the paroxysms was extreme until relieved by hot compresses. The course of the disorder was prolonged by renewed exposures to the causative agent, until the diagnosis was confirmed six months later by Dr. Hermann Goldenberg of New York, who also reproduced the dermatitis experimentally on the abdomen by having the patient carry matches in his waistcoat pocket. The patient avoided further contact with matches or match-boxes, and has remained well since.

CASE 7.—An office executive, aged 65, had had an erythematosquamous dermatitis of several weeks' duration that had begun on the anterior surface of the left thigh and extended later to the left abdomen and flank, with erythema, infiltration and fissuring of the eyelids and neighboring skin, and severe itching and burning. The causative agent was not recognized at first, and the disorder continued in spite of treatment until he was placed in a hospital, where it was learned that he carried loose matches of the "strike anywhere" variety in the left pocket of his dressing gown, and had recently begun to carry loose matches in his trouser pockets. After avoidance of contact with matches, the dermatitis disappeared, but recurred several weeks later while the patient was in the East and had again grown careless in his use of matches. He was treated by a prominent physician with tonics and dietetic measures under the diagnosis of "nervous eczema" for several weeks, but recovered promptly when he avoided contact with matches and applied a calamine emulsion.

COMMENT

From the preceding pages it is seen that the recognition of this new variety of dermatitis followed soon after the general introduction of phosphorus sesquisulphid into the match industry, largely as a war-substitute measure abroad after about 1914,[17] and in consequence of the white phosphorus match law, effective in the United States after 1913. The etiologic relation of phosphorus sesquisulphid to match-box dermatitis has been shown experimentally and clinically; and the occurrence of dermatitis, as reported here, due to the "strike anywhere" type of match, which is now made with phosphorus sesquisulphid, is further evidence of the irritant properties sometimes exhibited by this chemical.

Experiments with safety match-boxes made by Frei [6] indicate the presence of a special susceptibility in those affected, for of 140 persons tested under usual conditions, only two developed a dermatitis. When the material from the striking surface of the boxes was rubbed into the skin, a larger number responded with the production of a dermatitis. The occurrence of widespread eruptions brings up the question of sensitization, but an increased susceptibility of other parts of the skin in those affected in one area was not observed by Frei. He made note, however, of the existence of a long continued, nonspecific, local hypersensitiveness, which I also have observed. Some of the elements of the generalized eruption sometimes seen in the exudative and crusted forms, as observed also in dermatitis of any origin, are those of an infectious eczematoid dermatitis (as in Case 6), and are not attributable to the primary cause of the dermatitis—a distinction with a bearing on treatment.

There are no essential differences in the clinical symptomatology of match-box and of match dermatitis, as both are caused by phosphorus sesquisulphid, which, when near or in contact with the skin, and when subjected to the special conditions of heat and moisture, develops irritant properties. Match-box dermatitis occurs perhaps more often on the thigh, and the onset of the eruption when due to matches appears to be more acute and intense, as though the irritant was more concentrated; but in other respects the clinical picture is the same. Irrespective of origin, it varies, however, in accordance with differences in the indi-

17. Stranz (Footnote 4).

vidual susceptibility, intensity and length of action of the irritant, and with the stage at which the condition comes under observation as it passes from a mild erythema through stages of papular eruption, edema of the tissues and exudation, to lichenification, or perhaps does not progress beyond any of these.

The variation in the clinical picture and the difficulties encountered in diagnosis are well illustrated by the reports of cases that had been mistaken for erysipelas, chronic eczema of various types, and by the erroneous diagnosis of lichen chronicus circumscriptus made and accepted in a group of cases exhibited before a German dermatologic congress in 1917.[18]

The important diagnostic features of match and match-box dermatitis are: location and localization of the eruption, repeated recurrences in the original areas, character of the subjective symptoms, and the prompt response to therapeutic measures when the causative agent is removed. The appearance in men of an originally erythematous or erythematopapular eruption of varying intensity in cutaneous areas in contact with pockets; its repeated recurrence at the same or at a similar site with the production of exudative, scaly, crusted and later lichenified lesions here and also on the face about the eyes and elsewhere, associated with itching, burning and painful sensations of striking intensity even in cases with only a mild inflammatory type of eruption; and in women and children the presence of a recurring blepharoconjunctivitis and recurring dermatitis or "eczema" on the face and hands with the clinical features just described, should arouse suspicion that the disorder is of external origin and may be due to contact with matches or match-boxes. Unless the causative agent is removed, in consequence either of its recognition or of a change in the personal habits of the patient, the dermatitis continues for years, and treatment fails to be of more than temporary benefit (Case 2).

The most essential part of treatment is strict avoidance of contact with matches or match-boxes, even for several months after the dermatitis has disappeared. Unless this is done, recurrence is probable (Cases 6 and 7). In addition, I advise that the pockets in which the matches or boxes were carried be replaced by new pockets. The dermatitis will then subside promptly under local applications of phenolated calamine emulsion, boric acid solution, or simple protective ointments. In exudative or crusted types, and especially in those associated with infectious eczematoid dermatitis, a 2 per cent. resorcin solution or a solution containing resorcin, boric acid and glycerin applied as wet compresses to secure continuous drainage, is of value. The use of sodium bicarbonate solution as a remedial agent has occurred to me since learning of its successful use as a preventative measure in the phosphorus sesquisulphid manufactories of France, but the opportunity to employ it has been lacking.

445 Milwaukee Street.

ABSTRACT OF DISCUSSION

DR. HARRY G. IRVINE, Minneapolis: We frequently have to deal with things that seem of minor importance to us but which are of great importance to the patient. I think that we all stumble on cases in which we are unable to get at the etiology and have great difficulty in controlling the inflammation. Many of us have had the experience of having these patients go from one physician to another until some man was sharp enough to clear up the etiology and cure the condition. We are indebted to Dr. Foerster for calling this to our attention and for going into the chemistry of matches so thoroughly.

DR. HOWARD FOX, New York: I am familiar with a case of match-box dermatitis occurring in the person of my father, Dr. George Henry Fox, but would also like to record another similar eruption affecting a physician. This was an erythematosquamous dermatitis of two months' duration on the anterior surface of the left thigh. The disease did not respond well to any therapeutic measures, and we were at a loss as to its causation. The patient was in the habit of spending the week ends at his farm, where he wore a certain pair of khaki trousers. He had noticed that the eruption began to be worse a few hours after putting on these trousers, and that toward the end of the week it became better. The eruption finally appeared on the right thigh, and an investigation of the contents of the pockets of the trousers showed the presence of loose "birds' eye" matches in the right pocket, whereas he had formerly carried them in the left pocket. The matches were removed and the trousers thoroughly washed, after which the eruption promptly disappeared.

DR. JAMES HERBERT MITCHELL, Chicago: I have seen a number of cases of match-box dermatitis, but only one case of match dermatitis. Last summer, during the intensely humid weather, I saw a man with an eruption on his thigh, and at once thought of match-box dermatitis, but he carried a tin match-box with a corrugated bottom on which he scratched the matches. He carried in this old box a quantity of birds' eye matches. He had had the eruption for six weeks. It was, roughly, the size of the box but was slightly larger, owing to the fact that the box slid around in his pocket. We took the box away from him, and the dermatitis promptly cleared up.

DR. WILLIAM H. GUY, Pittsburgh: In view of the fact that match dermatitis is an exceedingly rare dermatosis, in spite the fact that matches are so universally carried, the observation of a single case may be of value. It occurred in a man who perspired freely. Perhaps one of the factors necessary in this eruption is the effect of perspiration acting as a solvent of the phosphorus, making it available as an irritant to the skin.

DR. FRED WISE, New York: Whenever this condition is brought to my mind, I feel as if I wanted to put a big sign in the clinic, and also in my private office, "Do not forget match-box dermatitis and match dermatitis." The disease is probably more common in rural districts and less so in urban districts. It is more common among men wearing workmen's clothing or khaki trousers, like fishermen and hunters—men whose clothes are liable to get wet—and I think this is where I got the idea of the comparative rarity of the disorder in the large cities.

DR. F. D. WEIDMAN, Philadelphia: I have seen one of these cases in a plumber who carried loose matches in his pocket. He wore overalls, and there was only the one layer of clothing between the matches and the skin, as he wore no underwear at all. At the time we saw him he had the ordinary birds' eye matches in his pocket, but he stated that he used various kinds of matches—whatever kind happened to be handy. Apparently, this disorder does not occur so frequently among those who wear conventional clothing as among those who wear the clothing of the workman or the hunter.

DR. OTTO H. FOERSTER, Milwaukee: The point brought out by Dr. Guy is important. I believe that the moisture from perspiration is a factor in producing the dermatitis. The cases are not confined to those who smoke tobacco. One case occurred in a man who was not a smoker but who carried matches for the convenience of his friends who smoked. He had had the match dermatitis for two years.

18. Loeb (Footnote 4).

Obstetric Patience.—Patience in obstetrics is next to asepsis, but it must be the active patience of close observation, not the passive patience of ignorance, allowing the mother to become totally exhausted or the baby in imminent peril of death before determining on a line of action.—J. A. Harrar: *Bull. Lying-In Hosp.* **12**:244 (Aug.) 1923.

A STUDY OF HILUM GLAND ENLARGEMENT IN A GROUP OF TUBERCULOUS CHILDREN *

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The diagnosis of tuberculosis in children is often a difficult one to make. Because of the fact that the infection is, in most instances, a glandular rather than a pulmonary one, there are usually few, if any, physical findings present. If the glands affected are those in the cervical region, the diagnosis is not so difficult. But in the majority of cases, the hilum glands are the ones involved, and in these it is often extremely hard to find any evidence, at least by physical examination, of any involvement. Aside from the general findings of undernourishment, poor muscle tone and posture of fatigue, which are often present, the only physical signs which point to hilum gland tuberculosis are those that are related to enlargement of these glands. D'Espine,[1] in 1889, called attention to a method of diagnosing hilum gland enlargement; since then there has been considerable written in regard to the various signs that may be used and their relative value in diagnosis. In 1904, Brouardel, in a communication made for d'Espine, enlarged on his method and described d'Espine's sign as a whispered sound heard after the spoken voice; he stated that normally it is not heard below the seventh cervical vertebra. He also stated that a bronchial quality to the respiration, or dulness on vertebral percussion below this level, has the same diagnostic value as the whispered sound heard after the spoken voice, but that they indicate more extensive enlargement. Rich,[2] in 1917, stated that the presence of the bronchial character of the whispered voice, or dulness on percussion below the level of the first dorsal vertebra, is indicative of enlarged hilum glands. Bloom,[3] in 1917, stated that he considered the whispered voice sign heard below the first dorsal vertebra of great diagnostic value in an enlargement of the hilum glands, but he said that a negative d'Espine sign does not eliminate the possibility of enlargement; a positive sign, however, always indicates enlarged glands. Metcalf,[4] in 1918, stated that the true d'Espine sign is of value, but he thinks that in older children the normal level of change is lower than the seventh cervical vertebra. He considers interscapular dulness a valuable sign. He thinks that the change in the respiratory sounds is of questionable value. Fleischner,[5] in 1922, stated that he considers d'Espine's sign of value in diagnosing enlargement of the hilum glands, but he agrees with Koranyi in feeling that the change in character of sound is indicative of hilum gland enlargement only if it occurs below the seventh cervical vertebra in young children, below the first dorsal in children 8 years of age, the second dorsal in those of 12, and below the third in children of 15 years. Fleischner considers interscapular dulness of value. O'Brien and Ames,[6] in 1922, stated that they consider d'Espine's sign of comparatively little value. Bruchmann,[7] in 1922, in examining a group of children for bronchial gland enlargement by physical and roentgen-ray examination, found forty-one children who had positive roentgen-ray findings. Ten of these forty-one children showed no physical signs of hilum enlargement. Fifty cases showed no roentgen-ray evidence of bronchial node enlargement, and in twenty-eight of these cases there were one or more physical signs of enlargement.

J. L. Morse,[8] in 1922, called attention to the error made by most observers in calling the change in whispered voice sound the d'Espine sign instead of the presence of a whispered voice heard after the spoken voice. Morse examined 118 patients between the ages of 2 and 14 years, and drew the following conclusions:

1. D'Espine's sign is not heard under normal conditions, and is often the earliest and only sign of abnormality.
2. The bronchial sound of the whispered or spoken voice is not normally heard below the seventh cervical vertebra.
3. Dulness on percussion is not normally heard below the seventh cervical vertebra.
4. The whispered voice sound is a more delicate test for bronchial enlargement than the spoken voice.
5. The change in respiratory sound has an intermediate value.
6. Interscapular dulness, when present, is indicative of considerable pathologic change.

The study that I made was on ninety children at the Lymanhurst School for tuberculous children. All of these had positive Pirquet reactions and were placed in the school because, besides the positive tuberculin reaction, they showed such evidences of active tuberculosis as undernourishment, enlargement of the hilum or cervical glands, or low-grade temperature. None of them showed evidence of a pulmonary tuberculosis. Roentgen-ray examinations were made of each one by Dr. Russell Morse, the roentgenologist of the school. The physical findings were then compared with the roentgen-ray findings.

In making the physical examinations of these children, I used the same signs as those which Dr. Morse used in his study.

1. *Interscapular dulness.* This term is self-explanatory, and simply means a percussion note over the area between the scapulae, which is duller than that which one would normally obtain. It also includes an increased sense of resistance on percussion.

2. *Whispered voice transmission over the spine.* This is the sign that is most often used, and it is often erroneously called d'Espine's sign. It consists of having the child whisper the words "one, two, three," and noting the level at which the character of the sounds changes from bronchial to vesicular. When the change takes place below the level of the seventh cervical vertebra, it is considered positive.

3. *Spoken voice transmission.* This sign is the same as the previous one except that the child speaks the words instead of whispering them.

* Read before the Section on Diseases of Children at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. D'Espine: Manual of Picot and d'Espine, Ed. 4, 1889.
2. Rich, H. M.: The Diagnosis and Significance of Tuberculous Bronchial Glands, J. Michigan M. S. **16**: 7-9 (Jan.) 1917.
3. Bloom, C. J.: The d'Espine Sign, A Valuable Aid in the Diagnosis of Pulmonary and Tracheo-Bronchial Glandular Tuberculosis in Childhood, New Orleans M. & S. J. **69**: 748 (May) 1917.
4. Metcalf, W. B.: Diagnostic Signs of Tuberculosis of the Bronchial Glands, Illinois M. J. **34**: 252 (Nov.) 1918.
5. Fleischner, E. C.: Bronchial Lymphadenopathy, Nontuberculous, J. A. M. A. **79**: 175-180 (July 15) 1922.
6. O'Brien, F. W., and Ames, F. B.: Roentgen Ray and Tuberculosis in Infants and Children, Boston M. & S. J. **187**: 279 (Aug. 24) 1922.
7. Bruchmann, A.: Ueber Bronchialdrusen und Hilustuberkulose bei Kindern, besonders deren Diagnose, Norsk Mag. f. Lægevidensk., November, 1922; abstr. Jahrb. f. Kinderh. **51**, February, 1923.
8. Morse, J. L.: D'Espine's and Allied Signs of Childhood, Am. J. Dis. Child. **24**: 361-367 (Nov.) 1922.

4. *D'Espine's sign.* This is the sign described by d'Espine, and consists of a whispering sound heard after the spoken voice over the spinous processes. The words "one" or "oh" may be spoken; in this study the word "oh" was used. If heard below the level of the seventh cervical vertebra, it is considered positive.

5. *Change of breath sounds.* The level of the spine at which the character of the breath sounds changes from bronchial to vesicular is noted; when heard below the seventh cervical vertebra, it is considered to be indicative of hilum gland enlargement.

Table 1.—*Children Showing One or More Signs*

No. of Children	Per Cent.	No. of Signs
11	32	0
4	12	1
4	12	2
6	18	2
8	24	4
0	0	5
1	3	6

6. *Change in percussion note over the spinous processes.* The level at which the change takes place is noted; when heard below the level of the seventh cervical vertebra, it is considered abnormal.

This group of children was studied for two reasons: 1. It was thought that a relatively large percentage of them would have hilum gland enlargement and would therefore give an excellent opportunity for observing the different physical signs that we wished to study. There are, of course, many other conditions, such as measles, pertussis, influenza, chronic bronchitis and neoplasms which will cause enlargements of the hilum glands, and in these conditions the physical signs of the enlargement are the same as in tuberculosis. It was not with any idea that the signs investigated were diagnostic of tuberculous involvement of the hilum glands that this study was made, but because the children afforded an excellent opportunity to observe the value of physical diagnosis in hilum adenopathy. 2. Roentgen-ray study had been made on all of these children, and we could compare the physical and roentgen-ray findings. I wished to determine: (*a*) whether physical signs of hilum gland enlargement are always present when roentgen-ray examination shows enlargement; (*b*) whether physical signs of hilum gland may be present when the roentgen-ray shows that there is no enlargement; (*c*) the relative value of the different signs studied in indicating hilum gland enlargement; (*d*) whether the signs, as generally used, are of real clinical value.

I grouped the children into two classes:

1. Those showing no enlargement of the hilum glands by roentgen-ray or fluoroscopic examination. A considerable number of this group showed calcification of one or more glands, but no enlargement by roentgen-ray examination, and, since all of these children also gave positive tuberculin reactions, it was probable that some of them had enlarged glands which were hidden by the heart and large vessel shadows. In order to avoid error as much as possible, the children underwent fluoroscopic examination from different angles, and when enlargement was seen, they were placed in the group of those with positive roentgen-ray findings.

2. Those showing definite enlargement of the hilum glands by roentgen-ray or fluoroscopic examination. Many of these also showed the presence of calcification.

In the first group, namely, those with negative roentgen-ray findings, there were thirty-four children, and only eleven of these, or 32 per cent., showed no physical signs of glandular enlargement. In twenty-three children, or 68 per cent., there were one or more physical signs which indicated hilum gland enlargement.

In the four children showing one sign, in three cases the whispered voice sign was present, and in the other case the change in percussion note was below the seventh cervical vertebra. In the four children with two signs present, in one instance the whispered voice sign and the d'Espine sign were positive, and in the second, the whispered voice sound and the change in respiratory sounds were positive; in two cases both the whispered and spoken voice signs were positive.

In the twenty-three children who had one or more signs of hilum gland enlargement, twenty-one had the whispered voice sign; fifteen had the spoken voice sign; eleven, the change in respiratory sound; twelve, the change in percussion note; six, the d'Espine sign, and three had interscapular dulness.

In only once case was the change from bronchial to vesicular at a lower level in the spoken than in the whispered voice. In ten cases it was lower in the whispered than in the spoken voice, and in ten cases it was heard at the same level.

In the second group, namely, those who showed enlarged hilum glands by roentgen-ray or fluoroscopic examination, there were fifty-six cases. Forty-four, or 79 per cent., showed one or more physical signs of hilum enlargement.

In two of the five children who had only one positive physical sign of hilum adenopathy, interscapular dulness was the sign present, while in the other three cases, the whispered voice sign was present. Of the ten children with two signs present, two had the whispered voice and the d'Espine sign; one had the whispered voice and change in respiratory sounds; one had the whispered voice and interscapular dulness; two had the whispered and spoken voice signs; two had the whispered voice and change in percussion note, and two had the change in respiratory sound and change in percussion note.

Of the forty-four children who showed one or more positive signs, thirty-eight had the positive whispered voice sounds; twenty-six had the change in respiratory sound below the level of the seventh cervical vertebra; twenty-six had the positive spoken voice sound; twenty-three had the change in percussion note over the spinous processes below the seventh cervical vertebra; nineteen had a positive d'Espine sign, and sixteen had interscapular dulness.

Table 2.—*Children Showing One or More Signs*

No. of Children	Per Cent.	No. of Signs
12	21	0
5	9	1
10	18	2
7	12	3
9	16	4
11	19	5
2	3	6

In only two cases was the change from bronchial to vesicular heard at a lower level in the spoken than in the whispered voice; in twenty-four the whispered

change was heard at a lower level than the spoken, and in twelve the change was heard at the same level.

Taking the group of ninety children as a whole, we find that thirty-four showed no hilum gland enlargement, and fifty-six showed enlargement by roentgen-ray or fluoroscopic examination. Of the ninety children, sixty-seven, or 70 per cent., had one or more physical signs of hilum enlargement, while only fifty-six, or 60 per cent., showed enlargement by roentgen-ray examination. Of these sixty-seven children who had one or more signs present, fifty-nine had a positive whispered voice sign; forty-one, a positive spoken voice sign; thirty-seven, a positive change in respiratory sound; thirty-five, a positive percussion note over the spine; twenty-five, a positive d'Espine sign, and nineteen showed positive interscapular dulness. Of the thirty-four children in whom the roentgen-ray examination was negative for enlargement, twenty-three, or 68 per cent., showed physical signs of enlargement. There were twelve of the fifty-six children, or 21 per cent., who showed enlargement by the roentgen ray who gave no physical signs of enlargement.

COMMENT

From the study of these children, I am convinced that the methods of determining the presence or absence of enlarged hilum glands by physical examination are far from satisfactory. Sixty-eight per cent. of the cases showing no enlargement by roentgen-ray examination had one or more of the signs considered indicative of enlargement. Although in some of these cases enlarged glands may have been present which were hidden by the heart and large vessel shadows and could not be detected by either the roentgen ray or fluoroscope, nevertheless, the percentage of positive physical findings in children with negative roentgen-ray examination is so high that one must conclude that the presence of the physical signs used in this study is not always indicative of enlargement. Twenty-one per cent. of the fifty-six children who had positive roentgen-ray findings showed no physical signs indicating hilum gland enlargement. This is a much smaller percentage of error than the one discussed previously, but, nevertheless, it is large enough to indicate that negative physical findings do not absolutely rule out bronchial gland enlargement.

Of the signs that were studied, the whispered voice sign was most frequently present. I found that, of the six signs, it was the one in which the change in character of sound was most clearly defined, and it was the easiest one with which to determine the level of change. The spoken voice sign was more difficult to use because it is often hard to differentiate properly between the quality and the change in intensity of the sound. In only two cases was the spoken voice sign heard at a lower level than the whispered voice. The sign described by d'Espine was present in twenty-five cases. This is a difficult sign to get, and in no case was it present when the whispered voice sign was not also present, which would not indicate that it is an earlier or more accurate sign than that of the whispered voice.

The changes in the respiratory sound and in the percussion note over the spinous processes are rather difficult to obtain correctly, and were not found to be more accurate than the other signs. Interscapular dulness is the most difficult sign to obtain accurately. There is so much variation in the thickness of the chest wall in different children, and also such a wide variation in the normal percussion note that it is sometimes extremely difficult to determine accurately whether there is interscapular dulness present. I think that there is more possibility of error in determining the presence or absence of this sign than in the others. However, when it is present, it usually means that there is definite glandular enlargement. In this group of children, interscapular dulness was present in nineteen cases, and in sixteen of them, or 84 per cent., the roentgen-ray examination showed evidence of hilum gland enlargement.

Considering the signs as a whole, it would appear that they are far from being a satisfactory method of determining the presence or absence of hilum gland enlargement, and, although I do not think that they should be discarded entirely as one of the methods of determining bronchial adenopathy, nevertheless, the findings as determined by these signs should not be considered as final; and further investigation by means of the history, complete physical examination, roentgen-ray and laboratory tests should be made before one arrives at a final diagnosis.

CONCLUSIONS

1. The presence of one or more of the accepted physical signs of hilum gland enlargement is not absolutely indicative of actual enlargement.
2. The absence of the physical signs of hilum gland enlargement mentioned above does not rule out the possibility of enlargement.
3. The true d'Espine sign is not the earliest sign of hilum gland enlargement, and is not of greater value than the other signs studied.
4. Interscapular dulness is a difficult sign to obtain correctly; but, when definitely present, it is the most accurate physical sign of bronchial adenopathy.
5. The whispered voice sign is the sign most frequently present, and is the easiest to obtain accurately, but it is often found when there is no enlargement present.
6. The spoken voice sound is the sign next most frequently found, but it is more difficult to obtain correctly.
7. The level of the seventh cervical vertebra, which is the one usually used, is apparently too high for the limit of normalcy in examining for hilum gland enlargement in children of school age.
8. The methods used in physical examinations for determining hilum gland enlargement are unsatisfactory.

ABSTRACT OF DISCUSSION

DR. H. F. HELMHOLZ, Rochester, Minn.: In regard to the whispered voice sign: The level of the cervical vertebra, as given by Dr. Anderson, at which the sign is positive, seems to me entirely too high. Only when we get the whispered voice sign, tracheal in character, at the fourth dorsal vertebra, or below, can we say that we are dealing definitely with an enlargement of the glands at the hilum. A second point that I should like to make in explanation of the differences between the physical and the roentgen-ray findings is that early in the tuberculous process, the glands are large. With the healing process and the calcification setting in, the glands shrink, yet show up very distinctly in the roentgenogram because of the calcification. I think, as Dr. Anderson has outlined in his paper, that these calcified nodules outside the hilum shadow are very definite evidence of healing which may be dissociated from any enlargement of the bronchial

glands. I agree with him absolutely in the difficulty of the diagnosis of this condition, and would emphasize that the whispered voice sign at the level of the fourth dorsal vertebra and below is probably the most important sign in the diagnosis of hilum infiltration.

DR. F. P. GENGENBACH, Denver: I have placed more reliance on the true d'Espine sign than on the whispered voice sign, but I have come to the conclusion that the seventh cervical is too high, while the fourth dorsal is too low, and that, when we get the sign below the first dorsal, we should certainly have strong suspicions of a hilum enlargement. My experience also has been that the roentgenologist says he finds hilum enlargement more often than I do.

DR. EDWARD DYER ANDERSON, Minneapolis: I chose the seventh cervical verterbra as the normal limit not because I felt that it was necessarily the correct one, but because, in going over the literature, I find that most observers take that as the normal limit. My object in this study was to determine whether signs as usually employed were accurate, and my conclusion is that they are not.

THE LABYRINTHINE TESTS IN CEREBELLAR DIAGNOSIS *

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Bárány's labyrinthine studies, initiated in the years 1907-1909, and followed up in this country more particularly by the work of Jones and Fisher, have stimulated our interest in the borderland that lies between the fields of neurology and otology. They have led to a more careful analysis of vertigo and nystagmus, symptoms common to the two fields; and in past pointing, have introduced an additional method of studying cerebellar disturbances.

The field of usefulness for the labyrinthine tests is clearly defined by the anatomic limits of the labyrinthine pathways, and can be deduced from those limits. It includes: (1) the labyrinth and the vestibular nerves; (2) the brain stem, especially the upper medulla and pons; (3) the cerebellum—the end organ for the labyrinthine impulses, and (4) indirectly, may give some information regarding lesions of the cerebrum itself.

In a general way, study of the labyrinth and the vestibular nerve, and their intracranial pathways, depends on the response to labyrinthine stimulation. The stimulus consists of turning in a turning chair, or injecting cold or hot water into the ear. The response takes the form of nystagmus and vertigo. Blocking at any point will interfere with the integrity of these responses.

Study of the cerebellum is likewise dependent on response to labyrinthine stimulation. The stimulus is the same, but the response is different; instead of nystagmus, we test past pointing and falling. This depends on the fundamental fact of cerebellar control of extremity and truncal movements. Past pointing as a symptom is often criticized on the basis that the cerebellum is not the only control factor. It is stated that the cerebrum plays an important rôle in the initiation of voluntary impulses, and in the conscious correction and compensation of faults; that many normal persons fail to touch accurately and show varying grades of spontaneous past pointing, and that this past pointing varies from time to time. These criticisms are just. But in spite of this, a study of past pointing, both spontaneous and reactive, can be of great service. When we find spontaneous past pointing of one arm in one direction, with an inability to produce reactive past pointing in the opposite direction; or even when, without spontaneous past pointing, we cannot produce reactive past pointing of one arm in one direction, we have strong presumptive evidence of involvement of a cerebellar hemisphere; and what is true of past pointing in relation to the lobes is true of falling in relation to the vermis. In our interpretations of these findings, we must always remember that interference with reactions may result not only from direct involvement of the structure concerned, but also indirectly through pressure.

We have stated that failure of reactive past pointing of one arm in one direction is direct evidence of cerebellar disease. Conversely, when we can produce normal reactive past pointing and falling in all directions, we have strong presumptive evidence that the cerebellum is intact. There are exceptions to this, as will be seen in one of the case reports; nevertheless, it is a helpful point in the differential diagnosis between supratentorial and cerebellar lesions. There are certain other factors of value in making this differentiation. Bárány, and quite recently Karlefors, have laid stress on crossed past pointing as evidence suggestive of supratentorial involvement. Lyons has recently pointed out that supratentorial lesions frequently produce exaggeration of all reactive responses (vertigo, nystagmus and past pointing); and so, in recognizing supratentorial lesions, and excluding the cerebellum, we have three points of value given by the labyrinthine tests: (1) intact cerebellar responses; (2) exaggerated reactive phenomena, and (3) crossed past pointing.

As illustrating the general subject of the relation of the labyrinthine tests to cerebellar diagnosis, we report four cases: (1) cerebellar tumor, with typical responses; (2) frontal lobe tumor, with normal cerebellar responses; (3) cerebellar tumor, with normal cerebellar responses, and (4) cerebellopontile angle tumor.

CASE 1.—*Cerebellar disease, with confirmatory labyrinthine responses. History.*—I. O., a boy, aged 10, seen in March, 1921, complained of headache and vomiting. There had been sudden onset, four weeks before, with an attack of dizziness, followed by nausea, vomiting and headache. The attack lasted twenty-four hours. From this time on there were similar spells, alternating with free intervals, the spells gradually becoming longer and the free intervals shorter. The spells came on suddenly; he complained of dizziness and headache; the pulse and respiration slowed down; there was cyanosis, and he fell over, partly or wholly unconscious.

Examination.—The positive findings were: intense headache; stiff neck; forced position of the head; spontaneous nystagmus to the right; impairment of the associated eye movements to the right, and weakness of the lower facial muscles on the right The strength and the reflexes of the arms were normal; there was ataxia of both sides, a little more on the right; adiadokokinesis was present on the right. The strength and the reflexes of the legs were normal; their tonus was good; there was gross ataxia on both sides, equal on the two sides. The gait was typically cerebellar, with extreme instability, and swerving from side to side, with a tendency to fall to the right; there was a tendency also to fall backward and forward, suggesting Babinski's cerebellar asynergy. Sensation, both cutaneous and deep, was normal. There was bilateral choked disk, more marked on the right.

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Labyrinthine tests revealed: A. Spontaneous phenomena: (1) nystagmus up and to the left; (2) swaying, with tendency to fall to the right; (3) past pointing with right arm inward. B. Induced phenomena: 1. Nystagmus: After turning, normal nystagmus to right and left. After douching, abnormal responses. Douching the right ear (cold) after one minute gave a combination of horizontal nystagmus to the left and nystagmus upward and to the left. Douching the left ear (cold) after one minute gave horizontal nystagmus to the right. No note was made about vertigo. 2. Falling reactions: In spite of a tendency to fall to the right, the falling reactions following turning were normal in all directions. 3. Past pointing: Left arm, normal. Right arm: It was impossible to force the right arm, which showed a spontaneous fault inward, to past point outward.

Deductions from the labyrinthine tests were: 1. A lesion of the right lobe of the cerebellum at the area controlling the outward movements of the arm at the shoulder. According to Bárány, this center lies at the lateral angle of the right hemisphere, in the superior and inferior semilunar lobules. 2. General pressure on the pons and medulla (abnormal nystagmus after douching). 3. A relatively intact vermis (normal reactive falling in all directions in spite of spontaneous falling). 4. Left lobe of the cerebellum intact (normal past pointing with the left arm).

Deductions from the neurologic examination were: A tumor of the cerebellum, involving the right lobe and probably the vermis.

Operation by Dr. A. E. Rockey, consisting of a bilateral cerebellar decompression, showed that the right lobe of the cerebellum was the seat of an extensive glioma with cyst formation. The vermis was apparently free.

CASE 2.—*Frontal lobe tumor, with normal cerebellar responses. History.*—E. S., a boy, aged 15, seen in December, 1922, because of loss of memory, had been a studious, intelligent chap, active and interested in athletics. In June, 1922, he began to show loss of memory, inability to concentrate, lack of interest in work and play, a gradually increasing dulness, and lack of initiative. His grades became so poor that he had to be taken out of school. Sometime after the onset, he began to have disturbance of equilibrium. If sitting unsupported, he would tend to fall to one side or the other. In walking, he would stagger; several times he had fallen in attempting to get up steps. At no time had there been headaches, nausea, vomiting or eye symptoms.

Examination.—The patient showed marked dulness and apathy. If left alone, he sat quietly, doing nothing and saying nothing. When addressed, he responded slowly, but to the point, and carried out simple instructions. Sitting or standing, there was a constant tendency to sag slowly to the right. In walking, there was a tendency to swing off to the right. If his attention was called to this a number of times, he corrected it and even overcorrected, sagging or moving to the left. In addition, there was a slight ataxia of the left arm and left leg; an increase in all the tendon reflexes on the left, left sided ankle clonus, and a positive Babinski reflex. There were no signs of increased intracranial pressure.

Labyrinthine tests revealed: 1. Normal coming through of all responses, both those from the brain stem and those from the cerebellum. 2. A tendency to exaggeration of responses. Vertigo after turning was very marked, and after turning to the right was accompanied by vomiting. 3. Reactive past pointing. Normal reactions followed by crossed past pointing.

Deductions from the labyrinthine examination were: The cerebellum and brain stem were intact. The exaggeration of responses and crossed past pointing suggested a supratentorial lesion.

Deductions from the history and the physical examination were: A tumor of the right frontal lobe. Owing to the truncal ataxia, a cerebellar localization had to be considered.

Operation, by Dr. T. M. Joyce, at which the right frontal lobe was exposed, revealed an extensive subcortical glioma. Surgical removal was impossible.

CASE 3.—*Cerebellar tumor, with normal past pointing. History.*—J. W. C., a man, aged 39, single, seen in April, 1920, had pain in the right side of the head; uncertainty in gait; dizziness, nausea and vomiting. The present illness began two months before. While walking, he suddenly collapsed and fell. On coming to, he vomited. A few days later he developed pains in the right side of the head and neck, at times of great intensity. Since the onset, there had been unsteadiness of gait. During the last three weeks there had been repeated vomiting spells, at times projectile.

Examination.—There was vertical nystagmus upward on looking up. The strength of the arms was good. Muscle tone was normal. The deep reflexes were active and equal. There were no ataxia, dysmetria or asynergy. Rapidly repeated movements were carried out well, with perhaps a slight lagging on the right. There was no past pointing with either arm, in either the vertical or the horizontal direction. The strength of the legs was good. The deep reflexes were active. There was slight hypertonicity, and a suggestion of ankle clonus on the right. There was no ataxia in the heel to knee test. Romberg's sign was definitely positive. There were bilateral choked disks, of moderate grade, equal on the two sides.

May 12, there were headache and vomiting as before. In addition to the previous symptoms, the patient had (1) a diplopia of a few days' duration, and (2) paresthesia about the right ear and right side of the tongue. Examination on that day showed loss of the right corneal reflex, and hypesthesia in the distribution of the mandibular branch of the fifth nerve. (During this examination the patient again had an intense headache, the face became flushed, the pulse dropped to 44, and there was a marked pulling of the eyes to the right, with sharp recovering twitches to the left. The duration of the attack was five minutes. Following the attack there developed a spontaneous vertical nystagmus upward.)

From this time on the picture changed somewhat, owing to the rapid extension of a bilateral pulmonary tuberculosis, which terminated fatally in the course of a few weeks. During this period the symptoms of intracranial disease became less rather than more prominent.

Labyrinthine examination was made, early in April. The tests showed a complete absence of responses from the left verticals (douching the left ear with the head 30 degrees forward). The left horizontals, and the right verticals and horizontals showed normal responses.

Tests for cerebellar function gave normal findings. Either arm could be made to past point either to the left or to the right, and falling could be induced in either direction.

The diagnosis on clinical grounds was: (1) bilateral pulmonary tuberculosis; (2) tumor (or tubercle) involving either the right lobe of the cerebellum or the right side of the pons.

Deductions from the labyrinthine tests were: (*a*) a lesion of the left side of the pons, and (*b*) normal cerebellum.

Necropsy.—This showed an extensive glioma of the right lobe of the cerebellum, presenting superficially at the anterolateral margin of the right superior semilunar lobe. On section, the gliomatous material invaded the entire subcortical zone, and extended inward far enough to involve at least part of the dentate nucleus. Except at the zone of surface presentation there was no destruction of the cortex. There were no areas of softening within the substance of the tumor.

Here was an extensive cerebellar lesion, involving almost the whole of one lobe with almost no disturbance of cerebellar function. The only focal sign directly referable to the loss of synergic control was a slight lagging of the right hand on rapidly repeated movements (adiadokokinesis), so slight as to be qualified by the word "perhaps." There were other symptoms suggestive of cerebellar involvement, but these were all neighborhood symptoms, and not strictly referable to loss of cerebellar function.

The same is to be said of the labyrinthine tests. Past pointing of the right arm, both inward and outward, could readily be produced either by turning or by douching. It is true that only the arm was tested (not the leg), and only one type of arm movement (the shoulder from above). Bárány has attempted to differentiate, within the cerebellar hemisphere, specialized

centers for the movements of the different joints, in the different planes. But in view of the extent of the lesion found at necropsy, centers for all movements, if such exist, must have been the seat of tumor invasion. And further, the region at which the tumor actually presented at the surface corresponds to Bárány's center for the movement of the right arm outward—which movement was tested and found normal.

In this case, therefore, neither the labyrinthine tests nor the clinical examination gave us specific evidence of cerebellar involvement. This does not justify us in discarding induced past pointing as a specific test for cerebellar lesions, any more than it justifies us in discarding dysmetria and asynergia for the same purpose. The case warns us, however, that we must not be too positive in excluding cerebellar involvement on the basis of normal past pointing reactions.

On gross inspection of the tumor, it seemed difficult to reconcile the clinical and labyrinthine findings with the extensive pathologic changes. We know, however, that gliomas can grow to considerable size without much actual destruction of the invaded tissues. This was borne out in our case. Dr. William F. Allen, professor of anatomy at the University of Oregon Medical School, made complete serial sections of the cerebellum. Marchi's stain was used. With the exception of an occasional scattered fiber, no evidence of degeneration was found. This accounts for the fact that the functions of the cerebellum were normal, and that the signs that the tumor gave were signs of general pressure, and signs of local pressure on the right side of the pons.

It was stated above that the deduction from the labyrinthine test (absence of responses from the left verticals) was a lesion of the left side of the pons. With the same data before us now, this mistake would not be made. We are more familiar now than we were then with the fact that either a general increase of intracranial pressure or local pressure on the pons by a neighboring tumor can abolish or impair the reactions from one or more canals, and that such interference with responses does not have a specific localizing value. We will return to this point later.

CASE 4.—*Cerebellopontile angle tumor, with confirmatory labyrinthine findings. History.*—R. L. S., a man, aged 48, seen in September, 1921, had first noted the symptoms in 1918. They progressed gradually up to the time of the operation three years later. From the patient's standpoint, the most disturbing symptom was a mental impairment—a loss of keenness, efficiency and ability to concentrate. Speech was impaired, and writing difficult. From the onset he complained of dizziness and staggering, especially in the dark. The right leg gave more trouble than the left, and there was a tendency to walk to the right. There was also some clumsiness in the use of both hands, especially the right. Impairment of hearing was also present from the start. It was bilateral, but more marked on the right. As the trouble progressed, hearing in the right ear was completely lost. Headache, though present throughout, was never a prominent symptom. At no stage was there nausea or vomiting. Blurring of vision was present on and off from the time of onset.

Examination.—There was instability of station and gait, with a tendency to "droop to the right" while sitting, and to walk to the right. There was spontaneous rotary nystagmus to the left; nystagmus in all directions of gaze, including vertical upward on looking upward; slight divergent squint, and some blurring vision. The corneal reflex was absent on the right. There were hypesthesia and hypalgesia in the entire distribution of the right fifth nerve. The motor division on the right was a little weak. There was a tic-like contraction of the right eyelid. The right ear was totally deaf. There was marked dysarthria. The right arm showed a little ataxia, and a slight volitional tremor. The right knee jerk was less active than the left. The right Achilles jerk was active; the left was not obtained. There was no Babinski reflex and no clonus. There was marked ataxia of the right leg, and slight ataxia of the left leg. Repeated examinations of the eyegrounds since 1918 were negative. It was not until late in 1921 that a bilateral choked disk developed.

Ear and labyrinthine examinations revealed total deafness of the right ear. Spontaneous phenomena were: (1) rotatory nystagmus to the left on looking ahead; (2) nystagmus in all directions of gaze, including diagonal up and to left on looking up, and rotatory to right on looking down; (3) tendency to fall to the right, and (4) past pointing inward with both arms. Induced phenomena were: 1. Nystagmus: The right side showed no responses of any kind, either from the verticals or from the horizontals. The left side showed abnormal responses both from the verticals and from the horizontals. Stimulating the verticals (douching with the head 30 degrees forward) produced, after three minutes, a cessation of the spontaneous rotatory nystagmus to the left, and after five minutes an occasional nystactic twitch diagonally up and to the right, more persistent and larger than the foregoing. 2. Past pointing: Reactive past pointing to the right and to the left was obtained with both arms, though with some difficulty. The same was true for reactive falling.

The clinical diagnosis was cerebellopontile angle tumor on the right. Because of the peculiar mental manifestations, the bilaterality of the physical signs, and the absence of any evidence of intracranial pressure increase, the case was long considered one of multiple sclerosis. It was not until hearing in the right ear was lost, accompanied by involvement of the right fifth and by choked disk, that the true condition was recognized.

Deductions from the labyrinthine examination were: The first test, made in 1919, showed impaired hearing in both ears, and impaired labyrinthine responses on both sides, more marked on the right. On this basis a diagnosis of toxic labyrinthitis was made. The examination in 1921 showed complete deafness on the right; complete loss of all labyrinthine responses on the right; perverted nystagmus on stimulation of the left canals, both vertical and horizontal; and no evidence of cerebellar disease.

The diagnosis was cerebellopontile angle tumor on the right.

The labyrinthine picture does not conform strictly to the angle syndrome described a number of years ago by Dr. Isaac Jones. His typical syndrome included loss of all responses from the homolateral eighth nerve, with loss of responses from the contralateral verticals. In our case we have a slight but perverted response from the contralateral vertical, and also a perverted response from the contralateral horizontal. In a recent discussion of this subject, Dr. H. T. Lillie stated that of six acoustic tumors examined, only one showed the typical Jones syndrome. We must consider the Jones syndrome merely as the type of what may be found in this group of cases. An angle tumor that has reached any size will do two things: (1) produce sufficient pressure on the homolateral cochlear and vestibular nerves greatly to impair or wholly destroy their functions; this means gross impairment or total loss of responses from these nerves, and (2) cause sufficient pressure on the pons to interfere with the responses from the contralateral labyrinth. The vertical may be completely gone, as in the Jones syndrome, or its responses may be reduced or perverted, or, as in the case described above, both vertical and horizontal may respond with a perverted nystagmus.

COMMENT

We find, then, from a study of our case reports, that in interpreting the results of labyrinthine tests we must differentiate between direct and indirect symptoms.

Taking as the simplest example a cerebellopontile angle tumor, its direct symptoms will be those of pressure and blocking of the eighth nerve. This means homolateral deafness and loss of labyrinthine response. Indirect symptoms will result from pressure on the pons and on the cerebellum. By pressing on the pons, it will interfere with the conduction pathways for the contralateral vertical or horizontal canals or both; and the result of this pressure will be lost, impaired or perverted responses from these canals. By pressing on the cerebellum it may produce spontaneous past pointing and falling, but unless the pressure is very great the reactive phenomena should be intact. It is interesting to note that in his earliest descriptions of cerebellopontile angle tumors, Bárány called attention to these facts. He included in his description spontaneous nystagmus as a symptom of brain stem pressure, and spontaneous past pointing without loss of the contralateral reactive movement, as evidence of pressure on the cerebellum.

Analyzing the labyrinthine symptoms of a cerebellar tumor, we find the same division into direct and indirect symptoms. As a direct symptom we have a loss of reactive past pointing of the homolateral extremity in one direction or another. As an indirect symptom, we have pressure on the pons. The pressure may be exerted on one or both sides; and, depending on its location and degree, it will cause loss, impairment or perversion of responses from one or more canals. It is of interest in this connection that the vertical responses are much more likely to suffer than the horizontals. This has been repeatedly demonstrated by many who have followed the Jones technic for the differentiation of the two sets of canals; i. e., douching with the head 30 degrees forward for the verticals, and then tipping the head back for the horizontals. Whether or not we accept Jones' views on neuraxial differentiation, and whether or not we agree with his tentative localization of those pathways, it is a matter of clinical experience that pressure on the pons is very apt to interfere with the responses from one or both verticals, leaving the responses from the horizontals intact.

So much for the symptoms of infratentorial tumors. Supratentorial tumors, on the other hand, can produce only indirect symptoms. As stated before, Lyons has recently called attention to the fact that supratentorial tumors frequently produce exaggeration of all reactive manifestations, both those from the pons and those from the cerebellum. Nystagmus, vertigo and past pointing may all be increased. But this does not always happen; and in other cases (the factors at play are not clearly understood), instead of getting the exaggeration which Lyons describes, we may get impaired responses from the pons or cerebellum or both. In case of the pons, this is evidenced most commonly by impaired response from one or both verticals. In case of the cerebellum, we may get spontaneous past pointing of one arm in one direction; but, the cerebellum being intact, reactive past pointing of that arm in the opposite direction will be retained. Mention has already been made of the phenomenon described by Bárány and confirmed by Karlefors as occurring in cases of supratentorial tumor; namely, an impairment of outward past pointing (or it may be an exaggeration of inward past pointing). This may be either unilateral or bilateral; when bilateral, it may lead to crossed past pointing, as we have described it in our case of frontal lobe tumor.

And so we may make up the following general picture of what we may expect from our labyrinthine tests:

A. Supratentorial Tumors:
   1. Exaggeration of responses from brain stem (nystagmus) or cerebellum (past pointing), or both, or
   2. Diminished responses from the brain stem (impaired or perverted nystagmus), especially from the verticals.
   3. Presence of all responses from the cerebellum.
   4. Diminution of certain of these cerebellar responses, especially of outward past pointing. This may lead to the phenomenon of crossed past pointing, either spontaneous or following stimulation.

B. Cerebellar Tumors:
   1. Spontaneous past pointing of one arm in one direction, with loss of reactive past pointing in the opposite direction, or loss of reactive past pointing of one arm in one direction, without spontaneous fault.
   2. Pressure symptoms in the brain stem. Lost, impaired or perverted responses, especially from the verticals, less often from the horizontals as well.

C. Cerebellopontile Angle Tumor:
   1. Loss of responses (or gross impairment) from the cochlear and vestibular nerve on the affected side.
   2. Pressure symptoms on the brain stem. Lost, impaired or perverted responses, especially from the verticals, less often from the horizontals.
   3. Pressure symptoms on the cerebellum (homologous hemisphere) with impairment of past pointing in the homolateral arm, but retention of the reactive past pointing.

In considering these syndromes, we are not dealing with pathognomonic signs. In a few instances, it is possible to make a localizing diagnosis from them alone, but for the most part they are not specific. Local or general pressure produces effects which are confusing unless their interpretation is understood. But if we do interpret them properly, the labyrinthine tests can offer valuable aid in clinical diagnosis, and are deserving of a definite place in the field of neurology.

ABSTRACT OF DISCUSSION

DR. I. LEON MEYERS, Los Angeles: In endeavoring to estimate correctly the value of the labyrinthine test in cerebellar lesions we are confronted with the difficulty that such lesions generally encroach on the cerebellar as well as the vestibular structures. Generally, a tumor or abscess in that region exerts its effect on the cerebellum, the brain stem and even the eighth nerve itself. It should be borne in mind that in order to adopt Bárány's labyrinthine tests for cerebellar lesions we must assume that the cerebellum is the central organ for the direction of movement in the sense of inward or outward tonus in the limbs. The difficulty of estimating phenomena that may be produced either by a lesion of the cerebellum or by abnormal sensations of direction through the labyrinthine mechanism is therefore clear. I have tried these tests a number of times. The results in my cases were not definite enough to be of diagnostic value, probably because of the large size of the lesions.

Not Every Doctor a Surgeon.—It is an unfortunate fact that there are physicians in considerable numbers who have never received the requisite training, but who are trying to do surgery. To many of our people a hospital is a hospital and any doctor is a surgeon. A way must be found to protect these people. There should be some recognized mark of the competent surgeon and the trustees of all hospitals could then forbid others to operate in their institutions. The private commercial hospital would probably require state regulation.—F. A. Washburn, *Mod. Hosp.* **20**:164 (Feb.) 1923.

TREATMENT OF THE PATHOLOGICALLY FLEXED KNEE*

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The pathologically flexed knee, unless firmly ankylosed, is a weak knee, and, if the deforming process continues inflammatory, is usually painful in walking. The flexion shortens the functional length of the limb and increases the limp. All of these are undesirable complications and should be avoided or corrected.

The extended knee, even in complete paralysis of the limb, will support the body weight, standing or walking; in arthritis it reduces the movement, and thus the pain, to a minimum; and the extended position gives the greatest length of the limb with the least amount of limping. These are the conditions of comfort, and should be secured and maintained.

Neglect of these simple principles is so common and the results are so distressing that one feels fully justified in emphasizing their consideration.

While the instability of the flexed knee in poliomyelitis furnishes a constant plea for more general dissemination of the knowledge of measures to insure extension, yet the impelling factor in the preparation of this paper has been a series of chronically inflamed knees, mostly in adults, which by reason of their flexed and painful condition had practically invalided their owners. Walking was frequently impossible, or, in the case of single knees, possible only with the aid of crutches. These patients had the air of hopeless cripples. They had not been without medical attention; in fact, many of them could relate exhaustive histories of injections of vaccines and serums, multiple operations for possible focal infections, divers forms of physiotherapy, and the use of various braces and appliances in the vain effort to relieve their distress, while the necessary correction of the deformity was consistently being neglected. This is not said in disparagement of the various therapeutic measures used, if they were indicated, but to emphasize the futility of all general measures when there is neglect of the necessary local one.

It is the constant recurrence of just such instances of futile general treatment with the persistent neglect of local essentials that, as said before, has impelled the preparation of this paper.

TYPES OF CASES

Case 1.—Mrs. H., aged 61, who up to four years ago had enjoyed good health and had taken an active part in the duties of a farmer's wife, suffered from a severe infection of the urinary tract, which involved the bladder and ureters. During this time the left knee became swollen, painful and flexed, and was in this condition when I examined it. The flexion was 90 degrees. The knee allowed a few degrees of movement, but became painful on attempts to pass these very narrow limits. The patient had walked with crutches during the last four years, and had received local and general treatment for the arthritis; but no one had made proper efforts to straighten the knee. The roentgenogram showed diminished density, but no marked changes in the contours of the bones. A single general anesthetic sufficed, under the gradual application of force, entirely to straighten the knee, which was then placed in a plaster cast. Motion was not promised. The only thing promised was an attempt to straighten the limb, which, if successful, would increase the stability of the limb, diminish the pain and dispense with the crutch. All these were accomplished. The reaction was slight, the pain from the trauma continuing only three or four days. The patient went home in two weeks with the leg straight and wearing a cast. A month later this cast was replaced with a removable one to protect the joint against injury, and to prevent a return of the deformity. At this time the patient had a few degrees of movement in the knee, was free from spontaneous pain, and could walk a little without crutches, but preferred the crutches for safety.

Case 2.—Mrs D., in the hospital ward, had not walked for more than eight years on account of ostearthritis of both knees, with flexion, pain and disability. The patient had had the ileum, cecum, ascending colon and part of the transverse colon removed and the gallbladder drained, besides a panhysterectomy, appendectomy and multiple and frequent operations on the nose, throat and sinuses. A series of casts corrected the knees, and the patient was able to walk alone and without casts for short distances before she left the hospital. Letters received after she left the hospital told of continuing improvement, so that she went shopping without any artificial aids to the legs.

Case 3.—Mrs. G., aged 57, came to the office, some years ago, with flexed knees and barely able to walk with the aid of two crutches. There was some movement with coarse crepitus in the knees, which were not very painful. Roentgenograms showed extensive erosion of the tibial and femoral articular surfaces. These knees were straightened under one anesthesia, and put in casts. The patient suffered severe pain for several days after the correction. Removable casts were later applied; now, eleven years after, at infrequent intervals, she walks into the office with straight limbs and actively flexing joints to complain of occasional pains in the knees. The knees flex 90 degrees, which is an unusual result.

Case 4.—C., a man, aged 64, was confined to his bed in the ward with the left knee flexed to a right angle and with a greatly swollen foot. He could not walk; his method of progress was on his hands and knees, and had been so for months. The internist in charge of the case assured me there was no contraindication to a general anesthetic, and this was given, the knee completely straightened and a cast applied. In twenty-four hours the edema had almost completely left the foot, a striking and unique experience. With a series of casts he was later able to walk out of the hospital with his leg straight, motion limited and pain relieved.

NEED OF CORRECTING BENT KNEES

It is a familiar experience for an acute general arthritis in the medical wards to run its usual course with all joints clearing up except one, the knee often being the refractory member. Its recovery is awaited and expected, but the convalescence is delayed by weeks and months because this flexed and painful joint cannot help itself to recovery. This joint needs just the help we advocate; it must be straightened either slowly with apparatus or at once under anesthesia.

The temperament of the patient or of the physician will often decide which method to use.

No attempt will be made here to record all of the many other types and conditions of pathologically bent knees, but a very common deformity is the one following acute osteomyelitis of the bones forming this joint. Either by nature or by surgical art, osteomyelitis of these bones not infrequently involves this joint, leaving it in a flexed, weak and painful condition. We have the same duty here as in the previous type. Usually the ankylosis is not bony, and a series of stretchings will straighten it out with more or less limitation of movements, but straight, effective and painless.

The tuberculous joint perhaps receives the best treatment in proportion to the number of cases handled, as its special care has been generally emphasized. Here,

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however, the admonition to keep the knee entirely straight is just as necessary as in the other classes.

Mention may be made of the neuropathically flexed knee, which is best steadied in the extended position, as is also the flail knee of poliomyelitis or from other causes.

The traumatically flexed knee deserves equally good treatment.

TREATMENT

The method of obtaining the results demanded in these flexed joints necessarily varies according to circumstances. Prevention of the deformity would seem to be the natural course to follow, and in the hands of those familiar with the sequence of pathologic changes in the joints is the one effectively pursued. The use of fixative measures in complete extension for practically all acute and chronic inflammatory affections of the knee joints is now too well established to need further comment. An additional point in favor of the extended knee is the clinical observation that the patella much less frequently becomes ankylosed in this position. However, many bent knees exist and need correction. This correction is accomplished by means best suited to the individual case.

Some of the severe deformities, with 90 degrees or more of flexion and a tendency to subluxation, may defy our skill or tax our ingenuity to the utmost to secure a good result. The general condition of the patient may preclude any attempts at correction in difficult cases, and there will always be doubtful cases requiring our best surgical judgment whether to intervene or leave alone. Yet, the number of cases suitable for treatment will still be large.

In the nontuberculous types I have not hesitated to use force under anesthesia, especially in the tender knees and particularly in older persons who will not allow many attempts at straightening. Immediate correction seems best for them. Those who cannot safely take an anesthetic must go through the slower process of gradual correction, or forego treatment entirely.

The question of resulting movement is made secondary. Correction with the straight leg is the object sought; motion may or may not develop. As a rule, some motion remains if it was present before the correction, and sometimes it develops where pain and local conditions prevented it before the straightening. Motion must not be promised; even the straightening may not be possible. If there is some motion present, correction can usually be made by manual force. If not all at one time, then by a series of graduated efforts.

If the ankylosis is bony or densely fibrous or it is an old tuberculous joint, a bone operation is usually indicated. It is safer to do the bone work away from the site of the joint infection. This is particularly true after pyogenic and tuberculous infections.

The simplest method, and one fitting the largest number of cases, is the resection of a transverse wedge, apex posteriorly, from the front of the femur just above the epiphyseal line. The complete extension may have to be done in stages when immediate correction would interfere with the circulation or nerve supply of the parts below.

With the manual correction and the operative measures, most of these deformities can be overcome. The especially difficult and rare cases will not be discussed here.

The deformities of trauma, fractures and congenital defects will be corrected according to their individual requirements. Not only must the knee be corrected, but it must be maintained fully extended, and not flexed 15 to 20 degrees.

We are still largely under the influence of the old teaching that the knee should be held in slight flexion, from 10 to 20 degrees, during healing in order to have a more normal appearing limb when sitting or walking, the shortening enabling the patient better to clear the ground and to avoid a laterally swinging movement of a long leg when making the forward step. As a matter of fact, the flexion of 10 to 20 degrees helps very little in shortening the leg or in keeping it out of the way when the person is sitting, and in most legs the additional shortening is not necessary, as the disease itself commonly produces enough. In the occasional case in which the leg is long, a thicker sole may be put under the other foot.

Such possible gains from flexion are so slight compared with the certain disadvantages so constantly arising from the practice, that the whole principle of slight flexion for the stiffened knee should be completely discarded and the doctrine of the straight knee established in its place. Moreover, clinical observation shows that the slightly flexed knee is an elusive figure, as it can never be depended on to remain slightly flexed, unless in bony ankylosis, but tends by gravity and lack of proper extensor force to increase in flexion and in discomfort and limp.

Physiologically the permanently flexed knee is defective in that it requires for walking or standing constant flexion of the hip and ankle, never allowing the two normal joints to assume neutral positions of rest, as regularly occurs with each complete extension of the limb in normal walking. Walking with a permanently extended knee is also not physiologic, but at the time when the greatest weight is put on the limb it is always in the best position to sustain it, which is never the case in the flexed limb. It is far more comfortable, efficient and becoming than the weak, irritable and limping condition it has displaced.

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ABSTRACT OF DISCUSSION

DR. H. WINNETT ORR, Lincoln, Neb.: Dr. Parker has been so dogmatic in his statements that it is almost as difficult to differ with him as though he had been vague. I feel that on one or two points we may be permitted to take a little different view of the subject he has discussed. We all have the experience of having patients brought to us who have been permitted to acquire flexion deformities that should have been avoided. In such cases, as Dr. Parker has described, when the contraction is due to arthritis of whatever type, those deformities may always be prevented. In discussing such cases with physicians, I usually find that they have avoided splinting, especially the use of plaster of Paris in extension, because of their fear of ankylosis of the patella on the knee. One of the points that I desire to add to Dr. Parker's discussion is that early immobilization in these conditions of the knee joint will frequently serve not only to prevent the contraction deformity but actually to arrest the inflammatory process and to prevent many of the joint and bone changes that occur in such cases. Dr. Parker, in speaking of the degree of flexion to be avoided, confined himself to degrees beyond 10, although he did speak of complete extension as though that were the desirable position. If we can maintain a degree of flexion up to about 10 degrees, we shall find that it is the most comfortable and useful position. Complete or full extension of the knee is uncomfortable. Five or 10

degrees is more comfortable for the patient. Dr. Parker spoke of complete extension under a single anesthetic. That must be considered carefully in dealing with any patient. I have seen two or three tragedies following attempts to extend the knees completely—even those that were not flexed beyond 20 or 25 degrees; and if one is going to attempt a complete extension of any flexed knee, a very careful consideration must be given to the condition of the limb before, during and after the attempted extension.

DR. M. S. HENDERSON, Rochester, Minn.: One must consider two conditions very clearly in speaking of the treatment of a flexed knee; first, whether partial motion or an ankylosed knee will result. In the chronic infected arthritides, when the knees are flexed at right angles, and there is some subluxation, we must be very careful in the straightening. It may be better to do it in stages. One should be sure that the patients are in the late subacute stage or in the chronic stage, or the knees will bend again and we shall gain nothing. Dr. Parker advocates the completely extended knee, and I think he is right. That is what we must seek for. Dr. Lovett has popularized, if he is not responsible for, putting on a cast that is thick behind the knee, and after cutting it through transversely he gradually straightens the knee by putting in wooden wedges. When it comes to the question of a stiff knee, I think the position of election is open to debate. I myself believe that a patient is better off with an almost straight, stiff knee than with a partially flexed knee. That will depend somewhat on the occupation of the patient. Few men will elect a partially flexed knee, but women may. The average man would sooner have a straight stiff knee that he can walk about on freely, hunting and fishing, if he desires. He will put up with the inconvenience of the stiff knee during his street car rides and attendance at theaters more cheerfully than women will.

DR. JOHN PRENTIS LORD, Omaha: I agree with practically all that has been said. Perhaps our differences come from lack of understanding of individual meaning. I have much preferred to use the Lumbach knee splint, later called the Turner splint, and produce gradual straightening. Of course, the straightening must be more or less gradual, depending on the character of the case. The more chronic cases, those of longest duration, those that will give the most trouble, are cases in which there has already developed a large degree of backward displacement of the tibia and the fibula, and if it is not already developed, it will be increased with ordinary methods of straightening—either by the use of immediate force or by the use of traction. Dr. Hoke of Atlanta, Ga., has devised an ingenious cam screw for gradually exerting forward pressure on the leg portion of the cast. It costs about $70. I therefore sought to modify the so-called Turner splint. I made a splint that had a movable hinge. It has worked very effectively in my experience.

DR. CHARLES A. PARKER, Chicago: Dr. Orr spoke about my being dogmatic. I am. That is what I am here for. The day before I left I had to straighten one leg that had been crooked for thirty years. I asked the man whether it was nice to have a flexed knee. He said he would rather have it straight. I cannot see any reason for having even 5 or 10 degrees' flexion. A little bend in there is a little like light wines and beer. There is no limit; one has to have it a little heavier and a little heavier. The admonition to be careful about straightening out these knees is good. I hold that possibly it is best if we can do it at once, because the patient will not always give one the second chance. But we must not do harm if we cannot straighten it. Some one spoke about the desire of the knee to bend again. That is true. We must keep after it and not let it bend again.

Teeth.—Healthy, normal teeth are a priceless possession, but those which, through pulp removal, have lost their blood supply become objects of suspicion. If in addition, infection has occurred at the apex of the root, they become a questionable blessing, while in cases in which this infection has become a focus of ill health, the tooth becomes a menace and its possession a curse.—Thoma, K. H.: Teeth, Diet and Health, New York, The Century Company, 1923.

BLUE SKY HEALTH PROPAGANDA*

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It is a peculiar pleasure to me to discuss with those who are deeply interested in the preservation and prolongation of human life one particular problem of public health work that is of paramount importance. Every physician has undoubtedly considered the many and diverse methods that are generally used to interest the individual in his own welfare, and has wondered, like all investigators in the methods of health education, just how much of this propaganda is really efficient and something that will prove of permanent benefit to mankind. There is a general demand for reliable health information, and the good citizens of this country are looking to the American Medical Association to give them all that science affords for the promotion of personal health and the prevention of disease. It is the essential function of this section to make every member of the association an active advocate of preventive medicine. Public health propaganda must be founded on scientific truth, and we owe a service to humanity to expose all inefficient and questionable procedures.

"Blue sky" is a common expression used to designate doubtful or worthless stock sold by a persuasive promoter by means of a beautiful prospectus without due provision being made to safeguard the investor. Blue sky health propaganda consists of beautiful promises of health and happiness without due provision being made for their efficient and practical realization.

Universal health will be possible only by the universal and effective application of all known principles of disease prevention. As a result of scientific research there is an abundance of accumulated knowledge which is available for the education of public opinion in personal hygiene. Are we, the representative physicians of this country, not shirking our duty when we do not seem to make every possible effort to make this knowledge available to every human being? The average physician does not seem interested in public health sufficiently to discuss it intelligently. Some even go so far as to say that they are not health policemen. Others are openly antagonistic to public health work. There must be a definite reason for this seemingly apparent lack of interest. The physician is not naturally a poor citizen, but is usually generous in his contributions to worthy causes. He is always ready to sacrifice himself to relieve the distress of suffering humanity. But there is something spectacular about rendering aid to the helpless, and the public applause is not unpleasant music. The far-sighted policy of preventing possible distress has not received the attention it should from our present civilization. Physicians do not seem to realize the service they owe to the community. Physicians have not been trained sufficiently to look for the more or less remote causes of disease. The teaching of health in our medical schools is almost everywhere a farce. Prevention is greater than cure, and this is apparent to all except the physician who insists on being a mender of broken down machinery instead of a builder of health. There can be no denying of the fact that many physicians consider public health work little

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more than "blue sky." Health examinations are not given serious consideration, and efforts are not being made to interest the apparently healthy individual in his own welfare. As long as physicians maintain this attitude, the practice of medicine will always be open to adverse criticism, and the gates will be open for the cults to flourish. Every cult, quack, faker and nostrum dealer professes to cure disease, but it always remains for the timely scientist to devote, and even sacrifice, his life to develop methods for preventing disease. The prevention of disease marks the truly scientific physician, and when he loses sight of this important service, he allows his profession to degenerate to the plane of the mercenary healer. The general public has not been slow to note this glaring inconsistency.

The opportunity has been grasped by the irresponsible practitioners of healing whose sole interest it is to evade the rigid qualifications required by law for the practice of medicine. In order to cover up their real incentive, they have capitalized the shortcomings of the medical profession, and every plausible form of treatment has been used to justify their evasion of the law. A careful investigation discloses the fact that none of these so-called systems have been able to demonstrate scientifically the truth of their contention.

But these irresponsible practitioners have found this to be an easy and lucrative way of making a living. In order to protect their questionable practices, they are substantial monthly contributors to organizations whose main purpose it is to intimidate legislators to legalize these so-called systems, and finance publicity bureaus for the distribution of misleading information.

Bulletins are broadcasted that boldly state they are against compulsory medicine and surgery for adults and children. Granting that it is allowable for adults to assume this responsibility, we are permitting irresponsible individuals to run riot and not only to endanger themselves but menace the community by their utter disregard of all sanitary and hygienic laws.

There can be no justification for this inhumanity to helpless and defenseless children. Misguided parents who sacrifice the lives of their children to fanatical beliefs require serious consideration. A mother who allows her child to die of malignant diphtheria knowingly should be tried for wilful manslaughter. The agency that sponsors this pernicious propaganda and is doing everything possible to undermine all means of health protection is guilty of a greater crime than treason. Thousands of lives are being sacrificed annually on the altar of ignorance that might have been saved by the timely application of the principles of preventive medicine. Every health officer can cite many instances wherein parents have refused treatment and allowed their children to die for want of intelligent care. Where is this wanton disregard for human life going to end? There are active agents carrying on an insidious campaign promulgating distorted facts and plausible speculations, who are taking every possible advantage to blind the public in regard to the phenomenal progress made by the science of disease prevention. It is hoped that a great calamity will not be necessary to awaken the public to the real danger of this truly blue sky propaganda. Let the present European situation—poverty, pestilence, plague—serve as a sufficient warning to an intelligent nation. Epidemics of fatal smallpox have had the effect of reminding some states that lax preventive measures are a costly experiment. An intensive campaign of education is necessary to protect trusting humanity, and prevent it from exchanging its investment in all that science affords in protecting its most valuable asset, health, for the blue sky promises of health and happiness of the fanatic or designing disciples of unproved theories.

It is of the utmost importance that the physician become the family adviser and give his attention to the little things that make life more tolerable. In order that the physician may be a truly scientific man, he must be versed in sociology and the remote causes of disease as well as the treatment of human illnesses. There must be a general reformation of the art of teaching, beginning with the medical schools and colleges and extending down through the entire educational system. The keynote of all education must be better living. Every enterprising advertiser appreciates the value of health and happiness in making an appeal to the public. The institution that can do most to promote health and happiness has never taken the advantage of this wholesome propaganda that it should to be of the greatest benefit to our civilization. Scientific disease prevention has been confined too long to a few determined and self-sacrificing workers instead of being a part of the activities of every physician. It should be the principal object of our medical schools to make every student an adept in disease prevention. Comprehensive courses in disease prevention should constitute a major study in all our medical schools. State aided schools should receive appropriations in the proportion to the extent that they teach preventive medicine.

The state cannot appropriate funds to a better advantage than to provide definite means for safeguarding the health of the people. Another step that is of equal importance is that we must have a thorough housecleaning of our own ranks before we can carry out an effective campaign against the false propaganda of the day. Our medical examining boards are crippled by an organized campaign of intimidation. There is a crying need for the appointment of a commission of scientists to determine fitting standards for the healing art, which necessarily must be the same for all applicants. This commission must be constituted of the best men in the state, and they should be given power not only to pass on applicants, but also after due trial, to revoke the license of all practitioners who are guilty of unlawful practices. We have given our supreme court more power than this; is it not more vital to safeguard human life with a similar procedure? A state board freed from all political interference, made up of the state's most competent scientists, and supported by every reputable physician, can not only maintain professional standards but also make every physician in the state an administrator of better health for the community.

Physicians and sanitarians cannot handle the situation alone, and voluntary agencies interested in health matters are necessary to insure the cooperation of the public. The multiplicity of organizations divides the issue and complicates the duties of the field worker, which seriously impairs the efficiency of the work.

Social workers constitute an active part of public health work. There is too much of a tendency at present for social workers to lose sight of their limitations and invade the fields of the physician, health officer and public health nurse. Public health nursing is performing an important mission by carrying preventive measures and hygiene into the home. While a

well balanced educational background is essential, this profession is starting out with almost prohibitive standards, with too much emphasis being laid on executivism, long vacations and high salaries. It is a big mistake for health workers to capitalize their own personality at the expense of efficient health work. The work should be conducted so that any good worker can follow it up with practically no interruption.

Public health work should be under the direction of full-time health officials. The volunteer organizations have a big mission to fill, and one of the essential functions should be to bring the physician in closer touch with the people. A strong organization can do much to create public opinion favorably toward health education in our schools.

Our present system of health education in most states is not satisfactory. There seems to be an active propaganda to elect individuals to school boards whose sole object it is to prevent the teaching in our schools of all matters that might effect the health of the people. In addition to this, most of our health education at present is of the artificial or textbook variety, and the teacher has no apparent background for the teaching of the subject. Artificial methods of health education, like synthetic foods, have had their day, and the time is now ripe for the application of natural methods of teaching children how to live. Another R should be added to the elementary course of education. Right living is an essential that can best be taught by systematically observing nature.

The teaching of the science of life from the elementary to the high school grades is essential in order that children may be taught to discriminate in matters of health and disease prevention. Every child is interested in nature, and it has been the experience of teachers of elementary biology that they soon become health enthusiasts. It behooves the physician to support the movement to place the teaching of health on a practical scientific basis. If the profession fails to endorse this movement, this matter will undoubtedly be handled by the public itself. It has been the experience in England and in other European countries where the public has taken a hold of health matters that the profession has suffered materially, and measures have been taken that have resulted in the physicians becoming the hirelings instead of the leaders.

The government administration of health is essential, but the profession should assume the leadership and see that men of the finest caliber are appointed to safeguard the public health. Too much cannot be done to uphold the honor and dignity of the highest court of appeal on matters of public health and make it compare favorably with the supreme court of the land, if not higher. This court of last appeal can then eliminate all "blue sky" health propaganda, and give the people the protection that they have a right to demand.

ABSTRACT OF DISCUSSION

Dr. A. T. McCormack, Louisville, Ky.: It is important for us to remember that we are physicians, and that, if we know things that will furnish greater opportunity for service to the people, it is our job to do those things for the people. We know definitely that a very considerable percentage of our people are not receiving the benefits of modern methods. We know that large numbers of people suffering from disease or accident are not being treated for the condition. Operations are done, medicine is administered, but we have not yet so organized ourselves that we rehabilitate the individual rendered inefficient by disease or accident so that he again becomes as useful a member of society as it is possible for him to be. Thousands of people come too late. They come too late because we have not taken the public into our confidence in the vernacular, in terms that they can understand, so that they know what modern scientific medicine can do. We ourselves have been so interested in these advances, they have taken up so much of our time in keeping up with progress in our profession, that we have failed too frequently to disseminate information of these advances to the public. It is essential that the public get the news. How are we going to do it? It is absolutely essential for those of us who have specialized in this branch of practice to go into the medical schools and find the students while they are still in the process of formation and growth, and inject into their cerebrums some of the common sense and some of the human spirit that is essential if they are going to practice preventive medicine to any degree. And we must always remember that the physician is going to be the health officer who will come into most intimate contact with the individual, and the practicing physician must be charged with the public health propaganda and the public health responsibility. In proportion as he is charged with this knowledge and with this propaganda will his work be successful and the general public be benefited.

Dr. Frederick D. Stricker, Portland, Ore.: Physicians must surrender the right to dictate the standards of the art of healing to a commission of scientists. There can be only one standard of the healing art, and that is a well grounded education in the fundamental sciences. One united volunteer health association is about the limit for efficient work in a community. Health workers must be under the immediate direction of the official in whose hands the safety of the health of the community is placed. Education from the youngest child to the college graduate must include specific courses in how to live. The carrying out of these provisions cannot fail to increase the efficiency and lesson the spectacular in public health work.

FOREIGN BODIES IN THE BRONCHI IN CHILDREN *

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AND
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LOS ANGELES

We should not discuss foreign bodies in the bronchi without first expressing our appreciation and indebtedness for our present knowledge on this subject to that keen clinician, logical research worker and master of the art of bronchoscopy, Chevalier Jackson. Everything we may have to say on this topic must be a mere repetition of the results of the published work of Jackson and his co-workers. Our reasons, under these circumstances, for reiterating some of the principal facts concerning foreign bodies in the bronchi in children, are:

1. The not infrequent occurrence of this accident in childhood.
2. Recent advances in the diagnosis of foreign bodies in the air passages.
3. The vital importance of early diagnosis.
4. The desire to stimulate cooperation between the pediatrician, the roentgenologist and the bronchoscopist, and the resultant saving of human life.

Unfortunately, in the practice of medicine, we can only in rare instances leave the bedside of a patient with the absolute conviction that our efforts have enabled us actually to save life. In this field, however, we are

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afforded an opportunity to enjoy this most gratifying of all rewards, if we will promptly recognize the condition and give the child the benefit of expert care.

Classification of foreign bodies that may enter the air passages may be made from different points of view. The simplest and, from a clinical standpoint, most important grouping, is to divide them into (1) inorganic substances and (2) organic substances, and then separate these again according to their radiability, into (1) opaque substances and (2) nonopaque substances.

Foreign bodies, after they enter the bronchial tree, set up more or less reaction in the invaded tissues, depending on their size, shape and chemical composition. A foreign body that does not obstruct drainage from or aeration of the lung, tributary to the invaded bronchus, produces less reaction than a foreign body of the same physical and chemical characters but of such a size and shape as to occlude the invaded bronchus in such a way as to obstruct drainage and aeration. Inorganic substances, as a rule, cause only a local reaction. This, at times, is extremely slight. Iron and steel are perhaps the least irritating of all metals.

Organic bodies set up a more severe and extensive general inflammatory reaction; bone is an exception to this rule. The most irritating of all substances is the roasted peanut kernel; other nut kernels, such as the walnut, also cause marked general reactions. The inflammatory process set up by the roasted peanut is so violent and so dangerous to life that it has been described separately and in detail under the name arachidic bronchitis. All of Jackson's cases occurred in children. The younger the child, the more severe the reaction. The pathologic condition produced consists of an edematous, purulent laryngotracheobronchitis, which, if not fatal, results in lung abscess unless the peanut is promptly removed.

The symptoms produced are due to (1) swelling of the mucosa of the air passages, resulting in dyspnea and cyanosis, and (2) accumulation of purulent lung secretions, very difficult of expulsion, and the absorption of toxins from which result fever and other signs of toxemia. This very grave and often fatal condition may be produced within a few hours after the aspiration of the nut. It may also be of interest to mention here that organic bodies, such as nuts and maize, may remain in the bronchi for several weeks without undergoing disintegration. The only appreciable change, as a rule, is a swelling of the foreign body which still further complicates aeration and drainage of the lung tissue.

The members of the opaque group, represented principally by metallic bodies, are as a rule easily demonstrated on the roentgenogram. Nonopaque substances, such as peanuts, nut kernels, peas, seeds, celluloid and rubber, may, in rare, fortunate instances, cast a shadow on the roentgenogram. Until a few years ago we were forced to depend on the history, symptoms and physical examination to make a diagnosis of a nonopaque foreign body in the bronchi. Now, thanks to the work of Chevalier Jackson and his co-workers Spencer and Manges, a proper interpretation of the roentgenogram will help us to make and confirm the diagnosis of a nonopaque foreign body in the air passages.

This recent work is a milestone in the path of diagnosis of foreign bodies. The great importance of determining the presence and location of nonopaque bodies must be again emphasized, as in this group are included principally the organic substances that result in violent reactions and abscesses, if not removed promptly. Formerly it was assumed that a foreign body of this type would act as a ball valve, letting air out but not permitting it to enter, producing thereby a partial atelectasis distal to the foreign body which would increase the density of the shadow on the picture. The facts appear to be exactly the reverse. The three characteristic roentgenographic signs of nonopaque foreign bodies in the bronchi are: (1) increased transparency of the entire affected side; (2) depression of the diaphragm on the affected side, and (3) displacement of the heart and mediastinal structures away from the affected side. These roentgenologic signs are best shown by taking two exposures, one at the end of full inspiration and a second at the end of full expiration. The plate at the end of inspiration will show the lungs equally or nearly equally filled with air. The one taken at the end of expiration will show the normal lung nearly depleted of air, while the invaded lung will be more or less nearly full. These findings are caused by an acute obstructive emphysema due to the fact that, except when the obstruction is complete, a small amount of air passes the foreign body on inspiration while on expiration none escapes, owing to a contraction of the bronchus with a narrowing of its lumen. An inflammatory condition in the bronchi at the site of the foreign body is an essential factor in the production of this emphysema. Later on, when secretions accumulate, we get a condition known as drowned lung distal to the point of obstruction; and this is then represented by an increased density in the plate.

The diagnosis of the presence of a foreign body is made by means of a careful history, physical examination and roentgenography. A history of sudden choking, accompanied or followed by a paroxysmal cough and in some instances by cyanosis, rapid breathing and wheezing respiration, is extremely suggestive of an aspirated foreign substance. Dyspnea and cyanosis may be transitory, continuous or periodic.

The signs elicited by a careful physical examination vary widely in character, depending on the size, shape, composition, position and length of residence of the foreign body in the respiratory tract. Foreign bodies produce physical signs dependent on their physical properties and position only, if seen before lung changes have developed. When an object has entered the primary bronchus, the picture will vary according to the degree of obstruction. If not obstructed, there may be little or no alteration in the percussion note or breath sounds, and no other physical changes. Suspicion of a foreign body once having been aroused, all human aids to diagnosis of such a condition must be utilized until we get a negative result.

When the object is of such size, in such position or surrounded by sufficient inflammatory tissue as to be partially obstructive, we can expect these physical findings:

1. Diminished expansion of the affected side. This is really the only one constant physical finding.

2. Muffled tympany, a peculiar impaired resonance over the affected side. Later, if the condition of drowned lung supervenes, this changes to dulness or flatness.

3. Diminution or complete abolition of the breath sounds over that portion of the lung supplied by the obstructed bronchus.

4. Asthmatoid wheeze, a sound heard by placing the ear in front of the patient's mouth during expiration. It resembles the wheezing of the asthmatic patient, but is drier. It is not present when a bronchus is tightly occluded. The cooperation of the patient is frequently necessary; therefore, it cannot allways be elicited in small children. The sound is more likely to be present with the object irregular or angular in shape.

5. There may be an inspiratory retraction of the interspaces.

In recent cases, the history, the physical findings and the roentgenologic examination should enable us in practically all cases to make the diagnosis of foreign body in the bronchus, and also to determine its location in the lung.

The cases offering the greatest difficulty in diagnosis are those in which the foreign body is nonopaque and in which the sojourn of the foreign body in the air passages has been sufficiently long to set up signs of acute or chronic inflammation. Time does not allow us to discuss these and other sequelae, such as lung abscess. We wish only to mention the following established facts. Tubercle bacilli have never been found associated with a foreign body in the bronchus at the bronchoscopic clinic of Chevalier Jackson. The pleural cavity almost never becomes involved, even in long standing cases of foreign bodies; and, lastly, clubbing of the fingers and toes, night sweats, hemoptysis, loss of weight, in fact all the symptoms of tuberculosis, may be simulated with exactitude in cases of prolonged retention of the foreign body in the air passages.

Three cases of aspiration of zinc stearate have come under our observation. In every instance these children showed a severe reaction and developed a bronchopneumonia in from twenty-four to forty-eight hours. One infant that inhaled talcum powder developed a bronchitis. The reaction seemed to be less than with zinc stearate. These accidents occur with sufficient frequency to make a word of warning to the parent and to manufacturers of dusting powder timely and called for.

The treatment of all cases of foreign bodies is always the same: removal by bronchoscopy. In only about 2 per cent. of cases is a foreign body spontaneously expelled. Chevalier Jackson tells us that almost any localizable foreign body that has gone down the natural passages can be brought up the same way, and reports 98.3 per cent. recoveries in his work. The risk of a brief and careful bronchoscopic examination without anesthesia is almost nil. Unfortunately, no one else has attained the skill and judgment of Jackson. Many times it is not advisable or possible to transport these patients to Philadelphia. It is highly important, therefore, that bronchoscopic clinics be established in all the larger cities where one or two individuals who have aptitude for this work may gain the necessary experience and skill to give these patients the desirable expert treatment. Dexterity, patience, judgment and mechanical sense need to be developed by frequent opportunity in the use of the bronchoscope, for the element of time consumed and good technic are essential to good results.

Humanity and medical science owe a tremendous debt to Dr. Jackson and his associates for having so greatly advanced our knowledge of this fascinating subject.

ABSTRACT OF DISCUSSION

DR. ISAAC A. ABT, Chicago: Dr. Dietrich called attention to a very important point in the diagnosis of foreign bodies in the bronchi—particularly, however, to the identification of the nonopaque bodies. According to this improved method of plate interpretation, they can be diagnosed by the irregular and lowered condition of the diaphragm and the other conditions which he has pointed out. The presence of foreign bodies in the bronchi seems to be on the increase. Any addition to our knowledge of diagnosis should be considered a distinct evidence of progress.

DR. HENRY DIETRICH, Los Angeles: Previous to the time that Chevalier Jackson learned to interpret his own plates—and they were at it a long time—frequently the bronchoscope was put into the wrong lung, because the assumption was that the side which was obstructed would show more density in the plate.

PANCREATIC INSUFFICIENCY RESULTING FROM LARGE MEAT PROTEIN INTAKE

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In the recent intensive investigation of diabetes mellitus, stimulated by the advent of insulin, little attention has been given to the rôle of protein, especially meat protein, in producing pancreatic insufficiency. The factor of keeping the patient's carbohydrate intake well within his estimated tolerance limit has been appropriately stressed, but a number of the diet cards distributed to diabetic patients fail to impress the necessity of protein restriction. Frequently, meats are listed among the carbohydrate-free group, and mild or prediabetic patients are allowed to go the limit on these articles, because they contain no carbohydrate, as such.

Von Noorden has called attention to the fact that large amounts of meat protein thrown on the digestive system by a single meal may produce a temporary paralysis of pancreatic function. That this reaction is the result of protein attack rather than due to the available glucose represented by the meat is borne out by the case cited.

A man, aged 33, whose family history was essentially negative, no known cause of diabetes having occurred in the family, had had the usual diseases of childhood, and also a mild attack of scarlet fever in 1920. Otherwise he had always been well. During an insurance examination in April, 1923, glycosuria was discovered, following a heavy meal. There had been no symptoms pointing to a diabetic condition, the only suspicious factor being an increase of weight of 20 pounds (9 kg.) during the last two years. A glucose tolerance test performed the following day also resulted in glycosuria. No blood sugar determination was made at this time, as the insurance examiner had no facilities for making blood chemistry estimations.

The patient was put on a diet with moderate carbohydrate restriction (150 gm. daily), and no glycosuria resulted. A blood sugar determination performed, on May 3, following a meal of approximately 30 gm. of protein, 50 gm. of fat and 50 gm. of carbohydrate, showed 0.112 mg. the first hour and 0.098 mg. the second hour. The case was undoubtedly well within tolerance limits on this diet.

The next blood sugar determination was made, June 4. Before this examination, the patient had eaten sparingly of carbohydrate food, but consumed nearly three-fourths pound of beef steak. The meal consisted of the steak, a small helping (tablespoonful) of mashed potato, one slice of bread with butter, one glass of milk and a medium portion of sliced tomato. Approximately figured, the meal contained from 75 to 80 gm. of protein, 30 to 40 gm. of fat and 45 gm. of carbo-

hydrate. The available glucose, calculating the protein 58 per cent. and the fat 10 per cent. convertible to glucose, was 90 gm. After this meal, the blood sugar rose to 0.235 mg. for the first hour, and remained fixed at the same figure for the second hour. There was marked glycosuria, which disappeared in about six hours. Tests for acetone and diacetic acid were negative.

Later in the month, as a result of these findings, the patient entered the hospital and was given a seven-day series of test diets with daily twenty-four hour urine examinations and blood sugar determinations performed every second day. The results were:

First day: Diet, protein, 70 gm.; fat, 139 gm.; carbohydrate, 50 gm.; calories, 1,731. Available glucose, 104 gm. Twenty-four hour urine, sugar, 0. Blood sugar, first hour, 0.074.

Second day: Diet, protein, 76 gm.; fat, 1442 gm.; carbohydrate, 75 gm.; calories, 1,882. Available glucose, 134 gm. Twenty-four hour urine, sugar, 0.

Third day: Diet, protein, 92 gm.; fat, 158 gm.; carbohydrate, 113 gm.; calories, 2,242. Available glucose, 180 gm. Twenty-four hour urine, sugar, 0. Blood sugar, first hour, 0.098.

Fourth day: Diet, protein, 103 gm.; fat, 163 gm.; carbohydrate, 137 gm.; calories, 2,431. Available glucose, 213 gm Twenty-four hour urine, sugar, 0.

Fifth day: Diet, protein, 101 gm.; fat, 158 gm.; carbohydrate, 154 gm.; calories, 2,447. Available glucose, 230 gm. Twenty-four hour urine, sugar, 0.

Sixth day: Diet, protein, 104 gm.; fat, 158 gm.; carbohydrate, 211 gm.; calories, 2,687. Available glucose, 288 gm. Twenty-four hour urine, sugar, 0. Blood sugar, first hour, 0.112.

Seventh day: Diet, protein, 104 gm.; fat, 158 gm.; carbohydrate, 211 gm.; calories, 2,687. Available glucose, 288 gm. Twenty-four hour urine, sugar, 0. Blood sugar, first hour, 0.113.

The significant point of these figures seems to be tha on the last test diet, with an intake of 104 gm. of protein, 158 gm. of fat and 211 gm. of carbohydrate, and 288 gm. of available glucose, no glycosuria resulted, and the blood sugar determination of 0.112 mg., one hour after eating, was well within normal limits. The actual meal before which this last blood sugar was taken contained 35 gm. of protein, 55 gm. of fat and 72 gm. of carbohydrate, and 97 gm. of available glucose.

On the other hand, after the meal of June 4, which contained much less carbohydrate and convertible glucose, but considerably more meat protein, a glycosuria and very high blood sugar reading resulted, lasting at least six hours: protein, 75 gm.; fat, 30 gm.; carbohydrate, 45 gm.; glucose, 90 gm.; blood sugar, 0.235. Final test: protein 35 gm.; fat, 55 gm.; carbohydrate, 72 gm.; glucose, 97 gm.; blood sugar, 0.112 gm. Both blood sugar specimens were taken one hour after the meal.

The inference seems reasonable that the large meat intake produced a temporary paralysis of pancreatic function, and bears out von Noorden's statement to that effect. It would seem good policy, therefore, to place more emphasis on meat protein restriction in prediabetic and diabetic patients.

5 Liberty Street.

Duodenal Diverticula.—Duodenal pouches may arise from any of the three portions into which the duodenum is anatomically divided. The great majority are found in the second portion of this segment of the intestine and particularly on the postero-internal aspect, in close relation to the ampulla of Vater, so that diverticula at this particular site have been termed by the French "diverticules périvatériens."—Huddy, G. P. B.: *Lancet,* Aug. 18, 1923.

Clinical Notes, Suggestions, and New Instruments

VERTICAL FRACTURE OF THE ARTICULAR SURFACE OF THE PATELLA

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The common type of fracture of the patella is a simple transverse fracture due to muscular violence. Occasionally, one sees a fracture of the apex or of the superior border, which is torn away with the attached quadriceps extensor tendon. In an injury from a direct blow, one sees either simple or compound linear or comminuted fractures. Longitudinal fractures through the body of the patella have also been described, but in none of the articles on patellar fractures or in the textbooks on surgery have I come across a description or even mention of the tearing off, by trauma or otherwise, of part of the posterior articular surface of the patella. In response to an inquiry on this subject at a clinical conference of the staff of the Hospital for Ruptured and Crippled, none of the surgeons present had ever seen a similar case. I therefore concluded that the type of fracture shown in my case is exceedingly rare.



Lateral view of knee before operation. The arrows indicate the location, and the dotted lines the size of the loose fragments of the patella. The shadows were distinctly visible in the original plates, but did not show up well in the prints; hence the dotted lines were used to outline the shadows of the fragments.

REPORT OF CASE

W. F., a boy, aged 18, was thrown down in a game of football. He felt severe pain in the left knee, and was unable to get up. He was carried off the field and taken to the Rockaway Beach Hospital, where he remained under the care of his physician, Dr. A. W. Victor. The knee became markedly swollen immediately after the injury, though there was no external bruising or discoloration. I was called to see the

patient two days later. At this time he complained of pain in the knee and inability to move the limb. The disability was apparently due to pain. The knee was decidedly enlarged; there was distinct fluctuation due to an effusion into the quadriceps bursa and the knee joint. There was no redness or local heat. Passive movement of the knee was possible, but painful. There was no infiltration of the soft tissues, so that the swelling was due entirely to an intra-articular effusion. The tibia and femur were normal in outline, and not tender. The patella was normal in outline, but moderately sensitive. There was no palpable irregularity of either the anterior surface or of the borders of the patella; there was no break in the continuity of the body of the patella; that is, no fracture, so far as one could determine from the ordinary methods of clinical examination. The patellar ligament and the lateral patellar ligamentous tissues were intact.

The roentgenogram showed, in the lateral view, three abnormal shadows between the patella and the femur. One was a linear shadow one-fourth inch long and about one-sixteenth inch wide extending obliquely downward and backward from the inferior border of the articular surface of the patella. The second shadow was about three-eighths inch square, behind the middle of the patella, from which it was separated by a distinct interval, and lying over the shadow of the internal femoral condyle. The third, situated above the shadow just described, behind and above the patella and overlapping the femur, was about three-quarters inch square. The posterior surface of the patella was concave to a greater degree than normally, and in the middle third was moderately irregular. The tibia and femur were normal.

It was apparent that there were three loose pieces of bone in the knee joint, and that these had been torn off from the articular surface of the patella. The removal of these bodies from the knee was evidently necessary for the cure of what was bound to be a troublesome and disabling injury. It was therefore decided to operate as soon as the swelling subsided.

The operation was performed on the tenth day after the injury. A vertical incision was made over the front of the knee from a point 1½ inches above the patella to the attachment of the patellar ligament to the tibia. A vertical incision was made through the periosteum of the patella, which was sawed through into two lateral halves. The quadriceps tendon above and the patellar ligament below were incised for half an inch beyond the patella. The split halves of the patella were retracted, and an excellent exposure of the joint was obtained. The knee was filled with clotted blood, and embedded in this were three loose masses of bone corresponding in shape and size to the shadows seen in the lateral roentgenogram. The articular surface of the patella was very rough and excavated, and the loose pieces of bone fitted roughly into and were undoubtedly torn away from this part of the patella. The exposed surfaces of the femoral condyles were smooth, and showed no signs of any injury. The blood clot was removed from the joint with instruments, and with great care not to injure the cartilage of the femoral condyles. The incisions in the quadriceps tendon and in the patellar ligament were repaired with thin kangaroo sutures. The patellar fragments were easily brought into contact, and held so by the sutures through the quadriceps and patellar tendons and a row of catgut sutures through the periosteum over the patella. The deep fascia and skin were closed with separate layers of catgut sutures. Over the usual gauze dressing, a plaster-of-Paris circular splint was applied from the toes to the groin, with the knee in complete extension.

One week after the operation, the wound had healed. Several days later, passive motion was begun. The patient began bearing weight on the limb three weeks after the operation. Then baking, massage and mechanotherapy were instituted, and the patient made a perfect functional recovery. Roentgenograms taken four weeks after the operation showed that the knee joint was free from the shadows previously seen and that, except for some roughening of the posterior surface of the patella, the joint was normal.

The larger masses of bone were about one-eighth inch in thickness, were lined with cartilage on one surface, and had cancellous bone on the other side. As there were no ridges or rough areas on the femoral condyles, it is difficult to explain how this fracture was produced. Very likely, the knee was in semiflexion during the fall. In this position the middle of the patella is in contact with the femoral condyles. A direct blow at this time, as in falling on the knee, increases the degree of contact between the patella and the femur, and, forcing the patella downward, could conceivably cause a shaving or scraping off of part of the articular surface.

It has appeared worth while to report this case because of the unusual type of fracture, and because in a review of the literature I did not find a record of a similar case.

1 West Eighty-Fifth Street.

DARK FIELD EXAMINATION OF TUBERCLE BACILLI*

Edward W. Schoenheit, M.D., Asheville, N. C.

This method of microscopic examination is chiefly used for demonstrating *Spirochaeta pallida* in the unstained specimen, but certain investigators have found it valuable in the study of stained specimens. Hoffmann[1] found the dark field useful in demonstrating the spirochetes of yellow fever and jaundice in stained specimens, and likewise believes that it is valuable for studying tissue sections. Ficker[2] used Hoffmann's method for examining flagellates. Silberstein[3] and Zorn[4] applied the method in examining other forms of bacteria, among them the tubercle bacillus, and state that they could find them much more easily and in greater numbers than in the luminous field.

We have tried this method for examining specimens of sputum and urine sediment for tubercle bacilli, and found that we could see them more quickly, in greater numbers and with greater facility than with the light field, and bacilli in thick specimens could be more easily seen.

TECHNIC

The specimen is mounted on a glass slide of appropriate thickness and stained according to the usual Ziehl-Nielson method. We advise using a dark field apparatus so constructed that the examiner may change the picture from dark to luminous field without moving the slide. We use a Reichert mirror condenser with a rotating disk, enabling the examiner easily to change the picture from dark to light.

The lens is a one-twelfth oil immersion equipped with a conical plug ordinarily used in dark field work. The best picture is obtained with a micro-arc lamp, but a very good one may be seen with a 100 watt Mazda lamp.

In examining important specimens in which the finding of a few bacilli may make the diagnosis, this method is to be recommended. One may locate a bacillus with the dark field and then confirm it by turning the disk.

In examining twenty fields in a specimen of sputum, we found 120 with the dark field and seventy-four with the light field.

46 Reed Street.

AN UNUSUAL TWIN BIRTH: A CASE IN WHICH THE TWO HEADS WERE BORN AT THE SAME TIME

A. W. Petit, M.D., Nashua, N. H.

Mrs. D. R., aged 27, in her fourth full-term normal pregnancy, had not had difficulties at the previous deliveries, eight, six and three years before. The babies had weighed from 6 to 7 pounds (2.7 to 3.2 kg.) each, and there had been no perineal tear except a slight one, repaired at the first delivery.

When I arrived at the bedside, July 7, 1923, the patient had been in labor for two hours, and was having strong pains at three-minute intervals. Vaginal examination showed a left occipito-anterior presentation, with the head on the

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* From the von Ruck Research Laboratory for Tuberculosis.

1. Hoffmann, Erich: Deutsch. med. Wchnschr. **47**: 65 (Jan. 20) 1921.
2. Ficker, M.: Deutsch. med. Wchnschr. **47**: 286 (March 17) 1921.
3. Silberstein: Deutsch med. Wchnschr. **47**: 775 (July 7) 1921.
4. Zorn: Zentralbl. f. Bacteriol. **88**: 95, 1922.

perineum. After a few pains, the vertex progressed so that it was nearly one-half born, but came no farther. Examination to ascertain the cause of this sudden arrest showed a second head in the pelvis pressing into the neck of the first child. The second head was pushed upward, after which the first head was born. In a few minutes' time, the second head also was born. Seeing the two heads born at the same time, I supposed that I was dealing with a double-headed monster.

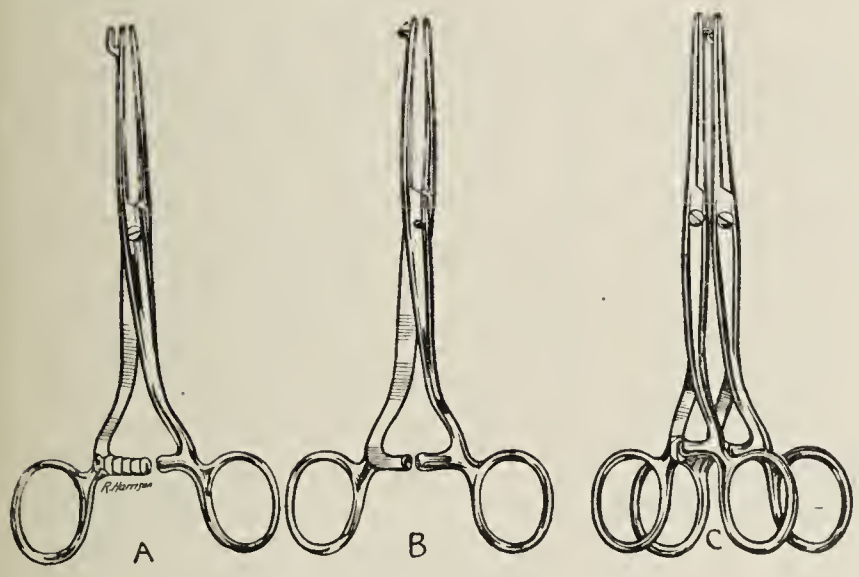
The labor pains then ceased, but with some difficulty I succeeded in bringing out a perfectly normal boy who had been sliding out past the first head. A second normal boy was born without difficulty a few minutes later.

The two placentas were adherent and were expelled together. There was no perineal tear and little hemorrhage. The mother was in labor only three hours, and made an uneventful convalescence. The boys together weighed 12¼ pounds (5.5 kg.), and are both well.

A NEW THYROID MUSCLE CLAMP

BENJAMIN IRVING HARRISON, M.D., KNOXVILLE, TENN.

In suturing the divided preglandular muscles, following an operation on the thyroid gland, it is at times difficult for the surgeon and his assistants to maintain a steady, close approximation with the type of clamp that has been in use up to the present. This difficulty is most evident in patients that have well developed preglandular muscles. To overcome this problem I have devised a special set of thyroid muscle clamps, which have given me satisfactory results.



Thyroid muscle clamp.

This set of clamps consists of a pair of 6½ inch clamps with a blade 2 inches long. The clamp at *A* in the accompanying illustration has a hook at the tip and an eye at the heel of the ratchet, while the clamp at *B* has an eye at the tip and a hook at the point of the ratchet. These hooks and eyes firmly hold the clamps together when approximated, as shown at *C*.

The clamps should be placed on the preglandular muscles with the blades carrying the hook and eye at their respective tips underneath the muscles. The index finger of the left hand can be advantageously used to guide the clamps into position. The hooks and eyes on the clamps are so placed that they do not interfere with the operative procedure. To approximate the preglandular muscles, one should take the clamp with the hook at the tip and insert this hook into the eye on the tip of the other clamp. Then the handles of the clamps are superimposed, the hook and the eye at their ratchets being allowed to engage, thus completing the fixation. By means of these two simple movements the clamps are secured and the muscles brought into the desired close approximation for suturing.

The advantages of this set of thyroid muscle clamps are:

1. They are so constructed that they hold the divided muscles in close, solid approximation against any amount of muscle pull, thus facilitating accuracy and speed in suturing the preglandular muscles.

2. The application, approximation and fixation of the clamps are easily accomplished as well as their removal.

3. The special hooks and eyes for securing fixation in no way interfere with the operative technic.

705 Market Street.

SIMPLE VACUUM APPARATUS FOR SUPPURATING EARS

E. W. CARPENTER, M.D., GREENVILLE, S. C.

We have for years employed a glass dropper with the small end placed in a short rubber tube, as a routine part of home treatment in all forms of suppuration of the middle ear. The power is supplied by the mouth of the patient, if old enough, or by a member of the family. A rubber bulb can be used also, but this does not regulate the vacuum so well as the mouth. The vacuum and dry mopping are used alternately several times daily until the ear is dried at each treatment. This is one of the most satisfactory factors we possess in the treatment of cases of suppuration.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

NEW TUBERCULIN B. E. DRIED.—Tuberculinum Novum B. E. Siccum.—A solution of this is practically a bacterial vaccine. The bacteria are dried, ground for several months in a ball mill, the finely disintegrated bacillary bodies are mixed with a suitable base, similar to that employed for an ordinary hypodermic tablet. The diluent is adjusted so that each tablet represents a definite amount of New Tuberculin B. E. Dried.

Parke, Davis & Company, Detroit.

Tablets Tuberculin B. E.-P. D. & Co.—Marketed in vials No. 1 (*Bio. 474*) of ten tablets, each tablet containing 0.0001 mg. New Tuberculin B. E. Dried; in vials No. 2 (*Bio. 475*) of ten tablets, each tablet containing 0.001 mg. New Tuberculin B. E. Dried; in vials No. 3 (*Bio. 476*) of ten tablets, each tablet containing 0.01 mg. New Tuberculin B. E. Dried; in vials No. 4 (*Bio. 477*) of ten tablets, each tablet containing 0.1 mg. New Tuberculin B. E. Dried; in vials No. 5 (*Bio. 478*) of ten tablets, each tablet containing 1 mg. New Tuberculin B. E. Dried; also marketed in packages (*Bio. 473*) of 5 vials, Nos. 1, 2, 3, 4 and 5, inclusive.

NEW TUBERCULIN T. R. DRIED.—Tuberculinum Novum T. R. Siccum.—Tuberculin Residue (Dried).—The mass culture of tubercle bacteria is washed repeatedly, agitated again in water, washed, ground to complete disintegration, extracted repeatedly with water, and the water insoluble material, instead of being ground to form a suspension in water as in the case of the New Tuberculin T. R. Liquid, is dried. The dried sediment is thoroughly mixed with a suitable diluent similar to that used for hypodermic tablets, so that each tablet represents a definite amount of the dry tubercle bacilli.

Parke, Davis & Company, Detroit.

Tablets Tuberculin T. R.-P. D. & Co.—Marketed in vials No. 1 (*Bio. 504*) of ten tablets, each tablet containing 0.0001 mg. New Tuberculin T. R. Dried; in vials No. 2 (*Bio. 505*) of ten tablets, each tablet containing 0.001 mg. New Tuberculin T. R. Dried; in vials No. 3 (*Bio. 506*) of ten tablets, each tablet containing 0.01 mg. New Tuberculin T. R. Dried; in vials No. 4 (*Bio. 507*) of ten tablets, each tablet containing 0.1 mg. New Tuberculin T. R. Dried; in vials No. 5 (*Bio. 508*) of ten tablets, each tablet containing 1 mg. New Tuberculin T. R. Dried; also marketed in packages (*Bio. 503*) of 5 vials, Nos. 1, 2, 3, 4 and 5, inclusive.

Louvain University Being Reconstructed.—A part of the restored portion of the University of Louvain was opened in July. A book containing a list of Louvain students who died in the World War was the first one placed on the shelves of the library.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 6, 1923

THE DEETHERIZATION OF PATIENTS

One often hears about the desirability of better mutual understanding between the clinician and the so-called laboratory worker. By the latter is meant, we presume, not the mere technician but the scientific investigator or researcher—terms which Sewall [1] recently designated as clumsy and crude. He avers that, when a purely scientific problem is solved, its spell is broken for the student. To him, "practical" results have no interest except as demonstrations of the abstract truth and progenitors of new phases of thought. The urge of the investigator is the development of truth; the direction is subsidiary.

Herein perhaps lies the challenge to the clinician to be prepared to take advantage of the latest contributions of his research confrères. We have in mind a specific illustration arising out of the physiologic laboratory. It has been clearly demonstrated in recent years that carbon dioxid is the natural stimulus to the respiratory center. When this gas is added in small quantities to the inspired air, pulmonary ventilation becomes more extensive. This fact has led to the suggestion that the property noted in carbon dioxid be utilized to secure better elimination of substances which may accumulate in undesirable amounts in the blood and which can be exhaled in gaseous form through the lungs. The toxic carbon monoxid is such a substance. Another is ether left in the blood after anesthesia.

Every physician is familiar with the undesirable postanesthetic effects of ether. They sometimes become the bane of the surgical operator's activities. As ether, being a volatile substance carried by the blood, is eliminated chiefly through the lungs, the rate of excretion must vary directly with the volume of pulmonary respiration. It has been demonstrated that more than 90 per cent. of the ether inhaled can be quantitatively recovered in the expired air. Deetherization is a purely physical process. Consequently, Henderson [2] and his co-workers at Yale suggested some time ago that carbon dioxid might find useful application in the deetherization of patients. Any device that will increase the supply of this substance should cause the breathing to go on deeply and thus promote the removal of the anesthetic. Recent attempts of White [3] to apply these principles at the Massachusetts General Hospital are gratifying. He asserts that when carbon dioxid is used to accelerate deetherization by stimulating respiration, the volume of respiration can be raised to any desired level; recovery of consciousness is from three to five times more rapid; blood pressure, circulation and color are materially improved, and nausea, vomiting and other subjective disagreeable sensations following ether anesthesia are reduced. In no instance have any signs of acidosis or other harmful effects attributable to carbon dioxid been noted. The problems of anesthesia are too complex and varied to permit hasty generalizations. Nevertheless, it seems well worth while for more clinics to give consideration to the possibilities that the physiologic laboratories have here presented to practical medicine.

1. Sewall, H.: The Beginnings of Physiological Research in America, Science **58**: 187 (Sept. 14) 1923.

2. Haggard, H. W., Coburn, R. C., and Henderson, Yandell: The Therapeutic Use of Carbon Dioxid After Anesthesia and Operation, J. A. M. A. **74**: 783 (March 20) 1920.

DIETS AND FASTING IN EPILEPSY

The predominatingly toxic nature of the causes of symptomatic and experimental epilepsy leads naturally to the suspicion that some toxic substance is responsible for the fits of idiopathic or essential epilepsy. The intestine is one possible site for the origin of such toxins; it is conceivable that they could arise from faults in digestion, from fermentation produced by bacterial growth, or in other ways. The hypothesis that they arise by fermentation has led to measures directed toward changing the flora of the intestinal tract, sometimes by heroic means, but so far without lasting therapeutic success. Efforts to control epilepsy by dietary regulation have for years been attempted, and heretofore have been largely empiric. It is a common custom to limit the consumption of meat by epileptics on the assumption that excessive protein and particularly excess of purins favor the occurrence of "fits." Within the last two years, prolonged abstinence from food of all kinds has been somewhat extensively exploited as a cure for epilepsy, and has been the subject of special study. Carefully controlled investigations of the effects of variations in the quantities and composition of foods in epilepsy are therefore especially welcome.

Weeks, Renner, Allen and Wishart,[4] working with patients under complete control at the State Village for Epileptics, Stillman, N. J., have studied the effects of complete fasting and also of a nonnutritive bulk diet continued for periods of three weeks. In many cases the fits decreased in number, in some they ceased entirely, in others there was no change in frequency.

3. White, J. C.: Deetherization by Means of Carbon Dioxid Inhalations, Arch. Surg. **7**: 347 (Sept.) 1923.

4. Weeks, D. F.; Renner, D. S.: Allen, F. M., and Wishart, Mary B.: Observations on Fasting and Diets in the Treatment of Epilepsy, J. Metabol. Res. **3**: 317 (Feb.) 1923.

In general, after the termination of the fast, the attacks recurred as frequently as before. Similar results from starvation have been reported by Goldbloom.[5] Lennox [6] observed decrease in the number of fits under similar conditions, and reports that studies of the nonprotein nitrogen in the blood, which had been uniformly within normal limits before the fast, revealed a marked increase, especially of the uric acid fraction. The conclusion, therefore, seemed justified that fits were not caused in these cases by a large excess of uric acid or other nonprotein nitrogenous compounds in the blood.

Weeks and his co-workers also studied small groups of patients who were maintained for several weeks on high protein (up to 260 gm. with 32 gm. of fat), high calory (over 8,000), high carbohydrate (from 500 to 800 gm.) and high fat (from 260 to 440 gm.) diets. They concluded that none of these diets had a demonstrable relation to the frequency of the fits. These results are somewhat disconcertingly at variance with generally prevailing opinion. They conflict with the observations reported by Cuneo, to which reference was made in an earlier editorial,[7] that the incidence of fits was much greater with a high carbohydrate than with a high protein diet.

It seems, therefore, that at present there is no justification for exploiting any particular dietary regimen for general application in the management of epilepsy. Common sense avoidance of materials that give rise to gastric or intestinal indigestion, with due regard for individual idiosyncrasies, must continue to guide the selection of the appropriate diet, in epilepsy as well as in other diseases. Particularly should it be emphasized that, while it is true that the number of fits often diminishes during a period of starvation, there is no justification for claims that this measure is in any sense a cure for epilepsy; the remarkable changes in the blood chemistry, as well as common sense, lead to the suspicion that it may be a cause of potential, if not immediate, actual damage.

THE INDIGENT MIGRATORY CONSUMPTIVE

Tuberculosis is extensively prevalent among the watchmakers of the Alps, a region which was, and still is, popular for the treatment of tuberculosis. The American Indians of the arid Southwest are especially subject to the ravages of tuberculosis, and this in a country in which they have always lived and to which tuberculous tourists in large numbers commonly resort for treatment. These statements, taken from a recent document [8] of the United States Public Health Service, seem to justify the conclusion that there is no climate possessing peculiar virtues that will prevent the development of tuberculosis. Nevertheless, for the treatment of the disease, the regions of dryness and sunshine in the western part of this continent have long enjoyed a singular popularity. No one will contend that these geographic localities are the only places where an abundance of fresh air, day and night, suitable food, and absolute rest, when required, can be secured. For many patients, the migrations westward presumably represent an effort to go where living is "easier" than in the districts of rapidly changing weather.

This is particularly true of indigent patients, to whom the Southwest represents a land of opportunity unhampered by the rigors of climate. Doubtless the saddest and most pitiful tragedies the health-resort physician can describe are those of wretched sufferers—even in a comparatively early stage of the disease—whose misguided but well-meaning friends have raised money enough to pay their fare out to Colorado, California, Arizona or New Mexico, and expect them to get work on a ranch, so as to earn their living and take the open-air treatment at the same time.

There is another aspect of the problem that is not so well recognized because it affects civic and social organizations even more than medical agencies. The indigent migratory consumptive—a person who cannot finance himself completely during the period of his cure—has been tending to become a public charge in unusual degree on a comparatively few communities, until the burden of providing for nonresident sick has attained large proportions in some of them. The financial support given cannot be determined accurately, particularly with reference to the relative participation of residents and nonresidents. As an illustration of the cost in cities where the influx is generally admitted, the total amount spent in Los Angeles for the indigent tuberculous amounts to nearly $180,000 a year, which means a per capita tax on the population of 31 cents a year, according to the government statistics.[9] In Phoenix it has reached the high maximum of $1.75 a year. A few Eastern states are responsible for most of the migration, the "big six" being, in order, Illinois, New York, Missouri, Ohio, Pennsylvania and Michigan. The statistician [9] of the National Tuberculosis Association states that none of the cities involved have anything like adequate provision—medical, relief or institutional—for caring for the tuberculous persons, whether resident or nonresident. From what can be learned from the records, it would seem that there is no attempt anywhere at a coordinated policy or program of rehabilitation of the tuberculous. The material relief facilities of these cities are incapable of adequately meeting the problem of the indigent migratory consumptive. Certain private relief organizations of national scope are already attempting to cope with the situation in a constructive way, so far as their own

5. Goldbloom, Alton: The Starvation Treatment of Epilepsy, Canadian M. A. J. **12**: 539 (Aug.) 1922.

6. Lennox, W. G.: The Chemistry of the Blood in Epilepsy, J. A. M. A. **81**: 1138 (Sept. 29) 1923.

7. Research in Epilepsy, editorial, J. A. M. A. **80**: 1939 (June 30) 1923.

8. Smith, F. C.: Tuberculosis: Its Predisposing Causes, Pub. Health Rep. **38**: 777 (April 13) 1923

9. Whitney, J. S.: A Report on the Indigent Migratory Consumptive in Certain Cities of the Southwest, Pub. Health Rep. **38**: 587 (March 23) 1923.

indigent clientele is concerned. The problem, represented by an average of one indigent tuberculous person to every 155 of the entire population of Los Angeles, El Paso, San Antonio, Phoenix, Denver and Colorado Springs, is too large to be solved by any single philanthropic association. It is a problem national in scope.

THE DREYER VACCINE

Since Prof. Georges Dreyer published the report of his work with defatted tuberculosis vaccines, the press, medical and lay, has been active in arousing new hope for the tuberculous, that the disease may be brought under specific therapeutic control. In a letter to the London *Lancet*, Fornet,[1] of the Institute of Microbiology in Saarbrücken, points out that experiments [2] made by him since 1921 have demonstrated the necessity of defatting the tubercle bacilli before using them as a specific vaccine. In this letter he states that the fat is removed from the bacterial organism by applying the vapor of ether. Fornet showed that in this process the biologic albumin of the bacilli remains intact and unaltered, and he points out that the defatted tubercle bacilli form a stable emulsion, which is specifically precipitated by the serum of tuberculous persons. It produced complement deviation when brought in contact with serum from the tuberculous, and showed remarkable effects when used as an antituberculous vaccine in men. Fornet states also that Wassermann [3] confirmed these facts, using another process of defatting the tubercle bacilli.

Fornet contends that the work of Dreyer is essentially a confirmation of his own and Professor Wassermann's observations. However, certain observations of Professor Dreyer have seemed particularly remarkable, according to Professor Fornet, namely: that the Dreyer tuberculous antigen is said to withstand exposure for four hours and more to 100 C., at which temperature it must be boiled with formaldehyd and acetone if the tubercle bacilli are to lose their acid resistance.

"Up till now," says Fornet, "bacteriologists have always carefully tried to avoid as much as possible any alteration of the antigen contained in the living microbe, the immunizing power of which is demonstrated to us daily by practical experience. That Professor Dreyer's boiled tuberculous antigen still possesses the same immunizing power is a real discovery of highest theoretical importance, unless further investigation should prove that his good results are due rather to the effect of a protein than of a real immune-therapy."

It is the contention of some observers that the beneficial results following the administration of vaccines in various conditions may be the effects of a change in the body's reaction to infection brought about by the injection of a nonspecific protein. Should the suggestion of Professor Fornet, that the action of the Dreyer antigen is essentially of this character—a possibility which cannot be denied—be confirmed, its status as a therapeutic agent in the treatment of tuberculosis would become more definitely defined.

1. Fornet, W.: Defatted Bacterial Vaccines, Lancet **2**: 586 (Sept. 15) 1923.
2. Fornet, W.: Ann. de l'Inst. Pasteur **35**: 797 (Nov.) 1921; Deutsch. Arch. f. klin. Med. **138**: 229 (Jan.) 1922; München. med. Wchnschr., May 11, 1923.
3. Wassermann: Deutsch. med. Wchnschr., March 9, 1923.

Current Comment

THE SUPPLY OF PHYSICIANS IN GREAT BRITAIN

Statistics published recently [1] show the number of physicians whose names appear each year in the British Medical Register from 1876 to 1922 inclusive, and also the number of new names added each year. In 1876 there were 22,713 names on the register. It was forty-five years before the number was doubled; that is, by 1921 the number had been increased to 45,408, and in 1922 the number had further increased to 46,477. The largest number enrolled in any year was 1,984 in 1922, followed by 1,760 in 1921, 1,579 in 1893, 1,531 in 1887, 1,526 in 1915 and 1,513 in 1892. The lowest number registered in any year since 1900 was 1,042 in 1911, followed by 1,077 in 1918. Figures are given also showing the number of registered practitioners as compared with the population of the British Isles in each tenth year beginning in 1881. Unfortunately, the total numbers of registered physicians include the names of those residing in colonial possessions and foreign countries, and are therefore not comparable with the figures for population, since the latter show the people residing in the British Isles only. We note, however, from the British Register for 1921 that of the 45,408 physicians registered, 1,781 were colonial practitioners and 132 were practicing in foreign countries, leaving 43,495 who were practicing in the British Isles. On this basis, therefore, in 1923 there was one physician for every 1,087 people. These statistics are interesting compared with the United States, where there is now one physician for every 724 people.

THE ETIOLOGY OF CHOREA

For some time, accumulating evidence has pointed to the probability that chorea is a disease of infectious origin. This conclusion was due at first to the fact that not infrequently the malady was observed to occur along with acute rheumatism, tonsillitis or endocarditis. However, even though such associations are by no means universally the case in connection with chorea, the correlation of many well substantiated facts is in support of the theory of the action of a bacterial toxin on the cortical tissues. At any rate, the day has long passed when such indefinite etiologic factors as fright or exposure to cold can be held accountable for the manifestations. Bacteriologic studies have not been wanting, and various organisms have been isolated from the blood and tissues in cases of chorea; nevertheless,

1. Brit. M. J. **2**: 355 (Sept. 1) 1923, republished, this issue, p. 1226.

Koch's postulates have not been fulfilled in connection with them. Muscular movements resembling those in chorea are reported by Rosenow [1] to develop occasionally in animals after intravenous injection of cultures of streptococci from various other diseases. Recently, however, he has isolated chorea strains of micro-organisms with which the tendency to involve heart valves, joints and muscles as well as the brain was much more marked than that of strains of streptococci from other sources. Rosenow feels justified from his work at the Mayo Foundation in concluding that chorea is due to a streptococcus having peculiar neurotropic, immunologic and other properties. Characteristic localization followed intravenous and intracerebral inoculation as well as the infection of teeth in dogs. The lesions were due to the same streptococcus, regardless of the fact that mixtures of bacteria in the suspensions and primary cultures were sometimes injected. The property on which specific localization depended was retained through three successive animal passages, after many rapidly made transfers of pure cultures, and for as long as three months in the teeth and brain of the dog. The specificity as regards both the infecting power and the immunologic properties was lost after ordinary aerobic cultivation. The symptoms produced were strikingly like those of chorea in man. The possibility of producing serum for purposes of immunization at once suggests itself, and attempts in this direction are said to be in progress at Rochester, Minn.

1. Rosenow, E. C.: Experimental Observations on the Etiology of Chorea, Am. J. Dis. Child. **26**: 223 (Sept.) 1923.

THE EFFECT OF INDUSTRIAL WASTE ON WATER SUPPLY

While it is undoubtedly true that the most essential quality of a public water supply is its safety, that is, its freedom from disease-producing bacteria or other injurious elements, it is also true that palatability is an important asset. It is well known that the growth of certain algae, in themselves quite harmless, may by virtue of the resulting odors or tastes render a wholesome water quite unfit for use. It would not be a matter of indifference that a water is made entirely free from typhoid bacilli only at the expense of acquiring a disagreeable taste. This question has come to the front in connection with that highly useful and sanitary procedure, the chlorination of water supplies. For a time it was not wholly understood why chlorin treatment of certain waters not only was successful in freeing the water from intestinal bacteria, but also did not affect the palatability of the water, while in other instances the use of identical amounts of chlorin was accompanied by the production of intensely disagreeable tastes. It is now known that industrial wastes from coke plants and similar establishments contain substances reacting with chlorin to impart a characteristic and objectionable taste. There appears in some instances to be a reaction between phenol (carbolic acid) and chlorin, giving rise to chlorophenol, a substance to which the disagreeable taste is attributed. One experimenter diluted phenol to one part in 750 million, and on chlorination obtained a much more pronounced taste than with lower dilutions. It seems that the intensity of the effect is determined by the degree of concentration of both the phenol and the chlorin, and that excess of either substance may destroy the taste. The discharge of by-products waste from coke plants has at various times in the last few years caused trouble with the chlorinated water supplies of Cleveland, Milwaukee, Toronto, Indianapolis and other cities. Recently the output of a pea-canning factory was ruined for shipment by the development of a "medicinal" flavor suggestive of phenol or iodoform; this was traced to the contamination of a chlorinated water supply by the waste from a coke plant. Other causes for a similar effect may exist. One case is on record of the occurrence of these tastes in a chlorin-treated water passing through a pipe coated with coal tar, and another in the water of an elevated tank freshly painted with coal tar paint. So far as large public supplies are concerned, the main source of trouble appears to be the coke plant, and it would seem to be worth while to keep the wastes from the manufactories altogether out of the water supply. There is the obvious argument on the sanitary side that the development of a disagreeable taste in a chlorinated water tends to bring the process of chlorination itself into disrepute.

SHIP-BORNE PLAGUE IN 1922

A summary of plague infection on vessels during 1922 and December, 1921, emphasizes the necessity for constant vigilance on the part of quarantine officers. Reports to the U. S. Public Health Service for this period show that human cases of plague, or plague infected rats, were found on six ships calling at Liverpool or London, on three ships calling at Australian ports, on two ships at Egyptian ports, and on one ship calling at French, German, Italian and Philippine ports. These reports are probably not complete, but they record a sufficient amount of plague to start epidemics in a large part of the world.

BACTERIAL SYNTHESIS OF AMINO-ACIDS

The story of protein metabolism in the body has become largely a description of the transformation of the amino-acids that arise from the disintegration of the albuminous substances. The amino-acids, says Underhill,[1] must be regarded as foodstuffs capable of supplying the nitrogenous needs of the organism. The chief factors to be taken into account with regard to the nutritive value of any protein are the character and amount of the amino-acids derived from it. It has been rigorously demonstrated that some, at least, of the amino-acids bound up in the protein molecule that are indispensable to nutritive welfare cannot be synthesized by the animal organism. The body thus becomes dependent on an exogenous supply, which the plant organism is able to produce essentially from the very elements. Recently it has been ascertained, however, that certain bacteria can synthesize at least two of the most important amino-acids, tryptophan and tyrosin, from

1. Underhill, F. P.: The Physiology of the Amino Acids, New Haven, Yale University Press, 1915, p. 131.

extremely simple nitrogenous precursors, such as urea or ammonia compounds.[2] Despite the ubiquity of micro-organisms, it is unlikely that these highly important synthetic powers can be of direct moment to man, because the bacteria have comparatively little opportunity to thrive in the human body. In the ruminants, it may be quite different. Their paunch is a veritable bacterial incubator, where microbiotic changes can go on unhindered for considerable periods. Probably to certain animal species this process is not the unmixed disadvantage that it is charged with being in the human alimentary tract.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARKANSAS

Medical Meeting.—The forty-eighth annual meeting of the Mississippi Valley Medical Association will be held at Hot Springs, October 9-11. An unusually strong program has been arranged. A tour of the government reservation will be made, and a session held at the government clinic.

CALIFORNIA

Bubonic Plague in San Francisco.—A case of bubonic plague has been recently reported at San Francisco by the U. S. Public Health Service, Washington, D. C.

New Home for Children.—Through the generosity of Mrs. Henry Crocker, San Francisco, a new unit of the Stanford Home for Convalescent Children has been erected on the campus of Stanford University, Palo Alto, at a cost of $50,000, and given in perpetuity to the board of trustees. The building, which will be known as the Kate D. McLaughlin Unit, was erected as a memorial to the donor's mother. It has twenty beds.

DISTRICT OF COLUMBIA

Child Welfare Meeting.—The federal children's bureau called a conference of child welfare workers and directors of child hygiene bureaus in Washington, September 19-21. This is the first conference of this nature that has been called by the children's bureau since the passage of the Sheppard-Towner Act. Representatives from forty-four states attended the sessions.

GEORGIA

Firearms Toll in Georgia.—Through the use of firearms 2,010 persons have died in the state during the last three years, according to a report from the state bureau of statistics. This record includes 396 homicides in 1920; 405 in 1921, and 427 in 1922. During the same period there were 259 suicides by the use of firearms, and 550 persons were killed through the accidental discharge of guns and pistols.

University of Georgia News.—The board of trustees of the University of Georgia Medical Department, Augusta, were presented, July 24, with a large-sized portrait of Dr. E. F. Starr, formerly of White County, by Dr. Lamartine G. Hardman, Commerce. Dr. Starr, it is stated, was the first surgeon to perform a suprapubic operation to remove a stone from the bladder of a man. The stone, nearly the size of a hen's egg, has been preserved by Dr. Starr's daughter, and was presented to the university along with the portrait.

ILLINOIS

Personal.—Dr. Edith Lowry Lambert, St. Charles, has gone to Nevada and California for six months to organize child welfare work in those states under the auspices of the U. S. Public Health Service.——Dr. Paul W. Wipperman, Jefferson Barracks, Mo., has been appointed superintendent of the Decatur and Macon County Hospital.

Typhoid Fever in Peoria.—At a meeting of the Peoria Medical Society, September 18, Dr. R. C. Bradley, Peoria, district health supervisor of the state department of health, appealed to the city physicians for cooperation with the department to stamp out the present typhoid epidemic, which, he stated, was "becoming alarming." Since August 6, sixty cases have been discovered in Peoria and Richwoods townships.

Chicago

Personal.—Dr. James A. Britton has been appointed a member of the board of directors of the Chicago Municipal Tuberculosis Sanatorium.——Dr. Marion Hines, of the department of anatomy of the University of Chicago, has been granted a year's leave of absence, which she will spend in the laboratories of Prof. J. T. Wilson of the University of Cambridge, and Elliot Smith, of the University of London, England.——Colonel George C. Amerson, surgeon general of Illinois, will represent the Illinois National Guard at the annual meeting of the Association of Military Surgeons of the United States at Carlisle Barracks, Pa., October 4-7.——Dr. Angus M. Frew, director of physical training at the Harvard School for Boys, has been appointed superintendent of the new Juvenile Detention Home, Chicago, which will be opened, October 16.

Rush Medical College to Be Razed.—Suit was filed in the circuit court, October 1, asking approval of plans to raze the old Rush Medical College buildings at Harrison and Wood streets, and to erect a $400,000 building to be known as the Rawson Clinical Laboratories, for which Frederick H. Rawson donated the sum of $300,000. The University of Chicago, according to the plan, will take over the property and build the new laboratory. A contract between the college and the university has been tentatively adopted, pending the approval of the court. A program which provides for the expenditure of $5,300,000, gifts to the university for the advancement of medical education, is to be carried out, the bill states, includes the building of a hospital of 200 beds on the university campus.

IDAHO

Naturopath Fined.—The Idaho *Daily Statesman* reports that J. S. Charlebois, a naturopath of Boise, was fined $100 and costs recently in Judge Church's court when he was found guilty of violating the state license law. This was the first case prosecuted under the new license law. The judge stated that in the future he would give a jail sentence for all violations.

New Medical Practice Act.—At the last session of the Idaho legislature, an act was passed making it unlawful to practice any system or method of treating the sick or afflicted, other than by religious ministrations, without having a license issued by the state to practice medicine. Section 2 of the act makes it "unlawful for any person or persons to hold himself or themselves out as practicing any system or mode of treating the sick, . . . or in any sign, or in any advertisement use the words 'doctor' or 'professor,' or the letters or prefix 'Dr.' or 'Prof.' or any other term or letters indicating or implying that he is a doctor, physician and surgeon, or practitioner, without having at the time of so doing a valid unrevoked certificate or license granted by the state of Idaho to perform or prescribe such service." Fines of not more than $1,000 or one year in jail are the penalties for violation of this act.

INDIANA

Fake Practitioner Fined.—Ignatz Newalt, alleged owner of the Indiana Medical Institute, Gary, was arrested recently on a charge of practicing medicine without a license, and was fined $50 and costs by Judge Greenlee. According to Dr. E. M. Shanklin, Hammond, president of the Lake County Medical Society, this is the last of more than a dozen such institutions closed within the past two years in Lake County.

State Medical Election.—At the annual meeting of the Indiana State Medical Association in Terre Haute, September 26-28, the following officers were elected for the ensuing year: president, Dr. Samuel E. Earp, Indianapolis; vice presidents, Drs. Arthur A. Rang, Washington, Louis F. Ross, Richmond, and Jacob T. Oliphant, Farmersburg, and secretary-treasurer, Dr. Charles N. Combs (reelected). The editorship of the *Journal of the State Medical Association* was continued in the hands of Dr. Albert E. Bulson, Jr., Fort Wayne. Dr. Edwin B. McAllister, Terre Haute, president of the Vigo County Medical Society, presided and introduced Dr. Charles

2. Sjollema, B., and Van der Zande, J. E.: Concerning the Synthetic Action of Bacteria in the Paunch of the Cow, Proc. Koninklijke Akad. van Wetenschappen te Amsterdam, **25**: 482, 1922.

H. Hood, Huntington, president of the state association, who in turn introduced Dr. Charles H. Mayo, Rochester, Minn., the principal speaker. Indianapolis was selected for the 1924 meeting. The new wing of St. Anthony's Hospital was opened for the inspection of visitors who attended the sessions.

IOWA

Outbreak of Typhoid Investigated.—An outbreak of fourteen cases of typhoid fever in Oelwein was recently investigated by the state epidemiologist. With the exception of one contact case and one of unknown origin, all the cases were found to be on one milk route. No new cases have occurred since the investigation was made.

Iowa Carries Off Health Banner.—For the fourth successive year, Iowa schools have carried off first honors for the health work organized by the National Tuberculosis Association, as the Modern Health Crusade. With 300,000 school children forming health habits, and 22,000 teachers instructing them, Iowa schools won seven out of eleven first prize banners and 148 out of 422 second prize pennants, and for the third time in four years they won the silver loving cup offered by "The Friend of the Children."

KENTUCKY

Tuberculosis Sanatorium to Be Erected.—Dr. J. H. Lock, managing director of the Kentucky State Tuberculosis Association, recently announced that Jefferson County has voted a $1,000,000 bond issue for the erection of a county sanatorium for tuberculosis. The new institution will be erected at Waverly Hills, on the site northwest of the present administration building.

State Medical Meeting.—At the seventy-third annual meeting of the Kentucky State Medical Association in Crab Orchard, September 17-20, the following officers were elected for the ensuing year: president, Dr. Frank Boyd, Paducah; president-elect, Dr. John Rice Cowan, Danville, and vice presidents, Drs. Chauncey W. Dowden, Louisville, John G. Foley, Pineville, and Edmund G. Thomas, Benton. Drs. Arthur T. McCormack, Louisville, and William B. McClure, Lexington, were reelected to serve a term of five years each as secretary and treasurer, respectively. Dr. Hugh Cabot, Ann Arbor, Mich., and Dr. George E. Shambaugh, Chicago, gave addresses.

LOUISIANA

New Sanatorium Opened.—Our Lady of the Lake Sanatorium, Baton Rouge, conducted by the Sisters of St. Francis, was formally opened to the public, October 1. The building was erected at a cost of $300,000, and will have a capacity of 100 beds.

Lepers to Be Isolated.—A tent colony for the care and isolation of lepers in New Orleans committed to Carville leprosarium, but unable to proceed there because of crowded conditions, will be erected at Bourbon and St. Louis streets by the state board of health, and charged to the city, Dr. Oscar Dowling, president of the state board of health, announced, September 19 (THE JOURNAL, September 29, p. 1119).

MARYLAND

Semiannual Meeting of the Medical and Chirurgical Faculty.—The semiannual meeting of the Medical and Chirurgical Faculty of Maryland was held at Easton, September 26-27. The meeting opened with clinics at the Emergency Hospital by the members of the staff. Addresses of welcome were made by the mayor of Easton, the president of the Rotary Club and Dr. W. T. Hammond, president of the Talbot County Medical Society, responded to by Dr. Harry Friedenwald, president of the faculty. The afternoon session was followed by an oyster roast and barbecue at the Talbot Country Club. The principal meeting of the session was in the evening at the New Theater, when Dr. Hubert Work, Secretary of the Interior, and Governor Albert C. Ritchie gave addresses. Clinics were given by Dr. Hugh H. Young and Dr. Arthur M. Shipley at the Emergency Hospital. The meeting closed with a reception for the members and their guests at Hope House, the home of Mrs. William J. Starr.

Medical Survey of State Prisons.—The report of the committee of Baltimore physicians of a survey of Maryland state prisons covers the examination of methods, equipment and evident needs of the institutions, and comparison of the data with reports of conditions prevailing in the other states. The general conclusion reached was unfavorable to the medical organization of the prisons which was pronounced unsatisfactory and the equipment inadequate. The committee recommended complete reorganization, having for its general aim social progress in preventive medicine, including on the one hand medical science whose diagnostic and therapeutic contribution, rendered before it is too late, tends to correct and restrain both mental and physical tendencies toward delinquency; and on the other hand social science, which tends to raise standards of life among the masses. It was said that the proposed plan would require $11,800 per year, an increase of $3,600 over the medical expenditure for last year. It was also recommended to study the physique, intellect and character of each prisoner and to inquire into the environmental factors that have impelled him to commit crime.

MICHIGAN

Diphtheria Quarantine Lifted.—Quarantine was lifted, September 14, for the last case of diphtheria in Holland. Three cases of scarlet fever and eight cases of smallpox in one family are still in quarantine. Two arrests were made, September 13, for breaking quarantine regulations, but the cases were nolle prossed when the defendants were arraigned in court.

MINNESOTA

Free Health Clinics.—Fifty health clinics each week will be operated in Minneapolis this autumn by health agencies supported by the community fund, it was announced, September 21, by the secretary of the Minneapolis Council of Social Agencies. During the past year 46,984 children and adults have been given aid at these clinics which are free to all unable to pay for the service given.

MISSISSIPPI

New Hospital Facilities.—A building leased by Drs. Thomas D. Bourdeaux and Franklin G. Riley at Meridan will be converted into a hospital in October. The new institution will be known as the Bourdeaux-Riley Hospital. Miss Edna Baker will be superintendent.——The Clarksdale Hospital, Clarksdale, was formally opened, September 17.——A ward for the accommodation of twenty tuberculous patients from Forrest County will be erected at the Mississippi State Tuberculosis Sanatorium, Magee, as soon as possible.

MISSOURI

Spiritualist Fined.—It is reported that Otto A. Schultz, St. Louis, a "spiritualist healer," was found guilty of practicing medicine without a license, September 19, and sentenced to ninety days in the workhouse.

Trachoma Clinic.—A trachoma clinic will be held in New Madrid County, in October, under the auspices of the medical association and in cooperation with the state board of health. It is stated that 20 per cent. of blindness in Missouri is due to trachoma.

New Dean Appointed.—Dr. William M. Marriott, chief of the department of diseases of children, Washington University Medical School, St. Louis, has been appointed dean of the school to succeed Dr. Nathaniel Allison, who becomes professor of orthopedic surgery at Harvard University Medical School, Boston.

Governor Names Health Delegates.—Governor Hyde has appointed Dr. Emmett P. North, St. Louis, president of the state board of health, and Dr. Cortez F. Enloe, Jefferson City, secretary of the state board of health, as delegates from Missouri to the fifty-second annual meeting of the American Public Health Association at Boston, October 8-11.

Society News.—The annual golf tournament of the members of the St. Louis Medical Society was held at Midland Valley Country Club, October 5.——The Rock Island Surgical Association held its annual meeting at Kansas City, September 13. About 200 physicians attended the meeting. Clinics were held at the Kansas City General Hospital, Drs. John L. Porter, Chicago, and Clarence B. Francisco, Kansas City, demonstrating cases.——The Jackson County Medical Society held its annual golf tournament at the Blue Hills Club, September 28. ——The second meeting of the Missouri Conference of the Catholic Hospital Association of the United States and Canada was held in St. Louis, September 11-13. Sessions were held at the St. Louis University School of Medicine with addresses of welcome by Rev. Charles Cloud, regent of

the university; Dr. William Vogt, president of the St. Louis Medical Society, and Dr. Herman E. Pearse, Kansas City, chairman committee on hospitals, Missouri State Medical Association.

NEW JERSEY

Hospital Construction.—A new fifty-bed hospital building has recently been completed at Irvington.——A drive for $50,000 is under way for the Christian Sanatorium, Midland Park.——The contract has been let for the erection of a $60,000 nurses' home for the Monmouth Memorial Hospital, Long Branch.

NEW YORK

Typhoid Fever in Islip.—In one week there have been twelve cases of typhoid fever reported in the town of Islip, L. I. Although the victims all used milk from a local dairy, investigation has disclosed no responsibility for the typhoid. The water supply is also regarded as above suspicion by the health officers.

Housing of Insane Patients.—A booklet is being distributed by the Citizens' Committee on Protection of the State's Unfortunates, appointed by the state charities aid association asking the public to vote "yes" on the $50,000,000 bond issue for safe state institutions. It is stated that the institutions are overcrowded and that 90 per cent. of the buildings are fire hazards.

New Building for Medical Society.—At a meeting of the Queensboro Medical Society, Brooklyn, September 25, the committee appointed to seek a site for the future home of the society reported that a ten-lot site had been found at Queens Boulevard at Seventy-Sixth Road, Woodhaven, at $1,500 a lot. The recommendation to buy the site at once was unanimously adopted.

Public Health News.—Dr. Mattias Nicoll, Jr., state commissioner of health, recently announced that a series of district conferences for health officers will be held at the city hall, Albany, beginning October 5. Similar conferences will be called by the state department of health in other parts of the state in the near future.——Nearly 100 nurses have enrolled for the second correspondence course in public health nursing to be held early in October, at Bellevue Hospital Medical College, New York, in cooperation with the New York State Department of Health. Owing to limited facilities, this year's course will be restricted in numbers to 250. The public health council of New York early this year enacted a regulation effective, Jan. 1, 1924, which requires that all public health nurses employed by county or municipal authorities after the date shall have completed a course of instruction in public health nursing approved by the public health council.

New York City

Harvey Society Lecture.—The first Harvey Society lecture of the season will be delivered by Dr. A. Biedl, professor of experimental pathology at the University of Prague, at the New York Academy of Medicine, October 13. His subject will be "Organotherapy."

Academy of Medicine Opens Season.—The first meeting of the season was held on the evening of October 4, when Prof. Walter B. Cannon, of Harvard Medical School, Boston, delivered the Carpenter lecture on "A Consideration of the Nature and Treatment of Traumatic Shock."

Pediatric Societies Hold Joint Meeting.—The joint meeting of the New England Pediatric Society, the Philadelphia Pediatric Society and the Section on Pediatrics of the New York Academy of Medicine will be held in Boston, October 20. There will be no meeting during October of the section on pediatrics of the New York Academy of Medicine.

Hospital Information Bureau Reports.—The United Hospital Information Bureau, established by the United Hospital Fund in April, 1922, has made public its first annual report. The bureau has made surveys of eighteen hospitals and found that there is a widespread movement for standardization. During the year there were 945 requests for information, 35 per cent. being from hospital authorities, 25 per cent. from social and civic organizations and 40 per cent. from private individuals. One of the most frequent requests was for information regarding hospital charges. The bureau finds that there is considerable difference in the charges of various hospitals for similar services.

Personal.—Dr. L. Emmett Holt, vice president of the American Child Health Association, has been assigned as visiting professor of pediatrics to the Peking (China) Union Medical College, by the Rockefeller Foundation. Dr. Holt, who is already on his way to the Orient, will conduct a three months' series of lectures, beginning in October, introducing to Chinese physicians the latest methods in child culture. Dr. Holt will also make a survey of child health methods as practiced in various countries and return to New York next summer.——On the occasion of the Pasteur centenary, France conferred on Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, New York, the rank of Commandeur of the Legion of Honor.——Dr. Richard A. Rendich, Jr., has been elected secretary of the New York Celtic Medical Society.

Public Health Lectures.—The Public Health Education Committee of the Medical Society of the County of New York, in cooperation with the New York Academy of Medicine, announces a course of lectures on health education and the prevention of disease, which will be delivered at the New York Academy of Medicine during the period between Oct. 29 and Dec. 5, 1923. The subjects of the lectures and the speakers are as follows: October 29, "Mental Disease as a State Problem," by Dr. C. Floyd Haviland, Albany; November 7, "One of the Developments of Modern Medicine—Treatment of Diabetes with Insulin," by Dr. Henry R. Geyelin; November 14, "The Nostrum and the Public Health," by Dr. Arthur J. Cramp, Chicago; November 19, "Glands of Internal Secretion," by Dr. Walter Timme, and December 5, "Eugenics," by H. H. Laughlin, Cold Springs Harbor. All of the meetings at which these lectures will be delivered will begin at 8 p. m. Dr. Josephine Hemenway Kenyon is chairman of the Public Health Education Committee.

OHIO

Chiropractors Released from Jail.—According to reports, R. H. Farrell and R. B. Colbert, two Toledo chiropractors, who went to jail with twenty-three others rather than pay fines assessed against them for practicing without a license, were released from the county jail when they signed an agreement not to practice until they are qualified by state license to do so. Twelve others, who have not paid their fines or signed the agreement not to practice, are still in jail.——J. W. and W. D. Reinhart, former Findlay chiropractors, have been released from jail where they were confined on their refusal to pay fines for practicing medicine without a license.

Personal.—Dr. Frank G. Hornung, Hamilton, has resigned as district physician.——Dr. Mason R. Pratt, formerly superintendent of the Aultman Hospital, Canton, has been appointed superintendent of the Union Hospital, Fall River, Mass.——Dr. Jerome G. Pace, Woodmen, Colo., has been elected superintendent of the Lima District Tuberculosis Hospital to succeed Dr. Charles A. Files of Van Wert, who resigned to resume private practice. Dr. Jerome V. Pace, son of the new superintendent, has been appointed pathologist to the institution.——Dr. Charles A. Langdale, associate professor of clinical surgery, University of Cincinnati College of Medicine, has resigned after sixteen years of service to resume private practice.

PENNSYLVANIA

Society Celebrates Anniversary.—The Bucks County Medical Society celebrated its seventy-fifth anniversary, September 19, at Doylestown, under the presidency of Dr. John A. Weirbach, Quakerstown. A diamond jubilee luncheon was served at the Doylestown Country Club, and in the evening a banquet was held at the Fountain House. Among the speakers were Drs. Hobart A. Hare, Philadelphia; Howard Pursell, Bristol; Frederick L. Van Sickle, Harrisburg; John B. Deaver, Philadelphia, and Walter H. Brown, Youngwood.

Philadelphia

Insulin Donation.—It was announced by the provost of the University of Pennsylvania Medical School, September 25, that John D. Rockefeller, Jr., had given $10,000 to the university to be used for the purpose of treating with insulin a larger number of public ward and dispensary patients suffering from diabetes, and to teach physicians in general practice the proper method of employing insulin in the treatment of the disease.

University News.—Dr. Alexander Randall has been placed in charge of genito-urinary surgery at the University of Pennsylvania Medical School, to succeed Dr. Thomas R. Neilsen, who resigned recently, and Meikel M. Jacobs, Ph.D., has been appointed professor of general physiology.——Alfred

N. Richards, Ph.D., professor of pharmacology; Dr. William H. F. Addison, professor of histology and embryology; Samuel Goldschmidt, Ph.D., assistant professor of physiology; Dr. Joseph T. Wearn, instructor in pharmacology; Dr. Leon Jonas, of the William Pepper Clinical Laboratory, and Dr. Arthur B. Light, instructor in physiology at the University of Pennsylvania Medical School, attended the recent International Congress of Physiology at Edinburgh, Scotland.

Woman's Medical College of Philadelphia.—With a large student enrolment, and a completely reorganized faculty, the Woman's Medical College of Pennsylvania opened for the seventy-fourth year, September 26. Dr. Martha Tracy is dean of the college. Among recent appointments made are: Dr. Howard A. McKnight, associate professor of surgery and a member of the surgical staff at the hospital; Dr. Eugene C. Murphy, lecturer in applied surgical anatomy, and Dr. Lola D. McLatchie, chief of bacteriology at the Sick Children's Hospital, Montreal, Canada, who has been appointed associate professor of bacteriology and will conduct courses under the supervision of Dr. Maude E. S. Abbott, who recently joined the college from McGill University Faculty of Medicine, Montreal.

UTAH

Roentgenologists Meet.—A meeting of the Utah Society of Radiology and Physiotherapy was held in Salt Lake City, September 18, under the presidency of Dr. Mark Brown. The next meeting, to be held in six months, will take place in Ogden.

VERMONT

Vermont State Medical Society.—The one hundred and tenth annual meeting of the state medical society will be held at Bennington, October 11-12, under the presidency of Dr. John A. Stevenson, Chester. Dr. Wendell C. Phillips, New York, Chairman of the Board of Trustees of the American Medical Association; Dr. Milton J. Rosenau, Boston, and Howard N. Kingsford, Hanover, president of the New Hampshire Medical Society, are among the visiting members who will give addresses.

VIRGINIA

Foreign Health Officers Inspection.—Eight health officers of foreign countries attending the International Health Conference, which convened, September 10, in Washington, D. C., went to Richmond, September 23, to participate in a ten days' program. They will remain in Virginia one month, studying the organization and administration of the health work of the state (THE JOURNAL, September 22, p. 1033).

Personal.—Drs. Isaac Peirce, Tazewell, and Achilles L. Tynes, Staunton, have been appointed members of the Virginia State Board of Health.——Dr. James E. Wood, Charlottesville, has been elected instructor in internal medicine at the University of Virginia.——Drs. C. Bernard Pritchett and Samuel R. Newman were elected president and secretary-treasurer, respectively, of the Danville Academy of Medicine at Danville, September 11.

WASHINGTON

Personal.—Dr. Karl S. Staatz has been appointed superintendent of the County Hospital, Tacoma, and county physician.——Dr. Frances O. Houston, Spokane, has sailed for Japan to take charge of a women's and children's clinic in a portion of the devastated area.——Dr. H. L. Hill, Walla Walla, has been appointed in charge of Oakhurst Sanatorium, Elma, to succeed Dr. Raymond J. Cary, who has left to reside in Long Beach, Calif.——Dr. Charles L. Hawk, formerly connected with the Northern State Hospital, Sedro-Wooley, has been appointed in charge of the hospital at Kennicott, Alaska.

Public Health Meeting.—At the annual meeting of the Public Health League of Washington in Spokane, September 19-21, Dr. Horace J. Whitacre, Tacoma, was reelected president. Dr. E. Weldon Young, Seattle, was appointed chairman of the executive committee. The league officially launched a goiter campaign to be conducted through the schools of the state, which calls for administering iodin chocolate tablets each week of the school year to school children. These are to cost parents 50 cents a year per child, and are to be given by the school nurse, health officer or deputy health officer. Drs. George A. Dowling, Seattle; Henry W. Partlow, Olympia; Lyle A. Greenwood, Bellingham; Peter D. McCornack, Spokane, and Alfred J. Helton, Seattle, were elected vice presidents of the league.

WISCONSIN

Insulin Courses at Wisconsin University.—The clinical staff of the University of Wisconsin Medical School, Madison, announces a six-day course of instruction in the use of insulin at the Bradley Memorial Hospital, beginning October 8-13. The course will be given to groups of not more than six physicians at a time, and will include lectures on the chemistry of diabetes, and carbohydrate metabolism, the pathology of diabetes, the dietetic control of the disease, the use of insulin in the usual types, and in the complications and emergencies. There will also be a series of classes in the prescribing and calculating of diets. There will be no tuition fee for the course. The only charge will be a laboratory fee of $5 for the week. The course will be repeated weekly while the enrolment justifies it. Applications should be addressed to Dr. E. L. Severinghaus, Bradley Memorial Hospital, Madison.

Society News.—Dr. John T. Rogers, St. Paul, spoke on "Visceroptotics in Surgery," before the Barron County Medical Society at Barron, September 4.——Dr. Frank A. Boeckmann, Greenwood, and Dr. Russel R. Rath, Granton, were elected president and secretary, respectively, of the Clark County Medical Society at Neillsville, August 24.——Members of the Douglas County Medical Society were dinner guests of Dr. George Saunders at his summer home at Solon Springs, August 29. Mr. J. G. Crownhart, Milwaukee, secretary of the state medical society, gave an address.——At a meeting of the Juneau County Medical Society at Mauston, August 17, it was voted to support a clinic soon to be held under the auspices of the American Red Cross.——Dr. Milton M. Portis, Chicago, gave an address before the members of the Walworth County Medical Society at Lake Geneva, August 24.——The Green Lake County Medical Society recently arranged for meetings to be held at Green Lake, Brandon, Princeton, Berlin and Ripon, the purpose of which is to give graduate instruction to physicians residing in a given locality, with practical demonstrations of the new methods of diagnosing and treating disease.

CANADA

Quebec Medical Association.—At the annual meeting, Dr. William G. Reilly, Montreal, was appointed president of the Province of Quebec Medical Association; Dr. Zéphyr Rhéaume, Montreal, and Dr. Daignault, Quebec, vice presidents, and joint secretaries, Drs. J. U. Gariepy and D. Grant Campbell.

Hospitals Merged.—With the merging of the Montreal Maternity Hospital with the Royal Victoria Hospital and the proposed erection in the grounds of the latter institution of the Royal Victoria Montreal Maternity Pavilion, the hospital teaching facilities of McGill University Faculty of Medicine will be greatly increased. There will probably be receiving stations in various parts of the city later.

Personal.—Dr. Donald McD. Robertson, superintendent of the County of Carleton Protestant General Hospital, Ottawa, has been appointed superintendent of the new Civic Hospital of Ottawa, which is being erected at a cost of $3,000,000. Dr. Robertson will continue with the Carleton Hospital until August, 1924, when the new institution is expected to be ready for occupancy.——Dr. Joseph A. Gilchrist, Toronto, was the guest of honor of the Mahoning County Medical Society at Youngstown, Ohio, September 18.——Dr. Edward W. Archibald has been appointed professor of surgery and chairman of the surgical department in McGill University Faculty of Medicine.——Dr. Roy P. Smith, Hamilton, spoke on "Problems of Infant Feeding" before the York County Medical Society at Mount Albert, Ont., recently.——Dr. Charles F. Martin has been appointed dean of McGill University Faculty of Medicine to succeed Dr. George E. Armstrong.——Dr. George D. Porter, Toronto, has been appointed head physical director at the University of Toronto to succeed Dr. James W. Barton, who resigned last spring.

GENERAL

American Occupational Therapy Association.—The annual meeting of the association will be held in Milwaukee, October 30-November 1, under the presidency of Thomas B. Kidner, National Tuberculosis Association, New York. The National Military Home will be inspected, October 31. Major Benjamin E. Hedding, chief of tuberculosis service at the home, will speak on "Is It Occupational Therapy?" After the close

of the sessions in Milwaukee, members are invited by the Illinois occupational therapists to visit Chicago hospitals.

Southern Medical Association.—The association will hold its seventeenth annual meeting in Washington, D. C., November 12-15, under the presidency of Dr. Waller S. Leathers, secretary, Mississippi State Board of Health. Dr. George E. Vincent, president of the Rockefeller Foundation, New York, and Dr. W. S. Rankin, state health officer of North Carolina, will address the meeting. The oration on medicine will be delivered by Dr. Stewart R. Roberts, Atlanta, Ga., and the oration on surgery by Dr. J. W. Barksdale, Mississippi. This society includes sixteen states.

National Hospital Day Committee.—At the invitation of the executive secretary of the American Hospital Association, the National Hospital Day Committee will have a display at the association convention in Milwaukee, October 29- November 2, showing what hospitals throughout the United States and Canada have done on National Hospital Day to win greater community interest and support. Hospitals desiring to exhibit photographs, posters, literature and other things in this booth should communicate with Matthew O. Foley, secretary, 537 South Dearborn Street, Chicago.

Pharmaceutical Association's Research Awards.—At the seventy-first annual meeting of the American Pharmaceutical Association held recently in Asheville, N. C., the following grants were made from its research fund for the year 1923-1924:

To E. Kermers and K. H. Rang, of the University of Wisconsin, for work on decolorized tincture of iodin and on such other preparations of the National Formulary as time permits, $250.

To W. J. McGill, of the University of Michigan, for work on the electrometric titration of alkaloids, $200.

These research grants are made annually by the association from the interest accruing from the research fund.

Woman's Auxiliary of National Association. — The first annual meeting of the Woman's Auxiliary to the American Medical Association was held in San Francisco, July 28, under the presidency of Mrs. Samuel C. Red, Houston, Texas. The initial meeting was held in St. Louis, May 26, 1922. Mrs. Seale Harris, Birmingham, Ala., presented the suggested constitution and by-laws, which were adopted with a few minor changes. Mrs. W. A. Wood, Waco, Texas, is recording secretary. Drs. Seale Harris, Birmingham, Ala., Southgate Leigh, Norfolk, Va., and John O. McReynolds, Dallas, Texas, gave addresses at the meeting.

American Public Health Convention.—The fifty-second annual meeting of the American Public Health Association will be held in Boston, October 8-11, with headquarters at the Copley Plaza Hotel. This meeting is of special interest, since it ends the first twelve months of the new program adopted as a result of the association's reorganization in 1922. Two general sessions and twenty-six meetings of the scientific sessions will be held this year. October 10, Sir Thomas Oliver of London, England, and Dr. George E. Vincent, president of the Rockefeller Foundation, will address the meeting. The scientific program, embracing all branches of public health, will be held according to sections as follows: public health administration, laboratory, sanitary engineering, vital statistics, child hygiene, food and drugs, industrial hygiene, public health nursing, health education and publicity. The committee on municipal health department practice will discuss the announced plan for the awards of the public health association to cities for distinctive community service. Members traveling by rail to Boston may secure a reduction of one fourth the regular round-trip rate.

Cities Increase Outlay for Health.—In an analysis of health department budgets by W. Thurber Fales of the School of Hygiene and Public Health of Johns Hopkins University, Baltimore, the average for forty-five cities showed a 95 per cent. increase in per capita appropriations from 1910 to 1920. The expense for health departments in 1920 was 70.4 cents per capita. The greatest increase was in cities of 250,000 to 500,000 population, averaging 125 per cent. Two items—infant welfare and school hygiene—indicate an awakening of the nation to the importance of giving children a better chance to be healthful, while every city showed an increase in its health department budget. Milwaukee, with 343 per cent. increase, headed the list; Elizabeth, N. J., showed a 25 per cent. increase, according to Mr. Fales' figures. Health departments of eighty-one cities surveyed revealed per capita expenditures for all purposes except construction or additions to buildings of 97.4 cents. Health service funds for activities dealing directly with the protection of public health aside from the cost of hospitals for communicable diseases and sanatoriums averaged 51.6 cents per capita.

American Field Service Fellowships. — The Society for American Field Service Fellowships for French Universities will offer for open competition among graduates of American colleges and other suitably qualified candidates a number of fellowships, not to exceed ten, to encourage advanced study and research in French universities during 1924-1925. The fellowships, of the annual value of $1,200, are granted for one year and are renewable for a second year. There are thirty-one subjects, including medicine and surgery, for which the fellowships will be awarded. The Fellows will be required to sail to France not later than July 1 of the year in which the award is made, to matriculate in a French university for the following session, and to pursue studies in the field of science designated in their awards. Applicants must be citizens of the United States, between 20 and 30 years of age, and must at the time of application be: (1) graduates of a college requiring four years of study for a degree based on fourteen units of high school work; or (2), graduates of a professional school requiring three years of study for a degree; or (3), if not qualified in either of these ways, must be 24 years of age and have spent five years in an industrial establishment requiring technical skill. Application blanks and further information may be obtained from the secretary, Dr. I. L. Kandel, 525 West One Hundred and Twentieth Street, New York. These fellowships were established in order to provide an enduring memorial for the 127 field service men who gave their lives in the World War, and in order to perpetuate among future generations of French and American youth the mutual understanding and fraternity of spirit which marked their relations during the war.

LATIN AMERICA

Changes in University Management at Havana.—The *Vida Nueva,* just received, states that the president of Cuba has issued an order establishing a university governing assembly. It is to consist of thirty professors, thirty alumni and thirty students, and this body will have charge of the management of the university. The text of the decree is given in full.

Hospital News.—A new hospital is under construction at Puerto Castilla to replace the one now in operation. The new institution will have approximately 240 beds.——Public hospitals in Peru are owned and controlled by national benevolent societies (Sociedad de Beneficencia Publica), which exist in all the capitals of the provinces of the republic. They are largely charity hospitals with limited pay wards and are supported by revenue received from lotteries and real estate donated to the institutions by the government. Most of their hospital supplies are purchased in the United States. The army hospital and subordinate hospitals are under the supervision of the health department of the Peruvian army and navy.

FOREIGN

New Roentgen Ray Institute.—Messrs. Siemens and Halske, electrical engineers, have presented the city of Berlin with a modern radiographic institute, fully equipped, and have undertaken to replace any apparatus as soon as a new invention has made it obsolete. The institute will be established in the Moabit Hospital.

Lebanon Hospital.—Great Britain, America, Holland and Switzerland all share in the work of the Lebanon Hospital for Mental Diseases, Asfuriyeh, Beyrout, Syria. The annual report (ending March 31, 1923) of the institution has just been issued by Dr. H. Watson Smith, the medical director. During the year there were 279 patients under treatment. The recent opening of the Strawbridge Memorial House for Women relieved the congestion in the American and Philadelphia pavilions. The institution is badly in need of a permanent and adequate water supply and a roentgen-ray plant.

Tuberculosis in Belfast.—The annual report of the chief tuberculosis officer, Belfast, shows that the death rate from tuberculosis in that city for 1922 was 1.5 per thousand. This represents a reduction of 45 per cent. as compared with the year 1918, and a reduction of 68 per cent. as compared with the year 1890. The influence of housing is shown by the fact that in 62 per cent. of the new cases examined, the conditions were reported as under average. Discharged soldiers showed a large proportion. The open-air school for children living in contact with tuberculosis has been attended with great success.

Valsalva's Bicentenary and the Therapeutic Use of His Experiment.—The town of Imola in Italy celebrated, Septem-

ber 23, the two hundredth anniversary of the death of Antonio Maria Valsalva, professor of anatomy at the University of Bologna. He was Malpighi's favorite pupil, and recorded numerous observations which Morgagni included in his great work. His name is familiar from "Valsalva's experiment," and G. Galli, in the current *Gazzetta degli ospedali,* calls attention to the effect on the heart of the inflation of the eustachian tube by forcible expiration while the nose and mouth are closed. He has found that it arrested paroxysmal tachycardia.

Japanese Health Statistics.—According to official statistics, there were 1,990,876 childbirths and 1,288,570 deaths in Japan during 1922. The death rate is particularly high among infants, 423,477 under two years having died during the year. An investigation made in 1921 disclosed that there were 5,808 deaths among 166,000 children and 10,453 deaths in 65,003 childbirths. —— Following an investigation of health conditions of 228,000 primary school children made recently by the section of school affairs of Tokyo municipality, twenty-six out of every 100 children are of unhealthy development, four are undernourished, sixteen require constant supervision and fifty-four were pronounced healthy.

Edinburgh University.—Considerable changes in the course of study for medical students have been introduced at the University of Edinburgh, Scotland, as a result of relegating inorganic chemistry and physics to a preliminary examination which must be passed before the student registers for medical studies. The period thus gained is to be devoted toward utilizing the latter part of the curriculum for a more intensive study of medical subjects proper, as distinguished from the subjects of general medical science, such as physiology, anatomy, pharmacology and pathology. In the fourth year, every individual student will have three periods of three months each concentrated successively on the study of clinical medicine, clinical surgery and clinical specialties. During the fifth year, there will be no systematic lectures to attend. The new arrangement goes into effect this October.

Medical Men and Alcohol. — A committee was appointed to draw up plans for the formulation of an International Federation of Medical Abstainers at the International Congress Against Alcoholism held in Copenhagen, August 19-24. A constitution was agreed on which will be submitted to the existing societies of medical abstainers in other countries. The object of the federation is to unite these societies (1) to promote total abstinence in the medical profession; (2) to study alcohol and alcoholism, and (3) to organize the scientific attack on alcoholism. The federation would hold its principal meetings with the International Congress Against Alcoholism, but would also meet at international medical congresses. Members of the committee are Dr. Holitscher (Czechoslovakia), Dr. C. F. Harford (England), Dr. M. Legrain (France), Dr. Kh. Neytcheff (Bulgaria) and Prof. R. Vogt (Norway).

International Red Cross Conference.—The eleventh International Conference of Red Cross Societies, organized by the International Red Cross Committee of Geneva, was held in that city, August 28-September 1, Monsieur Ador presided. Dr. Depage of the Belgian Red Cross Society read a letter from the three delegates of the United States, indicating their reasons for not attending the conference (THE JOURNAL, September 8, p. 839). A committee of fifteen was appointed to study the question of amalgamation of the society with the League of Red Cross Societies, and report on it by June, 1924. Delegates from each Red Cross society gave a summary of the work carried out by his society since the last international conference in April, 1921. Delegates from forty-four national Red Cross societies, and from thirty-eight governments, and twenty-two representatives of charitable and humane societies attended the conference by invitation.

Army Medical Service in Ireland.—An interesting account of the formation and rise of the Army Medical Services in the Irish Free State is given in a recent publication of the organization of the different services. The present strength of the medical corps is: one major-general who is a director of medical services, three colonels, seven commandants, twenty-five captains, seventy-nine lieutenants, eleven dentists and twelve chemists. A badge has been designed and is being issued to all officers in the medical corps. The following is a description of the badge:

It consists of a silver hand inset in a bronze oval. The silver hand recalls the tradition that Nuadad, chieftain of the Tuatha de Danaan, lost his hand in the battle of South Moytura, near Cong, about 1000 B. C. The loss of a limb constituted so serious a blemish in those days that a maimed person could not be king, and consequently Nuadad had an artificial hand of silver made by the artificer, Credne Ceard, and fitted by the physician, Diancecht, so that he might succeed to the sovereignty. For that reason he was known as "Nuadad Airgead Lamh." The bronze oval consists laterally of a staff, round which a serpent is twined.

Personal. — Sir Malcolm Morris and Dr. James Stowers have been appointed consulting physicians to St. John's Hospital for Skin Diseases, London, England.——Sir William Joynson-Hicks, formerly postmaster-general, has been appointed minister of health for Great Britain to succeed Mr. Neville Chamberlain.——Robert W. Hart, Passed Assistant Surgeon, U. S. Public Health Service, has been relieved from duty at Hamburg, Germany, and assigned to duty at Manila, P. I.——Surg. Joseph G. Wilson, U. S. Public Health Service, relieved from duty at Bremen, Germany, has been assigned to duty at Hamburg.——The *Münchener medizinische Wochenschrift* states that Dr. R. Kraus, director of the Instituto de Butantan at S. Paulo, Brazil, has resigned his position and is returning to Vienna.——The *Marseille médical* reports that Dr. Darcourt, radiologist for twenty years to the Marseilles hospitals, has had to have a finger amputated on account of roentgen-ray injuries, which are extending. The local medical society has petitioned the government for official recognition of his devotion to science.——The Masnata prize was conferred by the association of health officers in Italy on Dr. Bergamaschi of Pavia for two works presented dealing with medical practice.

The Internal Medicine Congress of the Northland.—The eleventh Scandinavian Congress for Internal Medicine was held at Christiania recently, with Prof. P. F. Holst in the chair, and 200 attending. A number of the fifty-five communications were on the thyroid, Eggers Møller, Denmark, reporting increase in the basal metabolism up to 110 per cent. in his study of fifty-two cases of exophthalmic goiter mostly before and after roentgen treatment. Hagedorn reported the subsidence of colloid goiters under iodin treatment. He theorizes that the colloid results from the excessive functioning of the thyroid as a reaction to the lack of thyrotoxin. The colloid thus produced cannot be utilized by the tissues, and thus it collects in the thyroid. If either iodin or thyroxin is supplied to the gland, excessive function is no longer necessary, and the colloid disappears in time. Nicolaysen told of his success with quinin in the treatment of pneumonia, which had reduced the mortality from 20 to 6 per cent. A. Krogh opened the lively discussion on the insulin treatment of diabetes. Jacobsen insisted on the necessity for frequent examination of the blood during insulin treatment to avoid giving too much. Kylin's paper on essential hypertension elicited much discussion, a number not accepting his views. Prof. Israel Holmgren was elected to preside at the next congress, to be held at Stockholm in 1925.

Intoxicated Motor Drivers.—A law has been passed in Denmark ruling that a motorist once convicted for drunkenness while driving must lose his license permanently. Owing to there being no hard-and-fast line between severe and slight intoxication, the police realized that certain standards and criteria would have to be formulated. The Danish Medico-Legal Council was asked to aid, as it was felt by the police that in cases of alleged drunkenness in drivers, a medical examination is essential. Prof. A. Wimmer and a pharmacologist were appointed to make the examinations. The following program was devised by the medicolegal council as a guide to the examining police surgeon:

1. Observe the driver's appearance. Drowsiness, drooping eyelids, relaxed features, congestion of the face and conjunctivae, sweating, slobbering, disordered dress and the like should be noticed.
2. Observe his behavior. Noisiness, silly behavior, excitation, garrulity, restlessness and other characteristics should be noticed.
3. Is his sense of time and space natural? If it is, say "Yes"; if not, repeat his statements.
4. Test his memory. Note if he can remember a couple of addresses, and test his ability to describe something, i. e., how the motor accident happened, or the meaning of a drawing in an illustrated paper.
5. Note his speech; is it thick, nasal, lisping or stammering? Let him repeat difficult words or read aloud a short notice in a paper.
6. Note his gait. Swaying and ataxia should be noticed, and Romberg's test should be carried out.
7. Test the movements of his hands and also his handwriting, telling him to write his name, age, station in life and address on a sheet of paper.
8. Note if his pulse is regular and rapid, the condition of his pupils and his response to painful stimuli.
9. Note if he smells of alcohol.
10. Are there signs of other diseases, such as epilepsy and apoplexy?

Of fifty cases recently examined, all the drivers were men. There were thirty-four professional chauffeurs, and only nine of the fifty were discharged as sober.

Deaths in Other Countries

Dr. **Edwin Wheeler**, a graduate of Queen's University, Ireland; member of the British Medical Association, and one of

the oldest English residents in Japan, was reported killed in the recent earthquake in Yokohama.——Dr. **Walter S. Cheyne**, dean of the profession in Aberdeen, Scotland, died, August 19, aged 70.——The Rev. **D. W. Torrance**, medical missionary of the United Free Church of Scotland, at Tiberias, Palestine. ——Dr. **Jenaro Sisto**, professor of pediatrics at the University of Buenos Aires, a leader in the organization of the profession, and author of works on his specialty. He shared with Frouin and Fiessinger the Perron prize awarded by the Académie de médecine at Paris in 1910.——Dr. **L. Borri**, professor of legal medicine at the University of Florence.——Dr. **F. Schlemmer**, privatdozent of laryngology at the University of Vienna, aged 39.——Dr. **D. Romeijn**, a military medical officer of high rank in the Netherlands until his resignation in 1919 to become medical inspector of the railroads. He published recently a booklet on "Railroad Hygiene in the Netherlands."——The *Crónica Médico-Quirúrgica* of Havana mentions the death at an advanced age of Dr. **Carlos Scull**, physician to the Casa de Socorros del Vedado; also of Dr. **Francisco Marill y Solar**, an official of the Policlínica Nacional Cubana, and of Dr. **Ramón Garganta y Puig**.

Government Services

Veterans' Hospital to Be Discontinued

No new patients will be sent to U. S. Veterans' Hospital No. 26, Camp Sevier, Greenville, N. C., it was recently announced. It is expected that the institution will soon be closed and the patients transferred to U. S. Veterans' Hospital No. 60, Oteen, N. C., where there are approximately 300 vacant beds. The Camp Sevier Hospital was established in 1919, and has a bed capacity of 700.

Examination of Ex-Service Men

A total of 6,610 medical examinations were given disabled veterans of the World War in Minnesota, North Dakota, South Dakota and Montana during July by the U. S. Veterans' Bureau, according to a recent report. In addition, the bureau acted on 1,433 compensation claims in the month.

Navy News

The surgeon general of the navy announces that a "division of hospitals" has been established in the bureau of medicine and surgery. This new division will be under the inspector of medical activities and will coordinate matters relating to the administration of medical activities at naval hospitals, naval hospital ships, sick quarters and dispensaries.

Fourteen members of the medical corps of the navy (lieutenants junior grade and lieutenants) have been assigned to the course of postgraduate instruction in naval medicine and surgery at the U. S. Naval Medical School, Washington, D. C. The fall session began September 10, and will be completed during the early part of next year. In addition to the subjects included in the regular schedule, instruction will be given in aviation medicine, and in gas warfare.

The U. S. Naval Dental School, a part of the Naval Medical School, opened its second session on September 10, with an attendance of five naval dental officers who will receive postgraduate instruction. Ten members of the hospital corps of the navy are being trained as dental technicians.

Veterans' Bureau News

A conference of all the chief nurses of the U. S. Veterans' Bureau hospitals and clinics will be held in Washington, November 5. An attendance of about 100 nurses is expected. The conference, which will continue for a week, is a part of a general plan of the director of the Veterans' Bureau, to come in contact with all persons responsible for the administration of the activities of the bureau. Among the topics to be discussed is the establishment of uniform nursing service.

Director Hines, of the U. S. Veterans' Bureau, left Washington, October 5, for an inspection of Pacific Coast institutions. He will arrive in Seattle, October 9, and inspect the local offices and the new hospital at American Lake, and October 10, the hospital at Portland, Ore.; he will then go to southern California to inspect proposed sites for a 200-bed tuberculosis hospital.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 16, 1923.

British Association for the Advancement of Science

SYMBIOSIS

At the recent annual meeting of the British Association for the Advancement of Science, as usual, many topics were discussed of a medical nature or with a special interest for physicians. Prof. G. H. F. Nuttall, president of the physiological section, gave an address on "Symbiosis," which he defined as conjoint life between different organisms that in a varying degree were benefited by the partnership. It was a balancing between two extremes—complete immunity and deadly infective disease. A condition of perfect balance was realized with comparative rarity, because of the many difficulties of its establishment in organisms that were either capable of living independently or were incapable of resisting the invasion of organisms imperfectly adapted to communal life. It was difficult to imagine how symbiosis originated otherwise than by passing through a preliminary stage of parasitism on the part of one or the other of the associated organisms. Some supposed instances might yet prove to be cases of true parasitism. Symbiosis occurred frequently between animals and plants, algae, fungi and bacteria, becoming in some cases permanent intracellular inhabitants of their hosts, and at times being transmitted from host to host hereditarily. Among many curious examples of symbiosis described by Professor Nuttall was that of the fungus (*Mycorrhiza*) that formed a network in the roots of orchids. Difficulty was experienced in raising these plants from their seeds. The reason was that the seeds did not germinate in the absence of the fungus. This entered the seed through its least resistant and highly permeable cells, which apparently emitted a secretion attractive to the fungus. Each species of orchid possessed a special species, variety or race of fungus, in the absence of which the seeds would not germinate.

A NEW RACE TYPE

In the anthropological section, Mr. A. J. Pape suggested that there were medical, mathematical and educational evidences of a new race type, and outlined its characteristics. These included a distinct increase of cranial development, hair fine in texture and skin fine grained and thin. The eyes were especially luminous and intelligent looking; the eyebrows were rather prominent, and the type of face was somewhat triangular but not sharp. The psychology manifested itself in rapid response to sympathy, pity in suffering, power to comprehend principles easily, quick intuitions, thoroughness and sensitiveness. There was a distaste for meat and coarse foods, but not a large appetite along any lines.

MOLECULAR ORIENTATION

In the chemical section, Professor Donnan, F.R.S., in his presidential address, said that much attention had been paid by chemists, physicists and physiologists to the phenomena that occur at the surfaces separating different sorts of matter in bulk. Things could happen here that did not occur in the more homogeneous and uniform regions well inside the volume of matter in bulk. When these were investigated, they revealed molecular or atomic peculiarities that could not be detected in the jostling throng of individuals inside. Living organisms were full of surfaces and membranes, and, therefore, what happened in these regions was of great impor-

tance for the science of life. An essential characteristic of the ordering or arraying of surfaces might consist of a special orientation. In the chemical and physical actions occurring in a volume of liquid whose bulk was large compared with its surface, the molecules or atoms probably moved toward one another with every sort of orientation; but should some special orientation be characteristic of interfaces, then such interfaces would exhibit new phenomena. In the older theories, the fields of force surrounding a molecule were regarded as essentially uniform in their spatial relations, forming a concentric sphere with the molecule at their center. We now know that these fields of force may be very irregular and may be localized in polar fashion. Properties of surfaces, such as molecular orientation and its connected phenomena of surface concentration or adsorption and electrical polarization, had a special interest in their bearing on the phenomena of life. They were all related to states of thermodynamic equilibrium. It was to be remembered that the activities, and, indeed, the very existence, of a living organism depended on its continuous utilization of an environment not in thermodynamic equilibrium. A living organism was a consumer and transformer of free energy, and environmental equilibrium meant nonactivity and eventually death. It was therefore probable that along and across living surfaces there was a continual flux of activity. It might be suggested that the physicochemical manifestations of life were functions of the same powers and potentialities of electrons, atoms, ions and molecules that were found in what they called inanimate environment. Life would then be simply a new functional relationship of old factors, at all events so far as its various physicochemical mechanisms were concerned.

CANCER AND DIET

At a crowded meeting of the physiological section, Dr. S. Monckton Copeman read a paper on cancer and diet. There could be no doubt that the death rate from cancer was increasing. It was held that the increase was more apparent than real, owing to the increased expectation of life, and such factors as more successful diagnosis and certification. These things might have had an influence over a period of two generations, but the recorded mortality had trebled. The tragic fact remained that of persons over middle age, one in seven might be expected to die of cancer. Both the definite cause and the cure were still to seek. Little, if any, definite knowledge was available as to the effect in the adult of a dietary deficient in the fat-soluble A vitamin, though it was known to be essential to the growth of the young animal. Dr. Copeman described a series of researches carried out by him, mainly on patients suffering from cancer, which afforded evidence that the amount of A vitamin required by the adult was extremely small, and that any considerable excess in the food might eventually be injurious. A dietary from which foodstuffs of animal origin containing the fat-soluble vitamins were excluded was formulated. Everything containing animal fat, such as fat meat, butter, eggs and cream, was cut out, but bacon and ham were allowed because the amount of fat-soluble A they contained was extremely small. Latterly he had added to this diet a little fat of vegetable origin. Cancer patients in institutions were put on this diet, which was satisfactory from the physiologic point of view. Under it they increased in weight and in some cases became free from pain. The treatment in suitable cases increased the expectation of life, and the freedom from pain might be so complete as to obviate entirely the previous need of anodynes. Dr. Copeman had studied the statistics of the "enclosed" and the "unenclosed" communities of the Roman Church. He found that, although the enclosed orders that were practically vegetarians had not complete immunity from cancer, they did not suffer so much as the unenclosed orders.

POPULATION AND UNEMPLOYMENT

In the section of economic science and statistics, Sir William H. Beveridge examined the common impression that the civilized world is threatened with overpopulation. Dealing with Britain in particular, he said that during the last half of the nineteenth century our industries were finding room for a rapidly increasing number of wage earners with a rising standard of production and comfort. Throughout the whole of that period, we had unemployment, and more than once it reached a height comparable, if not equal, to the present. During 1922, the percentage averaged 15, but in 1879 it was over 11. The experience of that year was then unparalleled, yet it heralded not a period of overpopulation, but one of expansion and prosperity, which reached, if it did not surpass, all previous ones. He questioned whether excessive growth of population ever caused unemployment. A more probable effect would be pressure to work more than before in order to obtain the same comforts. Sir William then dealt with a theory propounded by J. M. Keynes that, even before the war, Europe was threatened by the instability of an excessive population depending on a complicated and artificial organization, and that, about 1900, a diminishing yield of Nature to man's effort was beginning to show itself. While less inclined to be pessimistic than Mr. Keynes about the tendencies before the war, he was more pessimistic about the effects of the war and its possible enduring damage. Before the war there was nothing to suggest that Europe had reached its economic climax. But the war damage was great, and we were not yet in sight of the end. Man for his present troubles had to accuse neither the niggardliness of Nature nor his own instinct of reproduction, but other instincts in excess. He had to find the remedy elsewhere than in birth control.

In the discussion that followed, Prof. A. W. Kirkaldy said that since the population of the whole world could be placed in the smallest English county, the question of overpopulation would appear hardly to have arisen. A more important matter was quality. In the great industrial towns the increase of population took place in the least desirable sections. Dr. Marie Stopes, president of the Society for Birth Control, said that statistics meant much more to the economist than they did in the real world. Sir William Beveridge flouted the physiologic facts of life and forgot the unemployment. We spend an immense sum in maintaining diseased and enfeebled persons whom birth control would have prevented.

INSULIN

In the physiologic section, Prof. J. R. Macleod, F.R.S., of Toronto, said that evidence was being collected which seemed to suggest that in some cases of diabetes the pancreas might be brought back under insulin treatment to its normal functioning. Some persons had succeeded in making preparations from ordinary brewers' yeast which lowered the sugar content of the blood, but the effective substance could not be obtained with anything like regularity. Little was known of the chemical constitution of insulin, but its destruction by pepsin suggested a very complex protein. That would make the problem of the synthetic preparation a very difficult one. The chemist had never yet been able to synthetize a protein; on the other hand, it might not be a protein at all, and that would offer some hope of its synthetization. It was a substance of large molecules readily absorbed and forming numerous salts. Discussing whether insulin could be a cure for diabetes, he said the question really was: "Do we by relieving the diseased pancreas of the strain of trying to produce

insulin tend to allow the organ to regain its function in producing insulin?" The new islet tissue that had been demonstrated to occur months after ligation of the pancreatic ducts raised the hope that, by resting the pancreas, the gland would ultimately produce new islet tissue and so resume the power to produce insulin.

THE TRAINING OF MIDWIVES

More than 50 per cent. of childbirths in this country are attended by midwives solely. Dr. Janet M. Campbell, senior medical officer for maternity and child welfare of the ministry of health, has made an important report on their training. She believes that a longer training would bring a better standard of midwifery and reduce the present unduly high morbidity and mortality of childbirth. She suggests that (1) there should be an extension of the training for unqualified women from six to twelve months, and for trained nurses from four to six months; (2) the curriculum should be revised so that education may be on a broader basis in such a way (*a*) as to include clinical and theoretical instruction in the management of labor, both in maternity wards and in the patients' homes, and (*b*) to provide that adequate attention be devoted to such subjects as maternity nursing, antenatal care, breast feeding, the care of the new-born, the nursing of puerperal fever, and ophthalmia neonatorum; (3) midwifery training schools should be graded according to their facilities for complete or partial training. Small training institutions should be affiliated for teaching purposes with institutions able to offer complementary facilities; (4) a teacher's certificate in midwifery should be established for midwives desirous of holding responsible educational positions.

PARIS

(From Our Regular Correspondent)

Sept. 14, 1923.

Third International Congress on Leprosy

The first congress on leprosy was held in Berlin in 1897, when Virchow presided. In 1909, the Norwegian government called the second conference at Bergen with Hansen, to whom belongs the credit of discovering the bacillus of leprosy, presiding. The third congress has just been held at Strasbourg on the occasion of the centenary of Pasteur with Dr. Jeanselme, professor of cutaneous and syphilitic diseases of the Faculty of Medicine of Paris, presiding, assisted by Dr. Marchoux of the Pasteur Institute of Paris, general secretary of the conference. Thirty-four countries were represented.

DISTRIBUTION OF LEPROSY

The statistics reported to the conference, although incomplete, afforded information on the actual geographic distribution of leprosy. An outstanding feature is a considerable decrease of the disease in the Scandinavian countries. According to Dr. Lie of Bergen, the number of lepers in Norway, which in 1908 was 394, has fallen to 140; in 1922, for the first time in many years, no new cases were reported. In Sweden, likewise, J. Reenstierna of Stockholm reported a decrease; from eighty-nine cases at the end of 1907, the figure has fallen to thirty-seven. Nevertheless, new cases have been discovered in Sweden, nearly all of them having originated in Haesingland and Dalecarlia. Professor Ehlers of Copenhagen reported that in Denmark leprosy no longer exists, and that in Iceland there has been such great improvement that in a few years leprosy will have disappeared. According to Professor Ivanov of Moscow, foci of leprosy exist particularly in Esthonia and Latvia, which are separated from the Russian republic. Talvik of Tartolin (formerly Dorpat) and Shirons of Riga furnished the figures on these two former Russian provinces. In Latvia the number of lepers has fallen from 976 in 1900 to 223; in Esthonia from 554 in 1903 to 350. In England, according to Col. S. P. James, only twenty-four cases are officially known, all of them imported. In France, leprosy exists in the Midi, particularly in the department of Alpes-Maritimes, but there also it has been imported and is decreasing. In South America there are, in Brazil, according to Professor Rabello of Rio de Janeiro, 7,000 lepers in a population of 32,000,000; in Uruguay, 197 cases were recorded in 1922. In Cuba, according to Dr. Primelles the disease is decreasing, the proportion of lepers being 0.50 for each thousand of the population. In Asia, foci exist in Siberia. In Japan, according to Dr. Mitsuda the proportion, which in 1906 was 0.50, decreased to 0.28 for each thousand in 1919.

LEPROSY IN THE FRENCH COLONIES

General medical inspector Gouzien, president of the upper colonial board of health, reported on data collected in 1920 by Major Marcel Léger. Broadly speaking, in the regions most affected, the leprosy rate varies between 20 and 30 or more for each thousand inhabitants. A proportion of 4,000 or 5,000 lepers in a population of two or three million is not uncommon. Two colonies, the coast of Somaliland and Saint-Pierre and Miquelon, seem to be free from leprosy. On the other hand, the endemic seems to be increasing in Guinea, especially on the Ivory Coast; while, in the majority of our other colonies the number of lepers seems to be stationary. It is important to note, however, that if the number of lepers recognized and isolated is steadily increasing in certain colonies, this is only because new cases are better reported, thanks to the operation of the census and recruiting, to the spreading of smallpox vaccination and to treatment by atoxyl in those countries, such as equatorial Africa, where trypanosomiasis is so severe. In the mandatory state of Cameroon, the number of cases of leprosy has increased since the French occupation, not because the total number of lepers has actually augmented, but because, thanks to the increased activity of the medical personnel and the strict vigilance exercised by them over the population, a large number of lepers have been discovered and added to the figures; thus, the number of isolated lepers in the last three years in the leper colonies of Cameroon was 614 in 1920, 817 in 1921 and 1,189 in 1922. Official colonial statistics are not numerous nor are they accurate, as is shown by an anecdote told by Professor Jeanselme. One day while visiting a village in Tonkin, he was surprised to note that none of the Anamese, previously reported as lepers, were lepers at all. Relief had been granted by the colony to each leper, and the native mayor had picked out those under his administration to whom he wished the donations given.

TREATMENT OF LEPROSY

The attention of the conference was directed to modern methods of treatment, notably the use of the ethyl esters of the fatty acids of chaulmoogra oil, prepared according to the method of H. T. Hollmann and A. L. Dean of Hawaii. Professor Jeanselme stated that he did not share the enthusiasm that followed the first trials of this method. He treated four lepers, each with a different type of leprosy, systematically by injections of chaulmoogric esters produced at the laboratory belonging to the leper colony at Kalawao, Hawaii. He followed closely the instructions issued by Hollmann and Dean, Of the four patients, two died of leprosy during treatment; the other two obtained no relief. Two cases of nodular type reported by him, which he treated for five months, remained stationary. Dr. H. Gougerot, agrégé professor of the Faculty of Medicine, Paris, tried the ethyl esters of these fatty acids in three cases without result. On the other hand, Professor Rabello and Dr. Aparacia of Colombia consider these derivatives of chaulmoogra oil the best treatment for all types of

leprosy, especially for the early forms. Lie of Bergen obtained good results by this method in four cases out of eight. Another method of treatment which has proved beneficial, especially in nodular leprosy, is the arsphenamin preparation introduced by Jeanselme and Pomaret for the treatment of syphilis, which is given by intramuscular injection. According to Gougerot, this is a delicate procedure, because of the sensitiveness of lepers to arsphenamin, and requires close surveillance. Gougerot considers it, however, the most efficient method for the general treatment of leprosy.

Good effects have been reported from the use of general heliotherapy (Gougerot, Mathis), carbon dioxid snow (Paldrock), and radium (de Kaiser); but, as Jeanselme remarks, these physical agencies act superficially and improve the patient's sense of physical well-being; they do not hinder the evolution of the leprosy.

LEGISLATIVE MEASURES AGAINST LEPROSY

Dr. Marchoux outlined an ideal legislation for leprosy. He stated that leper colonies and the isolation of lepers are relics of the dark ages. If it were proposed to intern tuberculous patients in colonies there would be general protest. Tuberculosis is, nevertheless, far more dangerous than leprosy. Leper hospitals, sanatoriums and dispensaries are necessary. Human law should not forbid their intermarriage, since hereditary transmission of the disease is exceptional; but children should be separated from leprous parents at birth. The ideal procedure would be a domiciliary isolation such as has been tried in Norway, but the method of its application must vary in different countries. Dispensaries and visiting nurses are useless in sparsely populated districts where the people are nomadic and primitive. As a foundation for legislation, report of cases should be obligatory, domiciliary isolation should be compulsory for those able to afford it; and, for paupers, detention in proper institutions should be enforced. Above all, efficient treatment and diversional interests must be assured.

Milian of Paris requested that a distinction be made between "open" and "closed" leprosy. Jeanselme objected because "closed" leprosy might any day become contagious. Some other criterion must be adopted; the matter is strictly a social question. Leprous beggars, tramps and hoboes must be interned.

The conference adopted the following resolutions:

1. Legislative measures against leprosy should vary according to the country in which they are to be applied; but in every instance the entrance of foreign lepers should be forbidden.

2. In countries where leprosy is not spreading, isolation in a hospital or in the home, as in Norway, is recommended.

3. In places where leprosy is endemic, isolation is essential: (*a*) This isolation should be humane and should permit contact of the leper with his family if this measure is compatible with efficient treatment; (*b*) paupers, tramps and others who cannot be isolated in their homes should be isolated in hospitals, sanatoriums or farm colonies, as conditions permit, in which the most efficient treatment can be applied; (*c*) children of lepers should be separated from their parents at birth and should be under continued observation.

4. Members of leprous families should be compelled to submit to periodic examination.

5. The public should be taught that leprosy is contagious.

6. Lepers should be forbidden to engage in occupations which would favor the dissemination of the disease. The consequences of this prohibition must be recognized and compensation be given to the patient and his dependents.

RECOMMENDATIONS ADDRESSED TO THE LEAGUE OF NATIONS

The conference also recommended that the League of Nations (1) undertake the publication of the journal *"Lepra"* (*Archives internationales de la lèpre*); (2) create an international bureau for the collection of information and data on leprosy, and (3) undertake to compile statistics on the leprosy of the world.

MADRID

(From Our Regular Correspondent)

Aug. 2, 1923.

The Academy of Medicine and Rejuvenation

In an address on his admission to the Royal Academy of Medicine, Dr. L. Cardenal, professor of surgery in the Madrid Medical School, discussed the subject of rejuvenation. Dr. Cardenal stated that he had adopted the methods of Steinach, which apparently had first been applied to man by Lichtenstern. He has tried this method recently in fifty-eight persons. These he divides into three groups: (1) twenty-seven men under 40 years of age, who were prematurely senescent; (2) twenty-two men aged from 50 to 60; (3) nine men aged over 60 years. In thirteen cases, the vasa deferentia were ligated; in sixteen cases, the small efferent ducts were ligated on one side only; in twenty-two cases, the efferent ducts were tied on both sides. Seven patients have been lost to observation, and no results were secured in the cases in which the vas deferens was ligated. There thus remain thirty-eight cases for consideration. In fourteen, the treatment failed completely; in the other twenty-four the effects were marked, as shown by increase in weight, changes in the skin and growth of hair. According to reports from the physician, schoolmaster and priest of the towns in which these patients live, the improvement in mentality has been remarkable in practically all the patients. One patient, over 70 years old, has started to learn to read. In many, the development of libido and potentia coeundi has been such as to be considered by the patients a sign of disease. The best results were obtained when the vasa efferentia were ligated on both sides. The prematurely senile patients without organic disease showed the most improvement. Cardenal guarded against the effects of autosuggestion, by not informing his patients in advance of the nature of the operation he was planning. Most of them were under the impression that they were being operated on for hernia.

The youngest member of the academy, Dr. Marañón, replied to Cardenal's address, and sang the praises of old age in original and eloquent terms. At the time of the climacterium, he said, the hands of the clock show the right hour; while we may attempt by force to stay their onward march, this is merely self-deception; the machinery continues to operate until the main spring finally gives out. Even on the assumption that rejuvenation is possible, is it worth while? Physiologically and psychologically, the answer must be an emphatic negative. Prophylaxis against old age implies a life of abstention. Those who but half live, in order to live long, are the persons who dread old age. Those who enjoy life to the full accept the declination of their powers as inevitable, and comfort themselves by their recollections and the feeling of satiety. Goethe knew what he was about when he took for his Faust an old scholar and not a spent roué. Marañón also expressed the fear that, in the long run, the stimulus from rejuvenating hormones would harm the body. Modern surgery should aim only to decrease the discomforts of old age, so that the man will not be plunged abruptly into the ocean of death as by a cataract, but will travel gently toward it, borne by a quiet stream. Let us conquer old age, not fear or shirk it; let us try to make old age more pleasant for others. Let us remember that old hearts retain their sensitiveness; that the wrong views of the old man were the truths of his youth, and that what we now consider to be truth may tomorrow be replaced. Let us find in their failings, not a

source of irritation, but a hint to mend our own defects. If to this is added perhaps a little endocrine surgery, we shall succeed, not in the futile effort to banish old age, but in making it painless.

The Sanitary Group in the Senate

In order to handle more efficiently all matters relating to public health, the physicians now in the senate have organized a sanitary group, which will act as a unit, regardless of party affiliations, when sanitary questions are involved. At present, this group is engaged in the preparation of a bill on public health reorganization. The bill has sixteen sections devoted to: the appropriation of sufficient funds for such health purposes as sanitation of dwellings, safety of water supply, sewage disposal and collection of death statistics; organization of local and provincial health organizations; health inspection service; quarantine service; organization of research and public health laboratories; creation of a national school of hygiene and public health; veterinary service and meat and food inspection; public assistance, which will be connected with public health work; creation either of a department or bureau of public health; school hygiene; physical culture; health and maternity insurance; prevention of communicable diseases, including notification and control of epidemics, with special provisions in regard to tuberculosis, leprosy, malaria and infant mortality. The duties of the different authorities are specified, and penalties are provided for violations of the law.

Limitation of the Number of Practicing Physicians

Dr. Cortezo, of the senate sanitary group, has introduced a bill to deal with the overcrowding of the medical profession in Spain. After a thorough study of available data, Dr. Cortezo has ascertained that every year in Spain there is a surplus of from 500 to 600 physicians. If no measures are taken to remedy this condition, in from ten to fifteen years there will be an excess of more than 10,000 physicians. Dr. Cortezo therefore proposes: first, to forbid altogether the practice of medicine in Spain by foreign physicians. Physicians now licensed will be allowed to continue to practice, and students now enrolled will receive their diplomas on completion of their courses. In the future, a commission will decide annually the number of physicians to be admitted to practice; graduating physicians will be required to submit to a competitive examination in order to determine those best fitted to fill the vacant places. It is to be noted that this plan was suggested by the editor and owner of the *Siglo Médico*. It is a fact that the profession is almost swamped by the stream of new physicians being poured out by the ten medical schools of Spain.

New Tax on Spanish Physicians

The medical profession in this country has shown as little foresight as the other so-called intellectuals. Three years ago, when there was a discussion in parliament as to a change in the taxing system, the medical profession, as a whole, paid no attention to the matter. Hampered by this indifference, the physicians in parliament were unable to prevent action. Hitherto, many of the various professions—physicians, lawyers, notaries—paid what are called *patentes* (license duties). The treasury collected from each profession a certain amount. This was made up by the several members, each contributing what he thought proper. Through the political influence of Dr. Calleja, the physicians' contribution has been unusually small. As the government is constantly in need of more money, a 5 per cent. income tax has been placed on professional men. The physicians paid no attention whatever to this law, even when it was passed. Some of the medical societies held meetings to explain the importance of the change, but the physicians stayed away. Now, when the law is about to be enforced, protests are coming from all sides from indignant physicians, and medical societies are registering their opposition to the new system. One of the regulations compels physicians to keep a record of fees and other receipts. This provision is specially objected to as a breach of professional secrecy. In fighting the law, the physicians are at a disadvantage, as the lawyers have already agreed to comply. The presidents of the medical societies have threatened to call a medical strike if an attempt is made to collect the new tax from a profession already overburdened with difficulties, including excessive competition within its own ranks.

Death of Dr. Ortega Morejon

We have also to record the death of Dr. Ortega Morejon, a member of the Royal Academy of Medicine, senator and former president of the Madrid Medical Society. He was best known for his work on tuberculosis and his medicosocial activities.

BERLIN

(From Our Regular Correspondent)

Sept. 15, 1923.

Mortality in Germany

The mortality among the male and the female population of Germany in 1913 (157 and 143, respectively, per 10,000 inhabitants) was the lowest that had ever been recorded. In 1914, the last five months of which marked the beginning of the war, the difference between the mortality among males and females increased from 14 to 86, the mortality for males being 234 and for females 148. In 1915, the first complete year of warfare, which brought the heaviest losses of the war, the mortality among males (287) was almost twice as great as that among females (145). During the years 1916 and 1917, the war losses decreased, as did the difference between the mortality of the sexes. In 1916, the mortality among females dropped to 141, which was even lower than in 1913; this partly due to the fact that in 1916 the diminishing birth rate, which was noted from May, 1915, was beginning to affect the mortality statistics, and there was a marked decrease in the number of deaths of infants under 1 year of age. Although this decrease was even greater in 1917, the mortality among females began to rise rapidly, reaching 158 in 1917, and 195 in 1918. At the same time, the mortality among males increased and reached its maximum in 1918 (304), the highest rate since 1872. After the maximal increase of mortality in 1918, a rapid decrease for both sexes took place in 1919, which continued until 1921; the mortality among females fell more slowly, mainly because the influenza epidemic of 1919 and 1920 caused a higher mortality among women than among men. Another contributing cause was the heavy increase of mortality due to puerperal fever. The highest mortality "from violence" (that is, on the field of battle) was, for males, 126 per 10,000 of population, during the second year of the war, 1915, which was equal to almost half of the total mortality for males for that year. Following a considerable decrease during the years 1916 and 1917, the mortality from violence in 1918 again rose to 106, about one third of the general rate for males. From this comparison it is evident that in 1918 the deaths from natural causes must have increased considerably among the male population.

Next to the deaths from violent causes, in which category are included the deaths on the field of battle, influenza claimed the highest mortality in 1918, 27.6 for the male and 30.8 for the female population. Scarcity of food arising out of war conditions was responsible for the death of large numbers of weakly persons. Persons with chronic tuberculosis and of advanced age were most affected; consequently there was an increase in mortality from tuberculosis and senile debility.

The resistance of women seems to have broken down first, for the mortality from tuberculosis and senile debility increased more rapidly among them than among the men. After reaching the peak in 1918, the decrease in mortality from tuberculosis was slower in women than men. In 1921, with the accentuation of economic distress, the mortality from tuberculosis again began to rise.

Diseases of the circulatory system and neoplasms, in Germany as in other countries, were the only causes of death the mortality from which was increasing before the war, although the increases were doubtless partly due to improved methods of collecting statistics. Deaths from diseases of the nervous system show only slight changes during the war years. During the war—strange to say—there was no further increase of the incidence of neoplasms; in fact, there was a slight decrease for both sexes, whereas immediately after the close of the war a renewed increase set in.

The decrease in the consumption of alcoholic beverages, during the war, brought about a decrease in the mortality from alcoholism. One of the most striking features of the statistics on the causes of death during the war years is the fact that there was a marked and almost uninterrupted decrease in the mortality from acute infectious diseases. The mortality from diphtheria, pertussis, measles and scarlet fever has not been before so favorable in Germany as it has been since the war. Owing to the circumstance that we succeeded in keeping such war epidemics as typhus, recurrent fever and cholera out of our borders, the mortality among the population of Germany, after deducting war losses, in spite of the extreme scarcity of food, was less than in previous wars, which always were followed by severe epidemics.

Marriages

FREDERICK C. GREAVES, Lieut., M. C., U. S. Navy, Washington, D. C., to Miss Rose Anclee Torbol of Duluth, Minn., August 11.

BENJAMIN VAUGHN MCCLANAHAN, Galesburg, Ill., to Miss Anna Belle Stevenson of Monmouth, Ill., September 26.

JOHN THOMAS BURNS, Kalamazoo, Mich., to Miss Jane Pauline Donovan of Providence, R. I., September 15.

JULIEN HARMON WILSON, Columbus, Ohio, to Miss Mary Louise Colbert of Washington, D. C., August 16.

MORTIMER HARRY WILLIAMS, Roanoke, Va., to Miss Julia Mountcastle of Weldon, N. C., September 8.

JAMES DAVIDSON RIVES, New Orleans, to Miss Marion Smith of Indianola, Miss., September 19.

FRED H. AUSTIN to Miss Joanna Newby, both of Bloomington, Ind., at Seymour, September 11.

L. POTTER HARSHMAN, Fort Wayne, Ind., to Miss Frances Thompson of Frankfort, September 1.

WILMOT SHIPP LITTLEJOHN, Tugalo, Ga., to Miss Mary Rose Brown of Americus, August 22.

SAMUEL H. LONG to Miss Ruth Lachman, both of Chattanooga, Tenn., September 23.

RICHARD LEE WILLIS, Chatham, Va., to Miss Elizabeth Harris of Crozet, recently.

SAMUEL BLAUGRUND to Miss Helen B. Krueger, both of Trenton, N. J., October 4.

GEORGE B. PACKARD, JR., to Miss Evelyn Summerton, both of Denver, September 8.

KARL B. RIEGER, Freeport, Ill., to Miss Lillian E. Hall of Chicago, October 6.

EDGAR R. HOLMES to Miss Alma L. Hieser, both of Minier, Ill., September 13.

ARTHUR H. HALL to Miss Gladys Buttermore, both of Cleveland, August 11.

HAROLD F. BAKER to Miss Eleanor Reeder, both of Muncy, Pa., August 16.

Deaths

Charles Wesley Hack, New York; University of Minnesota College of Medicine and Surgery, 1897; formerly prosector of anatomy at his alma mater; served with the M. C., U. S. Army, in the Spanish-American and Philippine wars; member of the U. S. Public Health Service; aged 53; died, September 25, of nephritis, at Vera Cruz, Mexico, where he had been for the past two years chief surgeon for the Hacienda Elpotrero.

Edward A. Krusen, Norristown, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1887; member of the Medical Association of the State of Pennsylvania; founder and proprietor of the Riverview Hospital; former president of the state homeopathic society; aged 63; died suddenly, September 20, of angina pectoris, at Johnstown.

Merrick Lincoln ⊕ Worcester, Mass.; Medical School of Harvard University, Boston, 1900; served in the M. C., U. S. Army, during the World War; on the staffs of the City and Memorial hospitals; formerly city physician; aged 48; died, September 3, at St. Barnabas Hospital, Portland, Me., of chronic nephritis.

Alonzo Mathew Edwards, Marion, Ill.; Vanderbilt University Medical Department, Nashville, Tenn., 1894; member of the Illinois State Medical Society; president of the school board; served in the M. C., U. S. Army, with the rank of captain, during the World War; aged 54; died, September 8, of heart disease.

Orfila L. Stevens ⊕ Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1896; had formerly served in China and the Philippines with the U. S. Marine Corps; on the staff of the Central Indiana State Hospital for Insane, where he died suddenly, September 23, of heart disease, aged 51.

Edwin Thompson Randall, Brooklyn; New York University Medical College, 1898; member of the Medical Society of the State of New York; formerly on the staff of the Bellevue Hospital, New York, and the German Hospital, Buffalo; aged 48; died, September 12, at the home of his mother, Amityville, N. Y.

Joseph Francis Munnerlyn ⊕ Columbia, S. C.; University of Maryland School of Medicine, Baltimore, 1914; member of the American Psychiatric Association; medical director of the State Hospital for the Insane; aged 34; died, August 25, following a long illness.

John H. Twitmeyer, Sharpsville, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1872; member of the Medical Society of the State of Pennsylvania; aged 79; died, September 20, at Lorain, Ohio, of injuries received in an automobile accident.

Granville Ernest Leavitt, Schurz, Nev.; Cooper Medical College, San Francisco, 1903; member of the Nevada State Medical Association; physician to the Walker River School; aged 50; was accidently drowned, September 17, in Beamer Lake, near Wellington.

Kate McCool Taggart Schley, Beaver Falls, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1907; aged 45; died suddenly, June 10, at the Beaver Valley General Hospital, New Brighton, of pulmonary embolism following childbirth.

Samuel Payne Ford, Norwood, Ont., Canada; University of Buffalo (N. Y.) Department of Medicine, 1864; University of Toronto (Canada) Faculty of Medicine, 1869; for many years city health officer; aged 83; died, July 22, of senility.

Harry Edward Richards, Bloomfield, N. J.; Medical Department of Columbia College, New York, 1875; also a lawyer; for ten years president of the Bloomfield Theological Seminary; aged 73; died, September 15.

George William Major, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1871; formerly on the staff of the Montreal General Hospital; aged 72; died, July 15, in London, England.

Daniel B. Northrup, San Diego, Calif.; Kansas City (Mo.) Medical College, 1880; for several years city health officer and county physician; aged 68; died, September 13, following an operation for gallstones.

Charles Sidney Muscroft, Cincinnati; Miami Medical College, Cincinnati, 1875; formerly county coroner and police surgeon; member of the board of health; aged 70; died suddenly, September 14.

⊕ Indicates "Fellow" of the American Medical Association.

Charles D. Stanhope, Milwaukee; Hahnemann Medical College and Hospital, Chicago, 1874; Civil War veteran; aged 79; died, September 18, at the National Home for Disabled Volunteer Soldiers.

William Cullen Bryant Jaynes, Rockford, Ill.; Chicago Homeopathic Medical College, 1882; aged 69; was found hanging on a farm near Durand with gunshot wounds in his chest, August 30.

Edward Benedict Malloy ⊕ Akron, Ohio; University of Louisville (Ky.) Medical Department, 1912; served in the M. C., U. S. Army, during the World War; aged 37; died, September 17.

Frank A. Richardson, Huntsville, Ohio; Medical College of Ohio, Cincinnati, 1880; member of the Ohio State Medical Association; aged 64; was killed, September 17, when struck by a train.

Nicholas Perkins Oglesby, Dublin, Va.; Starling Medical College, Columbus, 1904; Spanish-American War veteran; aged 49; died, September 12, of heart disease, at Cincinnati.

Henry T. Norment, Henderson, Ky.; University of Louisville Medical Department, 1894; aged 70; died, September 14, at the Western State Hospital, Hopkinsville, of senility.

Robert Tier Davidson, Brooklyn; Bellevue Hospital Medical College, New York, 1877; aged 70; died, September 12, of uremia complicating arteriosclerosis and nephritis.

William Frederick Jardine, Kensington, P. E. I.; Dalhousie University Faculty of Medicine, Halifax, N. S., 1904; formerly mayor of Kensington; aged 45; dicd recently.

Constantin M. T. Klie ⊕ St. Louis; Washington University Medical School, St. Louis, 1903; aged 46; was found dead in his automobile, September 5, of heart disease.

Samuel V. Duncan, Pleasantville, Iowa; Eclectic Medical Institute, Cincinnati, 1872; Civil War veteran; aged 83; died, September 1, at Dallas, Texas, of senility.

Samuel Major Hodes, Richmond, Va.; Medical College of Virginia, Richmond, 1915; member of the Medical Society of Virginia; aged 35; died, August 22.

Charles D. Hunt, Williamsport, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1887; aged 61; died, August 17, of endocarditis.

Timothy Grattan O'Connell, Bristol, Conn.; Yale University School of Medicine, New Haven, Conn., 1899; aged 46; died, September 8, of nephritis.

Francis M. Hunt, Dayton, Ohio; Cleveland University of Medicine and Surgery, 1888; aged 62; was found dead in bed, September 14, of heart disease.

Robert N. Hogg, West Point, Ga.; Medical Department of the Tulane University of Louisiana, New Orleans, 1895; aged 54; died suddenly, August 20.

Samuel F. Blair, Marietta, Ohio; College of Physicians and Surgeons, Keokuk, Iowa, 1877; aged 84; died, September 15, of cerebral hemorrhage.

Elijah Fillmore Truitt, Norfolk, Va.; College of Physicians and Surgeons, Baltimore, 1883; aged 64; died, September 2, of cerebral hemorrhage.

Austin Joseph Minor, Mauch Chunk, Pa.; Jefferson Medical College of Philadelphia, 1918; aged 33; died suddenly, September 12.

Charles Franklin Groff, Detroit; Miami Medical College, Cincinnati, 1893; aged 56; died, September 13, of pneumonia.

George T. Ewing, Smiths Grove, Ky.; University of Louisville Medical Department, 1871; aged 73; died, September 15.

Omar Oakley Hall ⊕ Milford, Ill.; Chicago Medical College, 1879; aged 65; died, September 6, following a long illness.

George Albert Smith, Liberty, Pa.; Jefferson Medical College of Philadelphia, 1873; aged 74; died, September 2.

Cowles M. Vaiden, Ruthville, Va.; Medical College of Virginia, Richmond, 1892; aged 56; died, August 14.

Joseph Abrahamson, Philadelphia; University of Tomsk, Siberia, 1871; aged 70; died, September 11.

John W. Denbo, Elk City, Kan. (licensed, Kansas, 1901); aged 87; died, September 9, of senility.

J. Z. Cravey, Pensacola, Fla. (years of practice); aged 75; died, September 13, in a local hospital.

Frederick G. Hoener, Baltimore (licensed, Maryland, 1894); aged 71; died, September 4.

William Henry Mitchell, Minneapolis (years of practice); aged 73; died, August 17.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

DIMOL

J. T. Ainslie Walker's Latest Intestinal Disinfectant

About a year ago a flood of reprints mailed from London, England, in sealed envelopes by first class mail reached the editors of American medical journals and others. The reprint dealt with "A New Suggestion in the Treatment of Puerperal Eclampsia" by Capt. J. T. Ainslie Walker, R. A. M. C. (T. F.), and a printed slip notified the recipient that it was sent "With the Author's Compliments." The sum and substance of the reprint was to the effect that puerperal eclampsia is probably due to an intestinal toxemia and that as "the problem of intestinal disinfection has been solved" rational treatment was greatly simplified. There was nothing in the reprint to show how "the problem of intestinal disinfection" had been solved. A few months later the same editors who received the Walker reprints received another set. These dealt with



A typical advertisement of Dimol.

"Dimol" in the treatment of summer diarrhea in infants, an article by A. N. M. Davidson, M.R.C.S., Eng. Still more recently American medical editors have been the recipients of a paper covered pamphlet of twelve pages which is mailed from England and purports to be a "book" sent for review "With the Publisher's Compliments." The pamphlet is even endowed with a price, one shilling! The title of the pamphlet is "Colonic and Duodenal Lavage" by Capt. J. T. Ainslie Walker, R. A. M. C. (T. F.). This latest work is a very obvious and frank puff of "Dimol."

So much for the ground work of what is essentially an advertising campaign. Now for certain facts:

"Dimol, The Intestinal Disinfectant" is being sold to American physicians by the Anglo-French Drug Company of New York City. Dimol is another preparation introduced by J. T. Ainslie Walker of London, England. In this connection it will be well before discussing Dimol to call to mind a little not very ancient history.

Dr. Walker first attained notice by his work in association with Rideal on the standardization of disinfectants, the "Rideal-Walker method of determining phenol co-efficients." The method, while of value, was not favorably received in this country and was superseded by the U. S. Hygienic Laboratory method. The Council on Pharmacy and Chemistry published a critical report on the various methods, pointing out the disadvantages of the Rideal-Walker method, and recommending the Hygienic Laboratory method. The Council's report brought forth a lengthy reply from Walker (who had come to America) that appeared in *American Medicine.*

Captain Walker, however, seems not to have been acting wholly as a scientific man defending a principle. As the *Old Dominion Journal of Medicine and Surgery* commented:

"Since coming to America, Mr. Walker has been in the employ of a manufacturer of disinfectants and his status has been necessarily that of a hired advocate rather than that of a disinterested scientist."

At that time it seemed Mr. Walker was connected with the Barrett Manufacturing Co., which exploits "Pyxol," a secret proprietary disinfectant resembling compound solution of cresol. This preparation was labeled as having a "guaranteed Rideal-Walker co-efficient for *B. Typhosus*—20." Pyxol was labeled as being non-poisonous and non-caustic; it was neither and the federal authorities brought suit against the Barrett Manufacturing Co. for misbranding. In December, 1914, the company pleaded guilty to the charge and was fined.

While he was in this country Mr. Walker introduced his first "intestinal germicide" under the proprietary name "Trimethol." This was claimed to have a Ridcal-Walker co-efficient of 40 even in the intestinal canal! According to the advertising:

"The active principle of this new drug, chemically considered, may be described as trimethyl-methoxy-phenol $C_6H(CH_3)_3$. $(OCH_3).OH$".

The Council on Pharmacy and Chemistry undertook to investigate this new "intestinal disinfectant." The Walker-Leeming Laboratories, which marketed it, and J. T. Ainslie Walker both were asked to submit details of experimental studies and also to furnish a supply of pure Trimethol. The data submitted were meager to a degree. Moreover, the request on the part of the Council that specimens of the pure substance be furnished was met with a refusal on the ground that the substance was never used in its undiluted form. The Council, after careful investigation, reported that the claims were not supported by the evidence and declared the product ineligible for New and Nonofficial Remedies.

Trimethol never had any vogue worth mentioning in the United States. Later we find Mr. Walker again in England promoting another intestinal disinfectant "Dimol," the subject of the present article. A small brochure entitled "Intestinal Disinfection," written by Captain Walker, and published in the form of a scientific article rather than a piece of advertising puffery, contains much of the old Trimethol literature either "lifted" entire or revamped. It also contains this statement:

"The foregoing description of Trimethol applies with equal or even greater force to *the more recent product*, dimethylomethoxyphenol, $C_6H_2(CH_3)_2.(OCH_3).OH$, in combination with tri and tetra-methylophenols—Dimol." [Italics ours.—ED.]

To a student of organic chemistry the claims for composition of Trimethol and Dimol sound suspiciously alike. Yet Mr. Walker would have us believe that they are different. However, the American agents for the preparation make this claim:

"DIMOL is the registered name for a product known in the U. S. A. since 1914 under the name 'TRIMETHOL.'"

Walker's method of advertising himself and Dimol is naïve. We wonder if our English confrères still take him seriously. Americans have ceased to do so.

Correspondence

HISTORY OF THE MEDICAL DEPARTMENT IN THE WORLD WAR

To the Editor:—In the review of The Medical Department of the United States Army in the World War (THE JOURNAL, September 22), it is stated that "the United States Medical History of the World War is limited to an edition of about 3,000, and that it will be available only to libraries and institutions."

Your attention is called to the fact that, in anticipation of an additional demand for this publication, the Superintendent of Documents of this office, who is authorized by law to print copies of publications for sale, ordered a supply for this purpose, and can now furnish Vol. 15, Anthropology, for $1.75 per copy. Similar sales arrangements will be made for the succeeding volumes.

GEORGE H. CARTER, Washington, D. C.
Public Printer, Government
Printing Office.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

EXTERMINATION OF PINWORMS

To the Editor:—Is there any new or more effective method in eliminating pinworms from a child than the usual anthelmintics and bowel irrigations? I have an unusual case which does not respond to the foregoing treatment, and the chance of reinfection has also been given careful study.

C. H. WHITING, M.D., New York.

ANSWER.—The prevention of reinfection is the chief point in the treatment of oxyuriasis. This is quite difficult, in view of the fact that, as the female worms carrying thousands of ova escape from the anus, they are likely to become crushed, especially because the itching they produce prompts scratching. Thus, the ova, becoming smeared over the anal region, are liable to enter the mouth sooner or later, chiefly by way of the hands, most especially in children. Hence, it will be seen that special attention must be given to the anal region and the child's hands. The treatment begins with a full bath with soap and water, special attention being paid to the anal region. After this the anal opening is anointed with dilute mercurial ointment, and a pad of cotton applied. After each defecation, the anal region should be thoroughly cleansed with soap and water, and the cotton and ointment reapplied. A garment closed between the limbs will do a good deal toward keeping the child's hands away from the anus. This and the bed linen must be changed frequently. The hands of the child should be scrubbed with nail brush, soap and water, and the finger nails kept thoroughly clean. Daily full baths are also desirable.

If we succeed in breaking in on the vicious circle of reinfection for at least two weeks, preferably longer, the patient will be cured, as the life cycle of the oxyurid, from the time the ovum enters the mouth to the time the females appear at the opening of the anus, is about fourteen days.

The daily use, during this time, of enemas of soap and water might be of additional advantage. Medicinal anthelmintics are of little use.

If several children are closely associated, simultaneous treatment of all is necessary in order to prevent mutual reinfection.

STATUS OF INSULIN AND PANCREATIN IN DIABETES—SODIUM IODID IN HYPERTENSION

To the Editor:—1. What is the status of the insulin treatment of diabetes; also, what is the value or the use of desiccated pancreas in the treatment of pancreatic diabetes? 2. It has been stated in a number of places that desiccated pancreas in the treatment of pancreatic diabetes is inert because of the destruction in the stomach or intestine of the insulin or similar substance presuming to make pancreas therapy active. Is this true? 3. What is the best form of iodid to use in high blood pressure?

J. W. HOPKINS, M.D., Hinsdale, Ill.

ANSWER.—1. Insulin has established itself so definitely in therapeutics that the Council on Pharmacy and Chemistry has included it in the forthcoming edition of Useful Drugs. Under present conditions, its use should be limited apparently to the diabetic cases in which dietetic methods alone are insufficient.

2. The principle from the pancreas which has such a profound influence on sugar metabolism is broken down in the presence of trypsin. Therefore the administration of pancreatin, or desiccated pancreas, as a means of supplying this hormone to the diabetic patient is not feasible. As stated editorially in THE JOURNAL (Sept. 1, 1923, p, 752), recent reports show that desiccated pancreatic extracts, taken in capsule form by stomach, have thus far not proved to be effective in decreasing blood sugar or urinary sugar.

3. If iodids are to be administered, sodium iodid in plenty of water is generally considered preferable.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, November 13-14. Sec., Dr. J. W. Walker, Fayetteville.
CALIFORNIA: Sacramento, October 15-18. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.
CONNECTICUT: New Haven, November 13-14. Sec., Dr. James E. Hair, 730 State St., Bridgeport.
DISTRICT OF COLUMBIA: Washington, October 9. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.
FLORIDA: Tallahassee, October 9-10. Sec., Dr. W. M. Rowlett, Tampa.
GEORGIA: Atlanta, October 9-11. Sec., Dr. C. T. Nolan, Marietta.
ILLINOIS: Chicago, October 9-11. Supt. Mr. V. C. Michels, Springfield.
KANSAS: Topeka, October 9. Sec., Dr. Albert S. Ross, Sabetha.
MAINE: Portland, November 13-14. Sec., Dr. Adam P. Leighton, Jr., 192 State Street, Portland.
MICHIGAN: Lansing, October 9. Sec., Dr. Beverly D. Harison, 707 Stroh Bldg., Detroit.
NEBRASKA: Lincoln, November 6-8. Supt., J. D. Case, Lincoln.
NEVADA: Carson City, November 5. Sec., Dr. Simeon L. Lee, Carson City.
NEW JERSEY: Trenton, October 16-17. Sec., Dr. Alexander MacAlister, State House, Trenton.
NEW MEXICO: Santa Fe, October 8-9. Sec., Dr. W. T. Joyner, Roswell.
OKLAHOMA: Oklahoma City, October 9-10. Sec., Dr. J. M. Byrum, Shawnee.
SOUTH CAROLINA: Columbia, November 2. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
WEST VIRGINIA: Charleston, October 23. Sec., Dr. W. T. Henshaw, Frankenberger Bldg., Charleston.
WYOMING: Cheyenne, October 8-10. Sec., Dr. J. D. Shingle, Cheyenne.

NUMBERS OF PHYSICIANS IN THE BRITISH MEDICAL REGISTER

A Review of Forty-Five Years *

Since the year 1876 the General Medical Council has kept an analytical record of the number of persons whose names were entered in, added to, or removed from the Medical Register in each twelve months. The Medical Register has been published annually since the Council was constituted under the first Medical Act of 1858; but up to 1876 no such data as those were ascertained or preserved.

In order to gain a general view of the numerical strength of the medical profession during the past forty-five years we have extracted from the tables and set down in parallel columns the total number of names in the Medical Register on December 31 of each year, and the total number added annually by registration between 1876 and 1922.

The figures for each year since 1899 are given in a statistical table published in the current Register; the corresponding figures for the earlier years have been taken from copies published previous to 1899.

Numerical State of the "Medical Register"

Year	Names Added in Year	Total No., Dec. 31	Year	Names Added in Year	Total No., Dec. 31
1876	1,009	22,713	1900	1,345	36,355
1877	940	22,841	1901	1,318	36,912
1878	996	22,600	1902	1,275	37,232
1879	996	22,516	1903	1,233	37,878
1880	1,123	22,936	1904	1,168	38,492
1881	1,053	23,275	1905	1,240	39,060
1882	1,171	23,801	1906	1,197	39,529
1883	1,304	24,517	1907	1,221	39,827
1884	1,388	25,321	1908	1,137	40,257
1885	1,377	25,998	1909	1,143	39,818
1886	1,431	26,452	1910	1,062	40,483
1887	1,531	27,246	1911	1,042	40,913
1888	1,184	27,939	1912	1,157	41,439
1889	1,305	28,348	1913	1,168	41,940
1890	1,266	29,163	1914	1,433	42,378
1891	1,345	29,555	1915	1,526	43,225
1892	1,513	30,590	1916	1,202	43,481
1893	1,579	31,644	1917	1,134	43,819
1894	1,426	32,637	1918	1,077	43,926
1895	1,446	33,601	1919	1,322	44,510
1896	1,385	34,478	1920	1,457	44,761
1897	1,230	34,642	1921	1,760	45,408
1898	1,210	35,057	1922	1,984	46,477
1899	1,351	35,836			

The following table indicates the varying proportion of registered medical practitioners to population during the period under review. It shows the total population of the British Isles at each decennial census since 1881, and the corresponding total number of names on the Medical Register.

Proportion of Practitioners to Population

Year	Registered Practitioners	Population British Isles
1881	23,275	35,241,482
1891	29,555	38,104,975
1901	36,912	41,976,827
1911	40,913	45,370,530
1921	45,408	47,261,530

These parallel columns of figures reveal a general tendency during the past forty-five years toward an increase in the ratio of doctors to population. The number of registered practitioners at the end of 1921 was almost exactly double the number at the end of 1876, but the population within that period only increased by about 50 per cent. During the year 1922 the new medical registrations numbered no fewer than 1,984, and there was a net increase of more than a thousand names. If the rate of increase is maintained in the present year, the time may not be far distant when there is one name in the Medical Register to every thousand of population.

* Reprinted from the British Medical Journal 2: 355 (Sept. 1) 1923.

Hawaii April Examination

Dr. Guy C. Milner, former secretary, Hawaii Board of Medical Examiners, reports the written examination held at Honolulu, April 9-12, 1923. The examination covered 10 subjects and included 58 questions. An average of 70 per cent. was required to pass. Of the 3 candidates examined, 1 passed, and 2 failed. The following colleges were represented:

LICENSED BY RECIPROCITY

College	PASSED	Year Grad.	Per Cent.
Kyushu Imperial University, Japan		(1920)*	†

College	FAILED	Year Grad.	Per Cent.
College of Physicians and Surgeons, San Francisco		(1901)	41
Osaka Prefecture Higher Medical School		(1914)*	40

* Graduation not verified.
† Percentage not given.

North Dakota July Examination

Dr. G. M. Williamson, secretary of the North Dakota Board of Medical Examiners, reports the oral, written and practical examination held at Grand Forks, July 3-6, 1923. The examination covered 13 subjects and included 100 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. Three candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University Medical School		(1922)	77.7
University of Minnesota		(1922, 2)	80.6, 85.5
University of Manitoba, Canada		(1921)	75

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
State University of Iowa College of Medicine		(1917)	Iowa
University of Minnesota		(1922)	Minnesota
Washington University		(1921)	Missouri

Vermont June Examination

Dr. W. Scott Nay, secretary, Vermont Board of Medical Registration, reports the written examination held at Burlington, June 20-22, 1923. The examination covered 12 subjects and included 90 questions. An average of 75 per cent. was required to pass. Twenty-four candidates were examined, all of whom passed. Two candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Vermont	(1918) 84.7, (1922) 84.6, (1923, 20) 85.3, 85.7, 85.9, 86, 86.2, 86.4, 86.8, 86.8, 87.1, 87.1, 87.2, 87.3, 87.8, 88.1, 88.1, 88.5, 90.1, 90.4, 91.1		79.1,
Licentiate of the Apothecaries Hall of Dublin, Ireland		(1913)	85
University of Rome, Italy		(1916)*	86.9

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Yale University		(1891)	Connecticut
Baltimore Medical College		(1903)	Maryland

* Graduation not verified.

Book Notices

HELIOTHERAPY. By A. Rollier, M.D., Medical Director of the Institutions for Heliotherapy, Leysin. With the Collaboration of A. Rosslet, D.Sc., M.D., Lecturer on Physicotherapy, Geneva University, H. J. Schmid, M.D., Radiologist at Rollier's Institutions, Leysin, and E. Amstad, M.D., Surgeon at Rollier's Institutions, Leysin. With forewords by Sir John Henry Gauvain, M.A., M.D., M.R.C.S., and Caleb Williams Saleeby, M.D., F.R.S. Cloth. Price, $8. Pp. 288, with illustrations. New York: Oxford University Press, 1923.

In 1903, Professor Rollier established the first clinic for the systematic application of the sun treatment at Leysin. In this environment, where high altitudes and sun baths were provided for patients with tuberculosis, it was found that patients progressed remarkably well. It is now Rollier's belief that, correctly understood and applied, heliotherapy fulfils the high demands of orthopedics and conservative surgery. The present volume follows to some extent previous volumes in French and German with, however, a number of changes and additions. It is preceded with special forewords by J. H. Gaudain and C. W. Saleeby. It begins with articles by Rollier on the therapeutic action and general technic of the sun baths, discusses the use of this method in tuberculosis and the contraindications, and then considers the work during and after treatment and the general hygiene of sunlight therapy. There are numerous case reports extensively illustrated, and a table of statistics giving the results for a ten year period, 1903 to 1913. In addition, there have been added to the present edition a discussion of the scientific basis of heliotherapy by Dr. A. Rosselet, a section on the roentgen diagnosis of bone tuberculosis and the use of the roentgen ray, a chapter on the control of results by H. J. Schmid, and articles by E. Omstad on radiotherapy, phototherapy and the heliotherapy of nontuberculous diseases. This volume is an outgrowth of work in the first great scientific clinic for the use of the sunlight method—a method that is now generally accepted as of value, and applied in institutions throughout the world.

DIE BLUTKRANKHEITEN IN DER PRAXIS. Von Professor Dr. P. Morawitz. Paper. Price, 40 cents. Pp. 73. München: J. F. Lehmann's, 1923.

This is Part 1 of the "Klinische Lehrkurse" of the *Münchener medizinische Wochenschrift,* which appeared in that journal in 1922. The object is to present to the general worker in a simple form the methods for his daily work and to discuss the diseases in which findings of special value may be obtained from such examination. Theoretical considerations are avoided as much as possible, attention being especially directed to the diagnosis that may be made by these simple examinations. In his discussion of the technic, the author states that the examination of the fresh specimen, the study of the stained slide, and the estimation of the hemoglobin are all that the busy practitioner needs, the cell counts being usually superfluous for his daily work. There are eleven chapters, one of which details the simple methods necessary, the others outlining the diagnosis, prognosis and treatment of various blood diseases. The book should prove of value to the general worker in his daily examinations of patients, and should show him the importance of more frequent bedside study of the blood.

THE PRINCIPLES AND PRACTICE OF PERIMETRY. By Luther C. Peter, A.M., M.D., F.A.C.S., Professor of Ophthalmology in Temple University Medical School. Second edition. Cloth. Price, $4. Pp. 281, with 166 illustrations. Philadelphia: Lea & Febiger, 1923.

Examination of the visual fields should constitute a part of every routine examination of the eye. It must be confessed that this has been too often neglected. The average ophthalmologist does not possess the necessary equipment, nor, if he does, can he spend the time necessary for a thorough perimetric examination. After a reading of this book, however, one is inspired to make better use of this valuable adjunct. The book is divided into six parts. Part 1 describes concisely the anatomy and physiology of the visual pathway. In Part 2 the physiologic principles of central and indirect vision, visual acuity and entoptic studies are discussed. The normal visual fields are described, and some of the factors entering into the technic of the examination are explained. Part 3 deals with the various methods of field taking, with descriptions of the different forms of apparatus used in perimetric study: the perimeter, the campimeter, the tangent screens, the scotometer, the stereocampimetric slate. Those who have considered the perimeter as a most refined instrument of precision in studying the visual fields will be unpleasantly surprised to read that this instrument is almost worthless in studying central defects. The point is strongly emphasized that the perimeter "is essentially adapted to the outlining of peripheral field limits"; but, for the study of central defects, that is, between the point of fixation and the blind spot of Mariotte, one of the forms of tangent screens is absolutely necessary. In the description of preexposure, illustrated with the colored plate, an unfortunate error occurs on page 60. It will be seen that the author intended to say "the left half being of a lighter shade of blue than the right half." Part 4 deals with the general pathology of the visual field, and the various forms of scotomas, hemianopias and other changes in both form and color fields. Parts 5 and 6 describe the perimetric findings seen in the many pathologic changes and in the functional nervous diseases. In the appendix, the use of the perimeter for other purposes than that of taking the visual fields is described, and the method explained of its employment to estimate the field of monocular fixation, to measure the degree of squint, the angle kappa of Landolt, diplopia, and the location of foreign bodies. The numerous engravings illustrate the field changes seen in the various pathologic conditions described. There is an unusually complete bibliography. The book is a noteworthy addition to ophthalmic literature in this special line of investigation, and the author will receive the gratitude of his fellow ophthalmologists for giving to them the results of his researches in a volume of such excellence.

REGIONAL ANESTHESIA: ITS TECHNIC AND CLINICAL APPLICATION. By Gaston Labat, M.D., Lecturer on Regional Anesthesia at the New York University. With a Foreword by William J. Mayo, M.D. Cloth. Price, $7 net.. Pp. 496, with 315 illustrations. Philadelphia: W. B. Saunders Company, 1922.

The object of this work, as the author says, is "to afford the opportunity of acquiring rapidly a practical knowledge of regional anesthesia and to teach the reader how to use the method successfully." So far as the text is concerned, the author has creditably fulfilled this purpose, for the descriptions of the various technical procedures are clearly and concisely expressd, and, when possible, well selected illustrations help the reader to visualize the methods used. However, so far as acquiring a knowledge of the subject rapidly is concerned, the author repeatedly reiterates the statement that patience and experience and practice are neccssary if one would become proficient. A separate chapter is devoted to intraspinal block, or spinal anesthesia. Owing to the danger connected with this procedure and to the fact that so much can be accomplished by field block and paravertebral block, the author believes that "intraspinal block should be restricted to major operations on the abdominal and pelvic organs and to those on the lower extremity that are not within the scope of local and regional anesthesia." The closing chapter is devoted to a general discussion on the value of regional anesthesia. The advantages of local anesthesia have been demonstrated so thoroughly that every surgeon should familiarize himself with the technic necessary to apply it successfully.

UEBER DIE PATHOLOGISCHE ANATOMIE DER SPIROCHAETOSIS ICTEROHAEMORRHAGICA INADA. (Weilsche Krankheit). Von Prof. Dr. Renjiro Kaneko, a. o. Prof. der I. med. Klinik der Kyushu Imperial-Universität an Sukuoka. Paper. Pp. 181, with 12 illustrations. Vienna: Rikola Verlag, 1922.

This book contains a complete account of the anatomic changes in infectious jaundice (Weil's disease), based on a thorough study of a large amount of suitable material in Japan, where the disease has been studied with marked success and its spirochetal nature discovered (Inada and Ido). The author shows himself to be a competent and reliable observer and interpreter, and the book will be a landmark to future students of the interesting disease with which it deals. In fact, for some time to come, no account of the disease will be complete that does not consider fully Kaneko's masterly contribution.

Miscellany

MR. RUDYARD KIPLING ON THE MYSTERY OF MAN

Several months ago, Sir John Bland-Sutton delivered a Hunterian oration, and Mr. Rudyard Kipling was selected to introduce him.

"There is a legend," said Mr. Kipling, "which has been transmitted to us from the remotest ages. It has entered into many brains and colored not a few creeds. It is this: Once upon a time, or rather, at the very birth of time, when the Gods were so new that they had no names, and Man was still damp from the clay of the pit whence he had been digged, Man claimed that he, too, was in some sort a deity. The Gods were as just in those days as they are now. They weighed his evidence and decided that Man's claim was good —that he was, in effect, a divinity, and, as such, entitled to be freed from the trammels of mere brute instinct, to enjoy the consequence of his own acts. But the Gods sell everything at a price. Having conceded Man's claim, the legend goes that they came by stealth and stole away this godhead, with intent to hide it where Man should never find it again. But this was none so easy. If they hid it anywhere on Earth, the Gods foresaw that Man, the inveterate hunter—the father, you might say, of all hunters—would leave no stone unturned or wave unplumbed till he had recovered it. If they concealed it among themselves, they feared that Man might in the end batter his way up even to the skies. And, while they were all thus at a stand, the wisest of the Gods, who afterward became the God Brahm, said, 'I know. Give it to me!' And he closed his hand upon the tiny unstable light of Man's stolen godhead, and when that great hand opened again, the light was gone. 'All is well,' said Brahm, 'I have hidden it where Man will never dream of looking for it. I have hidden it inside Man himself.' 'Yes, but whereabouts inside Man have you hidden it?' all the other Gods asked. 'Ah,' said Brahm, 'that is my secret, and always will be unless and until Man discovers it for himself.'"

Mr. Kipling continued by pointing out that it is the search for an unlocated spiritual area in man that has preoccupied the student from the earliest time. The priest and the lawyer have probed for it through the ages but, more than any other, the medicine man has been the hottest on its track. It was this which led to scientific research. "Man, always the hunter, went up against the darkness that cloaked him and every act of his being, to find out what order of created being he might be. He called it scientific research. It was the old quest under a new name. But, this time, the seekers who headed it, unlike the priest and the lawyer, admitted that they knew very little. Experience had taught them to be humble. For that reason their knowledge was increased. They moved forward into areas of the body which, till then, had denied themselves to Man's hand. They were turned back, without explanation, from other areas which, as yet, would tolerate no spying. They were bewildered by mysteries which, under some new marriage of observation upon accident, or some predestined slip of the knife, resolved into mysteries profounder still. Is it any wonder that the old dreams come back? The dream of the essential unity of all created things—the dream that some day that which men called life might be led into matter which men called dead—the boldest dream of all, that eventually Man might surprise the ultimate secret of his being where Brahm had hidden it, in the body of Man."

Mr. Kipling concluded with a tribute to the scientific surgeon of today: "Is it any wonder, gentlemen, . . . that your calling should exact the utmost that man can give—full knowledge, exquisite judgment and skill in the highest, to be put forth, not at any self-chosen moment, but daily at the need of others? More than this. Your dread art demands the instant impersonal vision which in one breath, one beat of the pulse, can automatically dismiss every preconceived idea and impression, and as automatically recognize, accept and overcome whatever of new and unsuspected menace may have slid into the light beneath your steadfast hand.

"But such virtue is not reached or maintained except by a life's labor, a life's single-minded devotion. Its reward is not only the knowledge of mastery and the gratitude of the layman, which may or may not bring content. Its true reward is the dearly prized, because unpurchasable, acknowledgment of one's fellow craftsmen."

Medicolegal

Hospital Not Proved Liable for Smallpox

(Gadsden General Hospital v. Bishop (Ala.), 96 So. R. 145)

The Supreme Court of Alabama, in reversing a judgment obtained by Mrs. Bishop, who sued as administratrix to recover damages for the death of her husband from smallpox alleged to have been contracted in the defendant hospital, says that there was no substantial evidence on which to base a verdict for the plaintiff. In order to recover under the complaint in this case, the essential facts therein alleged must be established: (1) that the plaintiff's husband died of smallpox; (2) that he contracted the disease while he was a patient in the defendant hospital; (3) that this resulted from infection communicated to him from another patient who was in the hospital during his presence there; (4) that the defendant's nurses, agents or servants who controlled or managed the hospital knew that such other patient was affected with smallpox, and (5) that they so negligently handled the patient that they negligently exposed Mr. Bishop to infection from him.

Mr. Bishop entered the hospital, March 1, for a surgical operation, and on March 6 returned to his home. March 14 or 15, he became delirious and had a high fever. Four days afterward a rash appeared, and there was a diagnosis of smallpox. Death followed, April 1. Conceding, for the argument, that the jury was justified in finding, as an inference of fact, that Mr. Bishop contracted smallpox while in the hospital from some source of infection to which he was therein exposed, there was nevertheless no rational basis shown for a finding that there was any case of smallpox in the hospital during his presence there. A bumpy or scabby faced man, whose presence in a room or in the hallway was noted by three witnesses, was undoubtedly identical with a patient whose physician said that he did not have smallpox, but was of a pimply type and was being treated for influenza. To diagnose his case, from the mere description of his bumpy, scabby or scaly face, could not, under the evidence, be more than the sheerest conjecture. If expert physicians, accustomed to seeing and treating smallpox in all of its stages, are unable to make a reliable diagnosis of the disease from such an appearance alone, without continued observation, this court is at a loss to understand how a jury of laymen can do so, in view of the baffling resemblance to several other common diseases of the skin, such as chickenpox, acne and syphilis. The most that can be said is that such an appearance may possibly be the result of smallpox.

Nor does this court think that the conclusion could be supported that any of the employees of the hospital, including the nurses, knew of the existence of any case of smallpox in the hospital. If the existence of such a case had been established by direct evidence, instead of by conjectural inference merely, it might be that the jury could have reasonably inferred knowledge of its existence on the part of the employees, dependent, of course, on the circumstances of its discovery and notoriety. But to ground a verdict first on an inference that a case of smallpox existed, and then, cumulatively, on the further inference that employees knew of its presence merely and solely because of its conjectural existence, is to violate a well settled principle of law that an inference cannot be grounded on an inference, that is, one fact cannot be inferred from another fact which itself is but an inference.

In this court's view of the case, it was unnecessary to determine whether, in the trial judge's oral charge to the jury, he improperly extended the duty of nurses in a hospital of this character (one having no house surgeon or medical experts

of any kind, and not attempting to diagnose the ailments of patients received), by the assumption that they might discover that the physician in charge of any patient had erroneously diagnosed the case as noninfectious; and by the requirement that, on such supposed discovery, they should, in disregard of the physician's opinion, treat the case as infectious.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Washington, D. C., Oct. 15-20. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 18-20. Dr. L. J. Mitchell, 29 E. Madison St., Chicago, Secretary.

American Child Health Association, Detroit, Oct. 15-17. Dr. Philip Van Ingen, 125 East 71st St., New York, Secretary.

American College of Surgeons, Chicago, Oct. 22-26. Dr. Franklin H. Martin, 40 E. Erie Street, Chicago, Secretary.

American Public Health Association, Boston, Oct. 8-11. Mr. A. W. Hedrich, 370 Seventh Avenue, New York, Secretary.

Central Neuropsychiatric Association, St. Louis, Oct. 20. Dr. Karl A. Menninger, Topeka, Kan., Secretary.

Central States Pediatric Society, Detroit, Oct. 18-19. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Pa., Secretary.

Delaware State Medical Society, Middletown, Oct. 8-9. Dr. W. O. La Motte, Industrial Trust Building, Wilmington, Secretary.

Medical Association of the Southwest, Kansas City, Mo., Oct. 8-13. Dr. E. H. Skinner, Rialto Building, Kansas City, Mo., Secretary.

Minnesota State Medical Association, St. Paul, Oct. 10-12. Dr. Carl B. Drake, Guardian Life Building, St. Paul, Secretary.

Mississippi Valley Medical Association, Hot Springs, Ark., Oct. 9-11. Dr. John L. Tierney, University Club Bldg., St. Louis, Secretary.

New England Surgical Society, Boston, Oct. 18-19. Dr. P. E. Truesdale, 151 Rock Street, Fall River, Mass., Secretary.

Southern Medical Association, Washington, D. C., Nov. 12-15. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Tri-State District Medical Society, Des Moines, Iowa, Oct. 29-Nov. 1. Dr. William B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.

Vermont State Medical Society, Bennington, Oct. 11-12. Dr. W. G. Ricker, St. Johnsbury, Secretary.

Virginia, Medical Society of, Roanoke, Oct. 16-19. Mr. G. H. Winfrey, 104½ W. Grace St., Richmond, Secretary.

AMERICAN ASSOCIATION OF OBSTETRICS, GYNECOLOGISTS AND ABDOMINAL SURGEONS

Thirty-Sixth Annual Meeting, held at Philadelphia, Sept. 19-21, 1923

The President, Dr. Gordon K. Dickinson, Jersey City, N. J., in the Chair

Acute Pancreatitis

Dr. Lewis F. Smead, Toledo, Ohio: Acute surgical conditions of the pancreas include the true cases of inflammations of the pancreas and pancreatic necrosis which is not essentially inflammatory. Inflammatory pancreatitis is, of course, due to infection, but pancreatic necrosis is probably the result of the escape of activated pancreatic ferments into the pancreas and surrounding tissues. The activating agents may be bile or duodenal contents reaching the pancreas through the ducts of Wirsung or Santorini, or infection reaching the pancreas through the blood or the lymph channels. The cause of the profound shock and early death is the absorption of autolyzed pancreatic tissue. The diagnosis of pancreatic necrosis is difficult, as there are no pathognomonic signs or symptoms. The most helpful points in diagnosis are the excruciating pain, the extreme prostration and the extension of the epigastric tenderness to the left of the midline. The object of surgical intervention is to drain away the dangerous toxic substances; prevent, if possible, the extension of the pathologic process in the pancreas, and avoid future attacks. The actual surgical procedure consists in evacuation of the peritoneal exudate, incision and drainage of collections of fluid in and about the pancreas and in the lesser peritoneal cavity, and drainage of the gallbladder. Cholecystectomy and removal of stones from the common duct are to be done only at a later time to prevent further attacks of the trouble.

Is Cesarean Section Justifiable in Ablatio Placentae?

Dr. John Osborn Polak, Brooklyn: Ablatio placentae is a relatively common accident. Previous toxemia is a predisposing factor. Many of the cases have an apoplectic origin from torsion of the uterus, and very few can be attributed to trauma. The symptom complex is constantly present and makes the diagnosis, which may be confirmed on vaginal examination by the escape of serum, blood or clots. Clinically, this accident presents two general classes, the nontragic and the tragic cases. In the former, intelligent expectancy in conjunction with rupture of the membranes, a tight abdominal binder, and pituitary extract will effect spontaneous delivery. In the tragic cases which show progressive hemorrhage, fall in blood pressure and hemoglobin percentage, section after transfusion is the procedure of choice. The decision between hysterotomy and hysterectomy depends on the condition of the uterine muscle.

Fulguration of Hunner Ulcers of Bladder

Dr. H. Dawson Furniss, New York: All possible foci of infection should be removed. Resection is a formidable operation, with, at times, spectacular and, at times, dismal failures. Fulguration is a simpler method of dealing with the problem and should be tried first. The results are frequently most gratifying. At least, temporary relief can be counted on, and if there is recurrence the ulcer can be fulgurated again. The willingness of the patients to submit to second and third fulgurations is a convincing testament of the relief they receive. Until something better is discovered, we shall continue fulguration. In reviewing my own results, I find that the greatest relief and the best looking bladders are those in which the fulguration was the most thorough. These were fulgurated under sacral anesthesia through the air distended bladder. With increased experience and perfecting of technic, I feel that we can anticipate even more satisfactory results than those already obtained.

The Use of Roentgen-Ray Therapy in Disturbed Menstruation

Dr. Abraham J. Rongy, New York: Five patients definitely improved under roentgen-ray treatment, the menstrual function having been reestablished and being normal as to time and duration. One patient had not menstruated eighteen months prior to the treatment. These results warrant the use of stimulating doses of roentgen ray in cases of menstrual irregularities caused by ovarian dysfunction. The cases must be selected carefully by the gynecologist, and the treatment must be given by an expert radiologist.

The Time for Operation in Ectopic Gestation

Dr. Thurston Scott Welton, Brooklyn: Nothing is gained by operating while the patient is in shock. The fact that a patient did not die at the time of her initial collapse denotes that she will respond, to a certain degree, to treatment. All of these patients in shock should be given a trial to demonstrate what they can do by way of making a recovery. This is well shown by systolic pressure readings. In all unruptured cases, surgery is the rule. When the pressure continues to fall, in spite of treatment, surgery is imperative. When the pressure reacts to 115 mg. at the maximum, operation is indicated. In a pressure permitted to return to normal limits, the sealing clot may be disturbed and renewed hemorrhage and shock occur. In the moribund type of patient, with an initial pressure of 50 mg. or lower, the rise under treatment is never back to normal limits. A pressure that rises and then remains stationary calls for surgery. The time we wait while a pressure remains stationary depends on the type of case, and is governed by the experience of the operator. Any pressure that rises and then begins to fall calls for immediate surgery. The action of the systolic pressure is a good index of the patient's condition. Records, to date, are for the most part unreliable, as the recorded clinical data are inadequate.

Extraperitoneal Cesarean Section

Dr. Asa B. Davis, New York: The sooner the general public, both lay and medical, realized that reproduction is potentially, and in 10 per cent. of the cases, actually a pathologic process, and act accordingly, the sooner parturition will be removed from the position which it now holds in this country, as, next to tuberculosis, the cause of the greatest number

of deaths. Every pregnant woman should be under competent obstetric care and instruction from soon after conception, through gestation, labor and the puerperium, which should continue until everything possible has been done to restore her to her normal activities of life in good condition. The emergency obstetric case should disappear. It is this type of case that magnifies the morbidity and mortality of obstetric records. So long as such cases do occur, the well equipped maternity hospital should receive the patients, even though death apparently is imminent. With such aid, some patients in a seemingly hopeless condition will recover. There should be some way of checking up the activities of the physician who is repeatedly showing bad results. Preventive medicine in obstetrics should be a widely broadcast slogan. The public should be taught to be more critical of obstetric results, and not to accept so complaisantly dreadful injuries to mother and child, or death of one or both, as the will of an overworked providence. Extraperitoneal cesarean section will save some lives that would otherwise be lost. Classical cesarean section would have saved but few of the cases reported.

Roentgen-Ray Diagnosis of Normal and Abnormal Pregnancies

Drs. Edward Speidel and Henry H. Turner, Louisville, Ky.: In the early months of pregnancy, absence of menstruation, softening of the uterus and Hegar's sign are the symptoms that are available for a diagnosis. During this stage the roentgenogram with pneumoperitoneum will aid in the diagnosis, by showing enlargement of the uterus and distinct enlargement of the isthmus. An extra-uterine pregnancy can be diagnosed in the early stage. Ovarian cysts, with or without the pregnant uterus, are clearly pictured by pneumoperitoneum. Roentgen-ray pelvimetry, although more accurate than the usual method, is not practical as yet because of the complicated measures that are necessary to arrive at a result. In moderately contracted pelves, the roentgen ray gives an outline of the superior strait and makes it possible to determine whether a normal delivery is feasible, whereas in gross pelvic deformities one is enabled before labor to map out a definite method of delivery. Not until the fifth month is the density of the ossification centers great enough to show definitely in a roentgenogram; but after that time, with the modern improvements in technic, it should be possible in all instances to show the fetal outlines. The roentgen ray, by showing the fetal outlines, becomes the most positive means of diagnosing multiple pregnancy. Changes in the presentation of the fetus near the onset of labor and even in labor have been demonstrated by the roentgen ray.

Hepatitis in Its Relation to Inflammatory Disease of the Abdomen

Drs. Charles Gorden Heyd, Ward J. MacNeal and John A. Killian, New York: We are convinced that there are certain types of liver change that are associated with chronic abdominal infection and which render the patient somewhat of an invalid even after successful surgical intervention. When we found macroscopic liver changes present, these pathologic changes were uniformly distributed throughout the right lobe of the liver, and at the same time there was always evidence of the same pathologic process in the left lobe, but ordinarily of less intensity than in the right lobe. It occasionally happened that the liver changes were much more marked than the associated changes in the gallbladder, appendix or stomach. The changes in the abdominal viscera were quite minimal compared to those encountered in the liver. Clinically, we could divide the abdominal condition into acute, subacute and chronic inflammation. So far as the gallbladder was concerned as an etiologic factor in hepatic change, it did not seem to make much difference whether stones were present or absent. The essential element was apparently, first, chronicity of the infective processes; second, the persistence of a certain degree of intensity of the offending agent, chemical or biochemical. In catarrhal types of appendicitis and cholecystitis, the evidence obtained from inspection of the liver consisted in a thickening of the capsule, with occasional adhesions, with thickening of the anterior border, with crenation, swelling and surface dimpling. In localized gallbladder disease, the changes in the area of the gallbladder region were more intense than elsewhere, and the quality of the change varied inversely with the distance from the gallbladder.

Is Eclampsia a Biologic Necessity?

Dr. O. M. Gruhzit, Detroit: The laws of heredity determine the blood group of the offspring. The incidence of incompatability between maternal and fetal blood groups is limited, and may occur only in limited blood group unions of parents. In normal pregnancies examined, the blood grouping was such as to exlude the possibility of interagglutination between the maternal and the fetal blood. In the majority of clinically diagnosticated cases of eclampsia, the maternal and fetal blood grouping was incompatible. High blood viscosity was found in eclampsia with incompatible maternal and fetal blood. Low viscosity and compatible maternal and fetal blood were found in the "nephritic type of toxin." The high viscosity of blood in iso-agglutination toxemias probably is due to the passage of incompatible blood elements from the fetus into the mother's blood stream. The new colloidal condition of blood in eclampsia produces congestion, stasis and edema, which are followed by lowered body function in general and especially of basal metabolism. As a sequence to the lowered metabolism, hydrolysis of proteins and oxidation processes of carbohydrate compounds are slowed. This leads to the appearance of acidosis. The thick blood and spasticity of the capillaries lead to high blood pressure, stasis, edema, acidosis and convulsions.

Study of Three Hundred Cases, Six Weeks or Longer, Post Partum

Dr. Burnley Lankford, Norfolk, Va.: In 225 out of 300 cases, appreciable lacerations of the cervix were found. The problem to be worked out here, in the interest of better obstetrics, is to prevent the cervical laceration, which is far more ideal than a repair, no matter whether the repair is immediate or later. One hundred and nineteen cases showing some abnormality in the position of the fundus, in seventy-four, the fundus was completely displaced backward. All but five of these seventy-four uteri were put back into approximately normal position and remainced so. This seems to show that a very large number of women develop backward displacement after parturition, but also that such a condition is easily amenable to proper treatment. Here we undoubtedly have a large field for better obstetrics, first, in the effort to prevent such displacements, and, secondly, in the recognition and treatment at the end of the period of involution. There is little doubt that the majority of women who develop backward displacement after child-bearing will eventually need the aid of surgery to make them comfortable, or to put them in a condition of ordinary physical efficiency.

Cutting the Ileocecal Fold as a Routine Measure in in the Operation for Appendicitis

Dr. George F. Chandler, Kingston, N. Y.: Many authors experimented with glove fingers and rubber tubes, and finally came to the conclusion that the triangular fold, containing some fatty tissue, which extends about an inch or more along the terminal end of the ileum, extending to the cecum, interfered with the proper function of the valve; that this fold kept the ileum from freely protruding into the cecum enough to allow the fold of mucous membrane to close the opening properly. Cunningham, in the latest edition of his "Anatomy," calls this the ileocecal fold. It has been called the "bloodless fold of Treves"; also the ileo-appendicular fold of Jonnesco. I began to cut this fold in the following way: I placed an artery clamp on the ileac side and another on the cecal side, and with a pair of scissors cut right through to the junction of the ileum with the cecum. In other words, I cut from the middle of the base of this triangular fold to its apex and tied off each free segment with catgut, and removed the clamps. There is little vascular supply in this fold. I now do this as a routine procedure in all cases of appendicitis that have not become gangrenous, because since the adoption of this little practice I have yet to have one patient return without benefit from the operation.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

26: 103-194 (Aug.) 1923

*Proof of Regulatory Influence of Cod Liver Oil on Calcium and Phosphorus Metabolism. E. A. Park, R. A. Guy and G. F. Powers, New Haven, Conn.—p. 103.
History of Cod Liver Oil as Remedy. R. A. Guy, New Haven, Conn.—p. 112.
Anatomic Basis for Interpreting Roentgenograms in Rickets. A. A. Weech and M. S. Smith, Baltimore.—p. 117.
*Sickle Cell Anemia; Report of Two Cases in Children, with Necropsy in One Case. V. P. Sydenstricker, W. A. Mulherin and R. W. Houseal, Augusta, Ga.—p. 132.
*Rickets in Infant Aged Thirty-Four Days. E. C. Dunham, New Haven, Conn.—p. 155.
Malignant Epithelial Thyoma: Report of Case, with Necropsy. N. C. Foot and H. Harrington, Cincinnati.—p. 164.
*Kottmann Reaction in Children: Treatment of Chorea with Thyroid. J. D. Lyttle and L. P. Sutton, New York.—p. 179.
*Treatment of Infantile Tetany with Ultraviolet Radiation. Its Effect on Clinical Symptoms and on Calcium Concentration in Blood Serum. L. A. Hoag, Boston.—p. 186.

Regulatory Influence of Cod Liver Oil on Calcium and Phosphorus Metabolism.—The experiments made by Park, Guy and Powers show that when radiant energy and the organic factor contained in cod liver oil are deficient, certain disproportions in the calcium and phosphorus of the diet produce corresponding disproportions in the concentration of these elements in the blood serum. The experiments demonstrate, in a striking manner, the regulatory power of cod liver oil on the calcium and phosphorus metabolism of the organism. The changes in the concentration of the calcium and inorganic phosphorus of the blood serum which occurred under the influence of cod liver oil were striking in degree. No less striking was the constancy with which the concentrations moved toward those found in the blood of healthy rats on ordinary diets. Cod liver oil not only acts as a regulator of the calcium and phosphorus metabolism, but also permits the organism to operate with greatly increased economy. Obviously, cod liver oil makes the metabolic processes of the body, in respect to calcium and phosphorus, vastly more efficient. According to the authors' conception, in the absence of the facts or factors contained in cod liver oil, and in the absence of radiant energy, the organism is laboring under a load, and the changes in the calcium and phosphorus metabolism resulting from the administration of cod liver oil are to be thought of as the result of the release from the load. The healing brought about by cod liver oil in rickets probably denotes, in reality, the manifestation of a restoration of normal function. Cod liver oil or radiant energy cannot be regarded in any sense as exerting a specific influence on calcium and phosphorus metabolism. The similarity between the action of cod liver oil and that of radiant energy in rickets is so close that a connection must exist between them. So far as the calcium and phosphorus metabolism of the body are concerned, cod liver oil seems to be a substitute for radiant energy.

Sickle Cell Anemia.—Two cases of sickle cell anemia occuring in negro children are reported by Sydenstricker, Mulherin and Houseal. Necropsy in one case revealed hitherto undescribed changes in the bone marrow which suggest that the changes in the blood are dependent on a primary defect of blood formation. There is evidence of active hemolysis of erythrocytes in addition to disturbances in erythropoiesis. Several members of the patient's family in each case showed changes in the blood analogous to those presented by the patient. No similar changes in the blood of white persons have been described. The authors feel warranted in stating that sickle cell anemia is a definite clinical entity, characterized by a definite symptom-complex and by specific blood findings and anatomic changes, and that it is a familial disease. There is strong evidence that it occurs only in the negro race, or in persons of mixed blood.

Rickets in Young Infant.—In Dunham's case rickets was well developed at the age of 34 days. Craniotabes was so marked that from it alone the diagnosis could be made. Roentgenograms of the wrists and ankles revealed indisputable evidences of advanced rickets. The blood at that time showed a normal calcium, but a low inorganic phosphorus. It is thought that 34 days is the earliest age at which rickets has ever been proved to be present.

Kottmann Reaction in Children.—The Kottmann test was performed by Lyttle and Sutton on 106 children. Twenty-eight children presenting miscellaneous conditions were chosen as controls, of whom twenty-one were normal. Of the three retarded reactions, two could be explained on the basis of medication (sodium bromid and calcium chlorid). Of thirty-three cases of acute infection, only thirteen gave normal Kottmann reactions. The group of endocrine cases was unsatisfactory, and no conclusions could be drawn from the results. In the group of cardiac cases, the predominating reaction was acceleration, probably from the lowered vitality of the children. Because of the findings in the fifteen cases of chorea, administration of thyroid is suggested as a possible aid in treatment.

Ultraviolet Radiation in Infantile Tetany.—Because infantile tetany is only temporarily improved by the use of hydrochloric acid producing substances (calcium chlorid, ammonium chlorid and hydrochloric acid), an investigation of two agents which might be expected to give more permanent relief was undertaken by Hoag. The exacting standard of a return of the serum-calcium concentration to 9.5 or 10.0 mg. in 100 c.c. was used to judge the completeness of the cure. Cod liver oil caused a gradual increase in the calcium of the serum over a period of several weeks. In eleven patients with infantile tetany, ultraviolet rays applied in amounts approaching the limit of tolerance, and unaccompanied by other treatment, caused progressive and permanent relief of the clinical symptoms, paralleled by the return of the serum calcium concentration to an essentially normal figure. With the mercury vapor lamp at a distance of 50 cm., the average total exposure necessary to cause an increase of serum calcium of 1.0 mg. in 100 c.c. was fifty minutes. An average of fourteen days was required for the calcium to rise from its initial low figure to about 9.5 mg. in 100 c.c. of serum. This rise was proportionally more rapid in the cases having the lowest initial concentration of calcium.

American Journal of Physiology, Baltimore

65: 419-640 (Aug.) 1923

*Excretion of Water by Kidneys. E. F. Adolph, Pittsburgh.—p. 419.
Influence of Combinations of Inorganic Salts and of Variations in Hydrogen Ion Concentration Heliotropic Response of Arenicola Larvae. R. S. Lillie and C. E. Shepard, Cleveland.—p. 450.
*Insulin and Glycolysis. G. S. Eadie, J. J. R. MacLeod and E. C. Noble, Toronto.—p. 462.
Physiologic Evidence of Existence of Nonvisual Afferent Mechanism in Eye. I. Vasomotor Responses to Intense Light. C. I. Reed, Lawrence, Kan.—p. 477.
*Biologic Food Tests. III. Changes in Vitamins A and B of the Globe Artichoke Due to Various Canning and Drying Processes. A. F. Morgan and H. D. Stephenson, Berkeley, Calif.—p. 491.
*Pathogenesis of Tetany. III. Exciting Factors in Experimental Tetany in Dogs. L. R. Dragstedt, K. Phillips and A. C. Sudan, Chicago.—p. 503.
*Simultaneous Changes in Blood Pressure in Carotid Artery and Jugular and Portal Veins in Anaphylactic and Peptone Shock in Dog. J. P. Simonds, Chicago.—p. 512.
Effect of High and Low Temperatures on Catalase Content or Paramecium and Spirogyra. W. E. Burge, Urbana, Ill.—p. 527.
Visceral Sensory Nervous System. XV. Innervation of Cardia in Macaccus Monkey. A. J. Carlson and S. Litt, Chicago.—534.
*Renal Tubule Function. III. Excretion of Sulphate. Modified Technic for Determination of Inorganic Sulphate in Blood or Plasma. H. L. White, St. Louis.—p. 537.
Sensibility of Eye to Differences in Wave Length. H. Laurens and W. F. Hamilton, New Haven, Conn.—p. 547.
Sensibility of Fatigued Eye to Differences in Wave Length in Relation to Color Blindness. W. F. Hamilton and H. Laurens, New Haven, Conn.—p. 569.
Temporal Variation in Function of Gyrus Precentralis in Primates. K. S. Lashley, Minneapolis.—p. 585.
Conditioned Reflexes and Pathways in Spinal Cord. J. M. Lang and J. M. D. Olmsted, Toronto.—p. 603.
*Influence of Temperature Changes on Secretion of Epinephrin. F. A. Hartman and W. B. Hartman, Buffalo.—p. 612.
*Production of Epinephrin by Suprarenal Cortex. F. A. Hartman and W. E. Hartman, Buffalo.—p. 623.

Excretion of Water by Kidneys.—Adolph has studied this problem on himself and records his observations. The human

kidneys exhibit a definite limit in their powers of concentrating the urine. This limit is characteristic and identical for each substance which they excrete, such as chlorid, phosphate, urea and bicarbonate. There is also another limit to the total concentration of substances in the urine. The mechanisms concerned in its production are not yet clear. The rate at which water is catabolized by the tissues has been found normally not to equal the rate at which the kidneys demand it to aid in the excretion of dissolved substances. It is usually demanded for the excretion of chlorid rather than for the excretion of urea; the former is the chief factor in determining the urinary volume. Since the volume of water in urine is constantly proportional to the amount of dissolved substance in it, diuresis is an exact measure of the substances in blood which have changed the blood's composition from normal. At a given moment diuresis is proportional to the increment above normal which demands excretion; the increment being the excess osmotic concentration of particulate concentration in the blood. The chemical control of the kidney's activities can nearly always be measured by the variations in rate of water excretion. A study of isotonic solutions has shown that their excretion is as reliable a measure of changes in blood composition as certain actual changes in blood measured by other workers. Water excretion, therefore, gives a fairly complete picture of the measurable variations in blood composition. It is not influenced by changes in blood volume or body volume.

Insulin and Glycolysis.—Eadie and his associates found that the addition of insulin to the defibrinated blood of the rabbit and dog does not affect the rate of glycolysis in vitro. This is true also for blood removed from these animals after injecting insulin, both when the blood is removed within a few minutes after injecting the insulin and when it is removed after the hypoglycemia has become pronounced. Addition of insulin to mixtures containing blood or sodium chlorid solution and Buchner extract of muscle does not alter the rate of glycolysis. Glycolysis is the same in mixtures made from normal animals as in those made from animals recently injected with insulin. Insulin does not influence the rate of glycolysis in a suspension of leukocytes.

Effect of Canning and Drying on Vitamins.—Destruction of vitamin A in artichoke by canning and drying appears to be relatively small. The destruction of vitamin B, however, appears to be relatively rapid, and to be effected more completely by long exposure to relatively low temperatures, as in drying and fractional canning processes, than by shorter exposure to higher temperature as in the pressure process.

Pathogenesis of Tetany.—The experiments described by Dragstedt, Phillips and Sudan demonstrate that there is close similarity, if not identity, between experimental tetany in animals and various types of clinical tetany in man. The exciting factors which were found to precipitate tetany in animals that survived total parathyroidectomy are definitely considered to have an etiologic relation to tetany in man. This fact suggests that in clinical tetany there is present an underlying parathyroid deficiency which makes the individual susceptible to diverse intoxications. In any case tetany must be looked on as a pathologic condition due to the accumulation of toxic substances in the blood stream in excess of the capacity of the physiologic detoxicating mechanism to care for them.

Blood Pressure in Peptone Shock.—An analysis made by Simonds of the manifestations of anaphylactic and peptone shock in the dog strongly suggests an obstruction to the flow of blood through the liver, the obstruction being so located as to become effective after the blood had passed through the sinusoids. A study of the hepatic vein in the dog reveals the fact that it contains a relatively huge mass of smooth muscle. This smooth muscle occupies a strategic position with reference to the circulation of blood not unlike that which the very large mass of nonstriated muscle in the wall of the bronchioles of the guinea-pig occupies to the circulation of air in the lungs. Smooth muscle is very sensitive to peptone and to any foreign proteid to which the animal has been sensitized. It is generally accepted that anaphylactic shock in the guinea-pig is due to the contraction of the mass of smooth muscle in the wall of its bronchioles. It appeared possible that the manifestations of anaphylactic and peptone shock in the dog might be the results of contraction of the mass of nonstriated muscle in the hepatic vein. Experiments have, therefore, been carried out by Simonds to determine what part, if any, constriction of the hepatic veins may play in anaphylactic and peptone shock in the dog. The results of a study of blood pressure changes, taken simultaneously in the carotid artery and jugular and portal veins, are recorded.

Function of Renal Tubule.—A modification of Fiske's technic for the determination of sulphate in urine is described by White, making it applicable to citrated blood or plasma. The concentration ratio of sulphate is compared with that of urea, phosphate and of sugar in the phlorhizinized dog. The elimination of sulphate is compared through several consecutive periods with the elimination of urea, phosphate and of sugar in the phlorhizinized dog. Evidence is discussed leading to the conclusion that urea, phosphate, sulphate and sugar in the phlorhizinized dog are eliminated in part by glomerular filtration and in part by tubular secretion.

Influence of Temperature Changes on Secretion of Epinephrin.—By the use of the completely denervated iris as an indicator of increased epinephrin secretion, the following observations have been made by the Hartmans. Immersion of cats in water ranging in temperature from 39 to 45 C. does not appear to increase epinephrin discharge. Cooling the skin of an animal by ice, by immersion in cold water or by evaporation of water from the skin causes an increase in the output of epinephrin. Although sometimes accompanied by excitement and struggling, the increased epinephrin discharge can take place without these. Therefore, cold seems to produce an effect of its own and does not do so through the mediation of excitement or muscular activity. Peripheral stimulation, rather than the fall in general body temperature, seems to be the cause of the increase in epinephrin that occurs with cooling. The magnitude of the increased output of epinephrin seems to depend on the stimulus and the extent of the skin area stimulated. No evidence could be found that the increase in the output of epinephrin is sufficient to play a part in the concentration of the blood that results from cooling.

Production of Epinephrin by Suprarenal Cortex.—The Hartmans present evidence to show that epinephrin appears to be produced in the suprarenal cortex.

American Journal of Psychiatry, Baltimore

3: 1-148 (July) 1923

Review of Service Patients in Mental Hospital. D. K. Henderson and R. D. Gillespie, Glasgow.—p. 13.
Kidney Malformations in Mentally Disordered. Case of Congenital Cystic Kidneys and Liver. N. D. C. Lewis, Washington, D. C.—p. 65.
Hemiplegias without Visible Brain Lesions in Pneumonias of Insane. M. M. Canavan, Boston.—p. 81.
Psychoneuroses: Their Nature and Treatment. A. F. Riggs, Stockbridge, Mass.—p. 91.
*Studies on Cerebrospinal Fluid with Acetic Anhydrid-Sulphuric Acid Test. O. H. Boltz. Wards Island, N. Y.—p. 111.
*Relation of Puberty to Behavior and Personality in Patients with Dementia Praecox. C. E. Gibbs, Wards Island, N. Y.—p. 121.

Acetic Anhydrid Sulphuric Acid Test for Cholesterol.—The acetic anhydrid sulphuric acid test described by Boltz is essentially a modification of Liebermann's test for cholesterol. To 1 c.c. of spinal fluid, add 0.3 c.c. of acetic anhydrid, drop by drop, and 0.08 c.c. of concentrated sulphuric acid, drop by drop. The tube is shaken well. A blue pink or lilac color is positive. The test is 100 per cent. positive with spinal fluids from cases of general paralysis. Among psychiatric cases, the test was found positive predominately in cases of neurosyphilis. The more advanced and active the syphilitic condition of the central nervous system, the more positive will be the reaction. In psychoses not due to or complicated with syphilis, and of a functional nature, the test is negative. The test differentiates two groups of tabetics, one giving a negative reaction, the other showing a slightly positive reaction. In four cases of neurosyphilis with a negative spinal fluid Wassermann reaction the test was positive.

Relation of Puberty to Behavior in Dementia Praecox.—Cases are reported by Gibbs in which a definite change in personality appeared at puberty, with the actual psychosis developing later. In most cases there was also a history of rapid growth or other disturbance of metabolism at puberty. The relation of puberty to psychopathic behavior is discussed. In certain cases of dementia praecox it is difficult to determine whether seclusive behavior appearing at puberty is a part of the personality or of the psychosis.

American Journal of Public Health, Detroit

13: 627-721 (Aug.) 1923

Public Health in Orient. W. W. Peter, Shanghai, China.—p. 627.
Trend of Maternal and Child Hygiene. W. H. Brown, Mansfield, Ohio.—p. 636.
Sanitary Index. D. M. Lewis, New Haven, Conn.
Changes in Mortality in Last Two Decades in New England, New York, New Jersey, Michigan, Indiana and District of Columbia. E. Foundray, Washington, D. C.—p. 654.
Preliminary Studies of Fauna of Imhoff Tank. L. A. Hausman, New Brunswick, N. J.—p. 656.

Archives of Internal Medicine, Chicago

32: 157-312 (Aug.) 1923

*Water Intoxication. L. Rowntree, Rochester, Minn.—p. 157.
*Benzoate Test for Renal Function. F. B. Kingsbury, Minneapolis.—p. 175.
*New Method for Accurately Determining Clotting Time of Blood. M. F. Petersen and C. A. Mills, Cincinnati.—p. 188.
Induction of Premature Contractions and Auricular Fibrillation by Forced Breathing Associated with Change in Location of Pacemaker. F. M. Smith and W. B. Moody, Chicago.—p. 192.
*Relationship of Excess of Uric Acid in Blood to Eczema and Allied Dermatoses. J. F. Schamberg and H. Brown, Philadelphia.—p. 203.
Clinical Method (Centrifuge) for Estimation of Protein in Urine and Other Body Fluids. M. C. Shevky and D. D. Stafford, San Francisco.—p. 222.
*Studies of Diabetes Mellitus. II. Results of Treatment by Diet Adjustment and Ketogenic-Antiketogenic Balance. W. S. McCann, R. R. Hannon, W. A. Perlzweig and E. H. Tompkins, Baltimore.—p. 226.
Cases of Calcareous Degeneration Found in Thorax. J. S. Pritchard, Battle Creek, Mich.—p. 259.
*Salt in Vascular Hypertension. J. P. O'Hare and W. G. Walker, Boston.—p. 283.
Specific Tests in Diagnosis of Allergy. W. W. Duke, Kansas City, Mo.—p. 298.

Water Intoxication.—The toxicity of water was investigated by Rowntree. In man and animals water ingested in excess of the ability of the organism to excrete it leads to water intoxication. Water intoxication is manifested by restlessness, asthenia, polyuria, frequency of urination, diarrhea, salivation, nausea, retching, vomiting, muscle tremor and twitching, ataxia, tonic and clonic convulsions, frothing at the mouth, helplessness, stupor and coma. The convulsions are general in character, of extreme violence and, in the main, resemble those of strychnin poisoning. They may recur at intervals of a few minutes. Water intoxication terminates in death unless the excessive intake is discontinued. Water intoxication may be acute, ending in death in from four to twelve hours, or subacute, lasting for some days. Subacute intoxication results from smaller amounts of water continued over a longer period of time. Water intoxication is accompanied by, and is probably due, in part at least, to increased intracerebral pressure; this, in turn, is probably a manifestation of disturbance in the salt water equilibrium of the central nervous system. Water intoxication can be prevented, alleviated or cured by the timely intravenous administration of hypertonic sodium chlorid solution.

Benzoate Test for Renal Function.—Early results with the sodium benzoate test gave evidence that it was sensitive and would probably indicate early disturbances of renal function. Kingsbury's findings confirm this view. As originally described, the test determines the three-hour output of hippuric acid after the ingestion of 2.4 gm. of sodium benzoate. Fruits which contain benzoic acid or substances which may be converted into it in the body must be omitted from the diet before and during the period of the test. Determinations were made by Kingsbury on forty-four normal subjects. The average two-hour excretion of hippuric acid was 82 per cent. of the ingested dose of sodium benzoate and the third-hour excretion was 16 per cent. The test was also applied in thirty-nine hospital cases. The value of this test lies in showing the degree of impairment of renal function early in glomerulonephritis, nephrosis, pyelonephritis and arteriosclerosis of the kidney. It is also useful in determining the degree of improvement in function following the acute renal injury in toxemia of pregnancy. There is a fairly close agreement in this respect with the water excretion test of Volhard, the urea concentration test of MacLean, and the constant of Austin, Stillman and Van Slyke, in the few cases in which the comparison was possible. The benzoate test indicates renal insufficiency earlier than does a test of the urea content of the blood.

New Method of Determining Blood Clotting Time.—The method devised by Petersen and Mills depends on the fact that blood ceases to flow back and forth in a capillary tube at the first sign of clotting. Capillary tubes of from 0.6 to 0.8 mm. inside diameter are drawn from clean glass tubing and cut into about 1¼ inch lengths. The blood is obtained from a stab wound of the finger or ear, the first drop being wiped off. The tube is touched to the second drop, and the blood is allowed to flow in by capillarity, leaving about one-fourth inch unfilled. This is counted from the appearance of the second drop over the wound. After filling, and in order to secure a constant and definite temperature, the tube is placed in one of the creases of the palm and completely covered by closing the hand. This gives a uniform temperature, somewhat below that of the body (about 35 C.), and obviates the necessity of a water bath or chamber of any sort. By simply opening the hand slightly for observation when inverting the tube, one may note the end point without changing the temperature or disturbing the tube. The tube should be gently inverted every thirty seconds, and observation made of the time when the column ceases to move, on being so inverted. Jarring and shaking tend to prolong the clotting time and should, therefore, be avoided.

Uric Acid in Blood in Eczema.—In a chemical study of the blood of more than 200 patients suffering from cutaneous diseases, great variations in the uric acid content were found by Schamberg and Brown. About one half of the patients had eczema, and in these an increase in uric acid beyond the maximal normal limit (3.5 mg.) was observed in 50 per cent. of the cases. In some cases of pruritus, both general and local, there were likewise high uric acid figures. Classifying the eczema patients in age decades, it is seen that there is a rising uric acid curve from the fortieth to the seventieth year. This is not evident in the noneczematous subjects. The average uric acid content of the blood in the male subjects was about 25 per cent. higher than among the female patients. The blood of young patients with eczema did not, as a rule, contain large amounts of uric acid, but there were some notable exceptions. Patients with psoriasis, acne, urticaria and certain other cutaneous diseases have a lower average uric acid blood content than those suffering from eczema. The authors believe the hyperuricemia to be related etiologically to eczema and to pruritus in a considerable percentage of the cases studied. Appropriate dietary measures have made many of their patients much more rapidly amenable to treatment than patients previously treated without this therapeutic measure.

Treating Diabetes by Diet Adjustment and Ketogenic-Antiketogenic Balance.—Calculations made by McCann and his associates of the ketogenic-antiketogenic balance from the foodstuffs actually metabolized in diabetic subjects show that a maximum of one molecule of antiketogenic substance is required for the complete oxidation of one molecule of ketogenic substance. Frequently less than one molecule of antiketogens will suffice. The records of five patients serve to illustrate both successes and failures of a method of diet adjustment, the aim of which was to afford each patient (*a*) at least enough calories to cover the maintenance requirement for rest in bed (basal metabolism plus 10 per cent.); (*b*) to reduce the level of protein metabolism by means of a low protein intake; (*c*) to give the foodstuffs in such proportions that at least one molecule of antiketogenic substance will be available for every molecule of ketogen formed. The substitution of glycerol for carbohydrate is a successful means of combating ketosis in certain cases. The improvement noted in patients to whose diet calcium and phosphorus were added (as, $Ca_3[PO_4]_2$, calcium hexose phosphate, and

calcium glycerophosphate) is not attributed to the effect of this addition.

Low Salt Diet in Vascular Hypertension.—The experience detailed by O'Hare and Walker with the extremely low salt intake advocated for the treatment of hypertension do not indicate any special advantage over the older less rigid restriction. This very low salt diet is, furthermore, difficult to carry out at home, is monotonous and expensive. The authors also suggest that salt plays little part in vascular hypertension.

Archives of Occupational Therapy, Baltimore

2: 253-334 (Aug.) 1923

Psychanalysis and Vocational Guidance. W. A. White, Washington, D. C.—p. 253.
Patients' Reactions, Guide to Further Treatment. L. J. Haas, New York.—p. 277.
Activities for Promotion of Occupational Therapy in St. Louis. R. S. Michael, St. Louis.—p. 287.
Occupational Therapy in Michigan. C. B. Ball, Detroit.—p. 293.

Atlantic Medical Journal, Harrisburg, Pa.

26: 723-796 (Aug.) 1923

Diagnosis of Brain Tumor. W. G. Spiller, Philadelphia.—p. 723.
Diagnosis and Treatment of Brain Tumors. W. E. Dandy, Baltimore.—p. 726.
Cerebrospinal Syphilis. H. Pleasants, Jr., West Chester.—p. 728.
*Peritonitis Following Operation for Chronic Cholecystitis of Influenzal Origin. B. Z. Cashman, Pittsburg.—p. 732.
Essential Nature of Epilepsy. C. C. Wholey, Pittsburgh.—p. 735.
*Case of Raynaud's Disease in Child, Aged 5. A. Hand and J. J. Reilly, Philadelphia.—p. 739.
*Three Years' Experience with Thick Cereal Feedings in Infancy in Malnutrition and Allied Conditions. H. R. Mixsell, New York.—p. 744.
Some Principles Involved in Bronchoscopic Removal of Foreign Bodies. Illustrative Cases. F. J. Bishop, Scranton.—p. 750.
Personality Study of a "Witch Doctor" Now Convict. N. S. Yawger, Philadelphia.—p. 752.

Peritonitis Following Cholecystectomy.—Two cases of fatal postoperative peritonitis following cholecystectomy for chronic cholecystitis are recorded by Cashman. The clinical picture was that of a streptococcus peritonitis. However, bacteriologic proof could not be obtained.

Raynaud's Disease in Children.—Three cases occurring in one family are reported by Hand and Reilly, the patients being aged 5, 2½ and 8½ years, respectively. Hereditary syphilis was suggested in these cases as both parents had positive Wassermann reactions; with the exception of snuffles in one case during infancy, none of the three children presented signs of syphilis and the diagnosis was therefore made by the Wassermann test.

Thick Cereal Feedings in Malnutrition.—Mixsell reports further on the use of his skimmed milk and farina mixture in cases of malnutrition (marasmus); pylorospasm (mild and severe); pyloric stenosis; breast fed colic cases; persistent vomiting (neuropathic); idiosyncrasy for breast milk, and for cow's milk; liquid food intolerance; acute gastritis with vomiting; eczema and allied skin conditions; acute ileocolitis with vomiting, prematurity with defective assimilation and acute infectious fevers.

Canadian Medical Association Journal, Montreal

13: 549-626 (Aug.) 1923

Septic Factor in Three Great Plagues. W. J. Mayo.—p. 549.
*Recent Pharmacologic Studies in Intestinal Peristalsis. V. E. Henderson.—p. 560.
Observations with Insulin on Department of Soldiers, Civil Reestablishment Diabetics. J. A. Gilchrist, C. H. Best and F. G. Banting.—p. 565.
Recent Advances in Treatment of Myocarditis and Nephritis. K. MacKenzie.—p. 573.
*Some Eye Symptoms in Lethargic Encephalitis. J. W. Stirling.—p. 577.
Acute Osteo Myclitis. A. M. Forbes.—p. 579.
Early Diagnosis and Treatment of Neurosyphilis. R. W. Mann.—p. 582.
Citrate Method of Blood Transfusion Devised to Minimize Post Transfusion Reactions. F. W. Luney.—p. 587.
Protein Hypersensitiveness and Its Relation to Disease. A. T. Henderson.—p. 591.
Cyanosis. M. E. Abbott.—p. 601.
Blood Sedimentation Test. T. R. Waugh.—p. 504.

Intestinal Peristalsis.—In connection with his experiments Henderson observed that when intestinal tonus was low after distention and the intestine contained a quantity of fluid sufficient to fill it, the peristaltic waves which occurred were very shallow and had no effect in moving the contained fluid. Respiratory movements, however, were effective, and the fluid gradually passed upward, entered the stomach, and was vomited. This, Henderson feels, is a more probable explanation of the fecal vomiting that occurs in cases of intestinal stasis than is reversed peristalsis. A true reversed peristalsis has, he believes, never been observed.

Eye Symptoms in Lethargic Encephalitis.—In one case recorded by Stirling the eye symptoms were monocular. Vertical paralysis occurred three weeks after the first paralysis of the internal rectus. There was no failure of accommodation, nor papilledema. In the second case there was but little to note except monocular limitation of the symptoms and the lack of fundal change. The third case was interesting from the fact that it was one of paralysis of divergence, which has been but rarely reported. In none of these cases was Stirling sure of defective convergence contraction of the pupil, which Holden asserts is characteristic of the sluggish pupil of encephalitis, but in the third case there was failing accommodation without dilatation of the pupil—this again suggesting the nuclear seat of the lesion.

Colorado Medicine, Denver

20: 203-228 (Aug.) 1923

Diagnosis of Surgical Kidney Lesions. G. M. Myers, Pueblo.—p. 210.
Adventures in Neuropsychiatry. C. S. Bluemel, Denver.—p. 215.
Recent Diphtheria Outbreak in Boulder. S. Burrage and H. Anthony, Boulder.—p. 219.
*Sarcoma of Bladder. C. J. Lowen, Denver.—p. 221.
Endocrinology of Ear, Nose and Throat. C. E. Harner, Denver.—p. 223.

Sarcoma of Bladder.—Lowen relates the case of a woman, aged 20, whose physician, in the fourth month of her gestation, discovered a small tumor about the size of a walnut in the region of the neck of the bladder. He advised the patient to have it removed after labor. In due time normal labor took place. The fifth day of the puerperium the patient was unable to void urine. After various measures catheterization was resorted to. After about ten days of this it was felt that something further must be done. Examination disclosed a tumor mass about the size and shape of a lemon, one end of which arose about a half inch above the meatus and extended upward along the anterior vaginal wall to and into the base of the bladder. The vaginal mucous membrane presented a glazed, bluish appearance. The tumor was slightly movable, smooth and boggy to the touch. A diagnosis of probable malignancy was made. Under ether anesthesia, a soft, friable tumor was enucleated, which involved the entire urethra, bladder neck and about one half the trigone, and consisted of layers of tissue arranged very much like the layers of an onion. A diagnosis of sarcoma of the bladder was made. The patient stood the operation nicely. At the end of ten days she was permitted to return home. Two weeks later the patient returned in a deplorable condition. She was weak, cachectic and showed purple spots. She was immediately put to bed; she started to bleed from the nose and vagina, and died twenty-four hours later from exhaustion. Lowen states that this case emphatically demonstrates the frequent fallacy of designating tumors "benign"; also how the trauma of labor changed the entire clinical course. Again, it is the only case of sarcoma of the bladder complicated by labor that has been reported.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

21: 377-466 (July) 1923

*Free Sugar Content of Liver and Its Relation to Glycogen Synthesis and Glycogenolysis. C. F. Cori, G. T. Cori and G. W. Pulcher, Buffalo.—p. 377.
*Pharmacology and Therapeutics of Oil of Chenopodium and Investigations on Anthelmintic Value of Its Components. D. M. Molloy, Managua, Nicaragua.—p. 391.
Influence of Arterial Blood Supply to Liver on Hemoglobin Concentration in Certain Acute Conditions. P. D. Lamson, A. F. Abt, C. A. Oosthuisen and S. M. Rosenthal, Baltimore.—p. 401.
*Biophysical Studies of Effects of Various Drugs on Temperature of Brain and Liver. I. Strychnin, II. Morphin, III. Bromides, IV. Curare. V. Atropin, VI. Caffein, VII. Alcohol. G. W. Crile, A. F. Rowland and S. W. Wallace, Cleveland.—p. 429.
*Pharmacologic and Clinical Examination of Benzyl Mandelate. D. I. Macht, Baltimore.—p. 443.

Free Sugar Content of Liver.—Coris and Pulcher found that during the ingestion of glucose by rabbits and guinea-pigs glycogen synthesis takes place from a free sugar level above that of a starving animal. Insulin causes glycogen synthesis during the ingestion of glucose even though the blood sugar and free liver sugar is below that of a starved animal. Epinephrin immediately stimulates glycogenolysis, setting free the maximal amount of sugar in the liver in from thirty to sixty minutes. The sugar set free in the liver is only slowly put into the blood stream. The highest blood sugar is at a point at which the free liver sugar has already begun to decrease.

Potency of Oil of Chenopodium.—Molloy's experience has shown conclusively that the product marketed as "oil of chenopodium" varies greatly in anthelmintic potency. It is entirely feasible to standardize the drug by fractional distillation. This avoids the uncertainty on beginning the use of a new lot which has not been tested practically to determine its anthelmintic quotient.

Effects of Drugs on Temperature of Brain and Liver.—It is assumed that the effect of the injection of epinephrin on the temperature of the brain in normal animals can be used as a unit of measurement whereby to estimate the effect of an agent on the oxidative power of the brain. From the experiments reported by Crile, Rowland and Wallace it would appear that the alteration in the temperature of the brain following the injection of epinephrin is not notably affected by the effect of the agent on the blood supply of the brain. The following observations are of especial significance: (*a*) When epinephrin is injected in the presence of morphin, the temperature response of the brain is diminished in direct relation to the depth of narcosis. (*b*) The injection of epinephrin in the presence of strychnin produces not only a characteristic rise in the temperature of the brain, but also a marked decrease in the temperature of the liver. (*c*) Alcohol of itself alone produces a fall in temperature corresponding to that observed in rabbits in shock; while the injection of epinephrin in these animals produces a characteristic rise in temperature. This rise is followed by a fall which exceeds that observed in normal rabbits.

Pharmacology of Benzyl Mandelate.—Benzyl mandelate is a new ester of mandelic acid. A pharmacologic and toxicologic study of the new compound, benzyl mandelate, was made by Macht. It was found that this compound is of comparatively low toxicity, and is pharmacologically effective. The most important pharmacologic action of the drug is on smooth muscle. Benzyl mandelate produces a marked relaxation of all such preparations, especially after they have been brought into a state of tonic or marked contraction. In view of the antispasmodic pharmacologic properties of both the alkyl and acid components of the molecule, a greater antispasmodic effect is produced by the compound than by other benzyl esters. In cases of hypertension or high blood pressure, the results were gratifying. The drug in each case was administered by mouth, either in powdered form or in capsules, and the blood pressure was measured within one-half hour to one hour after the administration of the drug. In every case the administration of even small doses of benzyl mandelate (1 to 2 grains) was followed by a definite systolic and diastolic fall in blood pressure. In no case were untoward symptoms observed by the physician or complained of by the subject. On the other hand, in a number of cases the patients stated that their symptoms were distinctly relieved. Administration of small quantities (2 to 5 grains) of mandelic acid, in solution, by mouth, were also followed by a distinct fall in blood pressure within thirty minutes. The effects of mandelic acid alone, however, were not as potent as those of the benzyl ester.

Journal of Radiology, Omaha

4: 261-294 (Aug.) 1923

Effect of Roentgen Ray on Histology of Nodes in Some Cases of Lymphadenopathy, Found by Adenectomy During Treatment. H. Fox and D. L. Farley, Philadelphia.—p. 261.
Value of Oblique Films in Study of Thorax. J. S. Pritchard, Battle Creek, Mich.—p. 268.
Roentgen-Ray Analysis of Right Diaphragm. E. H. Skinner, Kansas City, Mo.—p. 270.
Gallbladder Disease with Special Reference to Fluoroscopic Findings. R. A. Arens, Chicago.—p. 274.
Toxic Thyroid with Pathologic Findings After Radium Treatment. R. E. Loucks, Detroit.—p. 276.
Pulmonary Abscess Roentgenographically Considered. W. H. Stewart, New York City.—p. 277.
Sarcoma of Back; Report of Three Cases. B. H. Wagnon, Atlanta, Ga.—p. 278.

Journal of Urology, Baltimore

10: 99-183 (Aug.) 1923

History of Development of Urology as Specialty. T. D. Moore, Rochester, Minn.—p. 99.
*Diagnosis and Surgical Treatment of Malignant Tumors of Kidney. W. E. Stevens, San Francisco.—p. 121.
*Blood Pressure in Cases of Urinary Obstruction. V. J. O'Conor, Chicago.—p. 135.
*Simple Treatment of Certain Lesions of Intravesical Ureter in Female. Ed. J. Harnagel, Des Moines, Iowa.—p. 141.
Epispadias in Women. Report of Case. W. E. Lower, Cleveland.—p. 149.
*Report of Cases of Malignant Growths of Bladder Treated by Resection and Radium. H. G. Bugbee, New York City.—p. 159.
*Food Allergy as Cause of Irritable Bladder. W. W. Duke, Kansas City, Mo.—p. 173.
Case of Schistosomum Hematobium. J. Pedersen, New York.—p. 175.
Case of True Hourglass Bladder. H. L. Kretschmer and H. L. Morris, Chicago.—p. 181.

Diagnosis of Malignant Tumors of Kidney.—The differential diagnosis of the various histologic types of malignant tumors of the kidney, Stevens says, is at times impossible, but a careful study of the symptoms, together with the cystoscopic and radiographic findings, will make this feasible in many instances. The points of diagnostic significance are enumerated in detail.

Blood Pressure in Urinary Obstruction.—The results of the study of seventy-four patients with urinary retention due to obstruction at the vesical neck are recorded by O'Conor. The majority of these patients who had suffered from long standing urinary retention, and who originally presented themselves with hypertension, have continued thus far to be relieved of their abnormally high blood pressure, except in a few instances in which demonstrable cardiac disease existed. Obstruction in the course of the urinary tract must be considered, in many instances, as a cause per se of high systemic blood pressure. This may be equally true even though the residual urine is small in amount. Complete drainage of the bladder in patients suffering from urinary retention is attended by a marked fall in systolic blood pressure during the first forty-eight hour. During this period the renal function is diminished. If, however, the retained urine is gradually evacuated, the decrease in pulse pressure will be less marked and the renal function only slightly diminished. Before instituting permanent drainage all patients in a "pre-uremic," or "dehydrated" condition should be amply supplied with fluid. This can be quickly and safely accomplished by the intravenous injection of glucose solution. If satisfactory drainage of the bladder is continued, the blood pressure is gradually maintained at a definite, nonfluctuating level. During this period the adequacy of the renal function and the general condition of the patient indicate that he is in the best possible condition for operation. Patients prepared for operation by waiting until this fixed blood pressure level has been established have shown a very insignificant postoperative decrease in blood pressure, especially when glucose solution is given intravenously both before and after operation.

Treatment of Intravesical Ureter Lesions in Female.—Only within a short radius of the internal meatus is the bladder itself fixed or comparatively immovable—other parts may readily be drawn with Young's rongeur, in the female, through the urethra quite to the external meatus. This mobility Harnagle turned to advantage in the two cases reported; one of left ureterovesical cyst, and one of calculus in the right intravesical ureter.

Treatment of Malignant Growths of Bladder.—Nineteen cases are analyzed by Bugbee. In cases of extensive carcinoma of the bladder, when metastasis has taken place, he says, effort should be directed toward making the patient as comfortable as possible. Often this may best be attained by simple bladder drainage. In extensive carcinoma of the bladder without metastasis, in lieu of total or subtotal cystectomy, it is possible in some cases to destroy the growth by repeated insertions of radium needles—if it is borne in mind that the objective is to destroy the growth, not the patient, by

not too massive a dose, but by repeated insertions at sufficient intervals, giving free bladder drainage to allow for sloughing and infection, every effort being exerted during the process to increase body elimination. A circumscribed carcinoma should be removed by resection, if possible. Recurrences after operation are less resistant than the primary growth, sometimes yielding even to fulguration. The insertion of radium needles into the bladder wall about the line of resection causes the formation of sloughs which have in some cases remained for four months. Such a procedure is valuable in minimizing the chances of local recurrence by destroying stray cancer cells and involves no risk or discomfort. Malignant papilloma should be removed by resection, the line of resection being fortified by the insertion of radium needles.

Kentucky Medical Journal, Bowling Green

21: 383-438 (Aug.) 1923

Congenital Syphilis. C. B. Wilmott, Louisville.—p. 389.
Removal of Knife from Behind Orbit After Five Months. Case Report. A. O. Pfingst, Louisville.—p. 395.
Endocrinology in Relation to Mental Processes. H. N. Leavell, Louisville.—p. 396.
Foreign Body (Metal) in Eye. J. J. Wynn, Louisville.—p. 401.
Hepatic Abscess. Case Report. L. W. Frank, Louisville.—p. 403.
Abdominal Aortic Aneurysm. Six Cases in Twenty-Eight Aneurysms Found Among 1,062 Necropsies. E. R. Gernert, Louisville.—p. 405.
Bilateral Congenital Absence of Radius. L. P. Separs, Louisville.—p. 407.
Corneal Ulcer in Diabetic. Case Report. L. K. Baldauf, Louisville.—p. 408.
Hyperthyroidism. B. W. Bayless, Louisville.—p. 409.
Rationale of Roentgen-Ray Signs in Duodenal Ulcer. C. D. Enfield, Louisville.—p. 415.
Gonorrheal Urethritis and Its Complications in Male. T. M. Dorsey, Louisville.—p. 419.
Influenza. L. E. Botts, Glasgow.—p. 425.
Medical Treatment of Gastro-Enteritis in Infancy and Childhood. W. R. Burr, Auburn.—p. 428.
Medical Fads and Fallacies. Ancient Versus Modern. S. Mullins, Wingo.—p. 431.
Invagination of Caput Coli of Many Years Duration. Case Report. J. Garland Sherrill, Louisville.—p. 436.

New York Medical Journal and Medical Record New York

118: 133-192 (Aug. 2) 1923

Dentistry and Medicine. L. F. Barker, Baltimore.—p. 133.
Relationship Between Physician and Dentist. C. N. Johnson, Chicago.—p. 135.
Dental Diagnosis. W. G. Thompson, New York.—p. 138.
Interrelationship of Physician and Dentist. L. M. S. Miner, Boston.—p. 140.
Cause and effect of Malocclusion of Teeth. L. M. Waugh, New York.—p. 142.
Health, Sickness and Death as Related to Dental Infections. G. Osgood, Rockland, Mass.—p. 145.
Present Status of Pulp and Root Canal Problem. M. L. Rhein, New York.—p. 148.
Vincent's Infection of Mouth. I. Hirschfield, New York.—p. 150.
Oral Infection by Vincent's Organisms. P. R. Stillman and J. O. McCall, New York.—p. 155.
Evolutionary Development of Reconstructive Dentistry. M. Diamond, New York.—p. 156.
Existence of Abnormal Physical Conditions as shown by Teeth. W. A. Cotton, New York.—p. 159.
Extensive Involvement of Ocular Muscles Due to Focal Infection of Teeth. L. W. Deichler, Philadelphia.—p. 163.
Prevalence of Oral Disease and Its Insidious Effect upon General Health. B. B. Machat, Brooklyn.—p. 165.
Oral Sepsis in Relation to Eye, Ear, Nose and Throat Disease. L. R. Cahn, New York.—p. 168.
New Method for Directing the Central Ray at Predetermined Angulation with Aid of Dental Methograph. J. F. Freund, New York.—p. 170.

118: 193-256 (Aug. 15) 1923

Rickets and Tetany. H. Brooker Mills, Philadelphia.—p. 193.
Instability of Adolescence. Its Treatment from Endocrinologic Viewpoint. E. B. McCready, Pittsburgh.—p. 199.
Foreign Proteins in Prophylaxis and Therapeutics. F. E. Stewart, Philadelphia.—p. 202.
General Theory of Neuroses. A. Polon, New York.—p. 207.
Influence of Glucose on Phagocytosis in Vitro. G. Rubin and M. L. Arkin, Chicago.—p. 212.
Experiences with Insulin in Treatment of Severe Cases of Diabetic Acidosis with Impending Coma. J. S. Diamond, New York.—p. 213.
Renal Glucose Threshold and Its Bearings on Insulin Treatment of Diabetes. G. W. McCaskey, Fort Wayne, Ind.
Use of Insulin in Infantile Inanition. R. L. Pitfield, Germantown, Pa.—p. 217.
*Familial Concurrence of Diabetes Mellitus and Premature Canities. H. W. Traub, Chicago.—p. 218.
Prescribing Diabetic Diets. E. E. Cornwall, Brooklyn.—p. 221.
Pancreas and Interrelation of Endocrine and Sympathetic System in Regard to Diabetes. C. Legiardi-Laura, New York.—p. 225.
Rôle of Spleen in Certain Anemic Conditions. E. S. Cross, Baltimore.—p. 227.
Dark Age in Medicine. Projected Retrospect. E. H. Williams and E. B. Hoag, Los Angeles.—p. 231.

Familial Diabetes with Canities.—The incidence of unquestioned cases of diabetes and of well marked premature grayness of the hair in four generations of descendants of one common ancestor is presented by Traub.

New York State Journal of Medicine, New York

23: 325-358 (Aug.) 1923

Recent Progress in Communicable Diseases of Childhood. C. Herrman, New York.—p. 325.
Prenatal Care and Maternity Welfare. I. From Standpoint of State. F. L. McKay, Albany.—p. 326.
Id. II. From Standpoint of Regional Consultant. J. K. Quigley, Rochester.—p. 332.
Id. III. From Standpoint of Maternity Center without Hospital Connection. G. W. Kosmak, New York.—p. 335.
Prenatal Care in Clinics Affiliated with Hospital. J. O. Polak, Brooklyn.—p. 338.
Indications and Limitations of Irradiation in Obstetrics and Gynecology. H. C. Williamson, New York.—p. 341.
Report of Committee on Computation of Ocular Disability Resulting from Industrial Injury or Disease. A. C. Snell, Rochester; A. J. Bedell, Albany, and W. B. Weidler, New York.—p. 343.

Northwest Medicine, Seattle

22: 263-300 (Aug.) 1923

History of Discovery of Insulin. J. B. Collip, Edmonton, Can.—p. 267.
Modern Advances in Treatment of Diabetes Mellitus. C. H. Hofrichter, Seattle.—p. 273.
Insulin Therapy in Progressive Downward Type of Diabetes. J. S. Saurman, Salem, Ore.—p. 277.
Influence of Insulin on Teaching of Diabetic Patient. B. Holcomb, Portland, Ore.—p. 281.
Early Diagnosis of Cancer of Rectum. A. Crookall, Seattle, Wash.—p. 263.
Value of Perimetric Studies in Visual Defects. A. B. Dykman, Portland, Ore.—p. 287.
Papyraceous Fetus, Report of Case. P. J. Keizer, R. C. Keizer and I. B. Bartle, North Bend, Ore.—p. 291.

Rhode Island Medical Journal, Providence

167: 115-130 (Aug.) 1923

Diet in Treatment of Diarrhea in Infancy. Wm. P. Buffum, Jr., Providence.—p. 115.
Problems of Present Day Unrest. E. B. Delabarre.—p. 118.

South Carolina Medical Association Journal, Greenville

19: 555-582 (Aug.) 1923

Common Eye Conditions Met in General Practice. P. V. Mikell, Columbia.—p. 556.
Treatment of Toxemia of Pregnancy with Convulsions. T. Pennel, Belton.—p. 558.
Diagnosis and Treatment of Nasal Sinus Disease with Case Reports. W. McWhorter, Anderson.—p. 560.
Notes on Some Tropical Diseases. B. C. Crowell, Charleston.—p. 564.
Uterine Suspension. Cases with Follow Up Results. J. R. Boling, Columbia.—p. 567.
Brodie's Abscess. S. O. Black, Spartanburg.—p. 569.
Acriflavine in Treatment of 200 Cases of Gonorrhea. A. J. and M. E. Greenberger, New York.—p. 571.

Virginia Medical Monthly, Richmond

50: 281-350 (Aug.) 1923

Treatment of Lobar Pneumonia. R. L. Cecil, New York.—p. 281.
Some Sources of Error in Interpretation of Phthalein Test, with Special Reference to Effect of Exercise. W. H. Higgins, Richmond.—p. 285.
Some Unsolved Problems in Neurologic Surgery. E. Sachs, St. Louis.—p. 289.
Growing Importance of Mapping Fields of Vision. W. E. Driver, Norfolk.—p. 293.
Maternal Mortality in Richmond. C. C. Hudson and M. P. Rucker, Richmond.—p. 300.
Chronic Ulcerative Colitis and Its Treatment. W. Hughson, Baltimore.—p. 304.
Symptoms and History in Diagnosis of Pulmonary Tuberculosis. D. B. Cole, Richmond.—p. 310.
Diet in Tuberculosis. H. R. Edward, Richmond.—p. 312.
Nervous, Mental and Endocrine Manifestations in Menopause. H. R. Masters, Richmond.—p. 317.
Nutrition and Life. L. T. Royster, Norfolk.—p. 320.
Acute Osteomyelitis: Differential Diagnosis and Treatment. L. A. McAlpine, Portsmouth.—p. 325.
Some Essentials in Fracture Work. G. H. Reese, Petersburg.—p. 328.
Roentgen Ray in Treatment of Cancer. D. D. Talley, Jr., Richmond.—p. 330.
"Cattle-Truck" Symptoms of Arterial Occlusion in Eye. C. Edmond, Clifton Forge.—p. 333.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

46: 147-253 (July) 1923

*Hepato-Lenticular Degeneration. Report of Case. G. Hadfield.—p. 147.
*Rhythmic Convergence Spasm of Eyes in Case of Tumor of Pineal Gland. S. J. R. De Monchy.—p. 179.
Influence of Cerebrum and Cerebellum on Extensor Rigidity. W. P. Warner and J. M. D. Olmsted.—p. 189.
*Sensory Activities of Skin for Touch and Temperature. D. Waterston. —p. 200.
"Law of Fluctuation" or of Alternating Periods of Activity and Rest in Living Tissues. P. T. Herring.—p. 209.
Hysterical Pain. R. G. Gordon and H. H. Carleton.—p. 221.

Hepatolenticular Degeneration.—A case is described by Hadfield having all the essential characters of hepatolenticular degeneration. It illustrates conclusively, both clinically and pathologically, the existence of transition types between Wilson's disease and pseudosclerosis. Focal lesions in the cerebral cortex, characterized by a prolific vascular new formation, are described. A selective necrobiosis of the large motor cells of the putamina and caudate nuclei was found histologically. It appears probable that: (*a*) An early stage in the destruction of nervous tissue in these diseases is the development of a specific type of vascular new formation. (*b*) The changes described in the lenticular nuclei in the case reported represent a late stage in their degeneration.

Rhythmic Convergence Spasm of Eyes in Pineal Gland Tumor.—The disturbances of internal secretion in De Monchy's case were the same as those found with dystrophia adiposogenitalis. The tumor consisted of two parts connected by means of connective tissue, one part lying in the situation of the epiphysis, the other part between the folds of the dura mater where the flax cerebri and the tentorium cerebelli meet.

Sensory Activities of Skin.—The principal results which have been reached by Waterston include the following: (1) There is structural and experimental evidence to show that the epithelium of the skin and of certain mucous membranes is the receptor organ for tactile sensation. It is not merely a protective covering, but the receptor organ for a special form of sensation, namely, touch. (2) at single examinations hot and cold spots show a punctate arrangement; the number of such spots in an area of given size, however, differs widely in different persons. (3) On repeated examination of the same area, the number of the hot and cold spots is greatly increased, new spots appearang on successive examinations, while many of those formerly found no longer respond. These observations harmonize with the results obtained by practically all who have investigated this subject. In addition, Waterston found that under certain conditions, such as that of mild erythema, the sensation of heat can be obtained from practically all points of the affected surface at a single examination. It follows from this that all parts of the surface are potentially sensitive to heat, and that there is no structural punctate arrangement of special receptors and special nerve fibers for thermal sensation. The punctate distribution of sensitive spots found at a single examination is explained by the view that in the skin there is a constant coming and going of activity of the different parts. Other examples of "fluctuation" are afforded by the skin capillaries in normal and in certain abnormal conditions, and the same principle may form the explanation of the variations found in areas of hyperesthesia and anesthesia. To this coming and going of activity Waterston applied the term "fluctuation." The erythema produced by the mustard leaf acts on the heat-receptive areas in excites all of them to receptivity.
such a way as to abolish temporarily this fluctuation and

Bristol Medico-Chirurgical Journal

60: 119-173 (July) 1923

Relation Between Chemistry and Medicine. F. Francis.—p. 119.
*Injuries to Head Illustrating Functions of Cortex. R. G. Gordon.—p. 139.
*Hoarseness; Importance of Early Laryngoscopy. E. Watson-Williams. —p. 153.

Injuries to Head Illustrating Functions of Cortex.—The effect of injury of the superficial cortex in the occipital lobe, the sensory area, the motor area and the frontal lobes is illustrated by Gordon by means of case reports. For instance, a man suffered a severe blow on the back of the head. The injury, which was probably a subdural hemorrhage, had involved the whole of the area of the visual cortex on both sides, with the result that he was completely and hopelessly blind; but as the midbrain centers for muscular movements were uninjured there was no ophthalmoplegia. This illustrates the function of the cortex as a receiving station for sensory impressions acting at a distance. A man was injured by a gunshot wound of the head on one side only with resultant homonymous hemianopia. This illustrates the principle that the cortex has to do with physiologic function rather than anatomic structure. Another man sustained a large gunshot wound on the lateral aspect of the occipital lobe, which caused injury to a considerable area of the cortex, though it did not involve the actual visual area. He retained considerable intelligence, but visual imagery was badly impaired. This illustrates the function of the cortex in revival of images. An epileptic sustained a severe injury of the right temple. At times the ordinary attacks of grand mal and petit mal were replaced by what are called visual equivalents. In these attacks there appeared before his eyes lights or sometimes figures which started in the center of the field of vision and passed over to the right margin of the field. While these were going on he had a right homonymous hemianopia, which passed off with the end of the attack. Here there was suppression of the proper highest function of the visual cortex at the left occipital pole with substitution or liberation of lower and less coordinated function. This corresponds exactly with what happens in lesions of the motor cortex which cause convulsions. A wound in the parietal bone over the postcentral gyrus, where the sensory area of the cortex is situated, caused partial astereogenosis, and failure to distinguish between the different textures of materials, such as silk and cotton. He could appreciate pain, extremes of heat and cold and touch, but he could not localize where the stimulus was administered with any degree of accuracy, nor could he descriminate the exact nature of the stimulus; above all he had no idea of the position of his hand or fingers.

Cause of Hoarseness Should Be Determined Early.—Hoarseness which lasts beyond quite a few days, Watson-Williams asserts, demands examination of the larynx. Hoarseness alone, without pain or other symptom, may be the only portent of an early tuberculosis, laryngeal cancer, tabes dorsalis, aortic aneurysm or other affection, foreshadowing the urgent need of vigorous therapeutic measures. Illustrative cases are cited.

British Medical Journal, London

2: 269-310 (Aug. 18) 1923

Diseases of Stomach, with Special Reference to Modern Methods of Investigation. C. Bolton.—p. 269.
*Early Diagnosis of Cancer of Stomach by Means of Gastric Analysis. T. I. Bennett.—p. 275.
*Some Applications of Physiology to Medicine. II. Ventricular Fibrillation and Sudden Death. J. A. MacWilliam.—p. 278.
*Sore Throat Caused by Elongated Styloid Process. A. J. Wright.—p. 282.

Early Diagnosis of Cancer of Stomach.—Prolonged personal investigation has convinced Bennett that free hydrochloric acid is secreted by the stomach of the majority of patients suffering from gastric carcinoma, and that, even when a patient with gastric carcinoma has complete achlorhydria, the gastric analysis is rarely identical with that given by a patient with pernicious anemia, chronic gastritis, or any other form of "benign" achylia. If the patient be prepared suitably overnight, and if careful examination of the contents of the fasting stomach be made the following morning, evidence either of stagnation, or of hemorrhage with aberrant secretion, or of both, will be found in the vast majority of cases of gastric carcinoma, and these signs are not likely to be confused with those given by other diseases. Bennett is of the opinion that great harm has been done by endeavors to interpret results of gastric analysis on empirical or on purely chemical grounds. The detection of early cancer of the stomach, he asserts, becomes possible if steps are taken to make stagnation easily demonstrable; this can be done by giving some finely divided charcoal in milk over night—two teaspoonfuls in a

tumbler of milk is sufficient, but it is, perhaps, well to give a charcoal biscuit in addition. The next step is to evacuate the fasting stomach content with great care. In a total series of fifty-three cases in which the clinical diagnosis of gastric carcinoma was definitely made, charcoal was visible in the fasting content next morning in thirty; but other signs of stagnation—a foul odor, lactic acid, and a relatively high concentration of acids other than hydrochloric—were present in twenty out of the remaining twenty-three cases. Blood was present, either fresh or partially broken up, in thirty-five cases. Bennett asserts that he has not seen a case of malignant disease of the stomach which did not give a positive diagnostic picture on gastric analysis, and the only condition with which this can be confused is that of gastric syphilis. In syphilis of the stomach there may be tumor formation with pyloric obstruction which is indistinguishable from cancer by any means save histologic examination. The Wassermann reaction is positive in such cases, but, at present, there is no means of knowing whether this may not be a sign of old infection with concurrent malignant disease.

Ventricular Fibrillation and Sudden Death.—The various phases of the problem of sudden and unexpected death of cardiac origin are reviewed and discussed by MacWilliam. Rupture of the heart, he says, is very rare. Simple standstill of the ventricles in complete heart block must be a rare cause, assuming that such standstill may sometimes kill without fibrillation as the terminal event. It is open to grave doubt whether reflex vagal inhibition per se, that is, without the supervention of fibrillation, is responsible for many deaths. Blocking of the mitral orifice by a thrombus and embolism of the pulmonary artery are known to be of very rare occurrence. Thrombosis and embolism of the coronary arteries kill by fibrillation. The old idea of a heart that is working with fair efficiency abruptly "failing to contract" against excessive resistance may be set aside as untenable, in the absence of the sudden action of violent poisons, etc. There remains the conclusion that the great majority of absolutely sudden deaths are to be ascribed to ventricular fibrillation. In animal experimentation—on cats, which are remarkably liable to ventricular fibrillation—the use of certain drugs has been found by MacWilliam to have decidedly beneficial effects, both in the way of protection against the onset of persistent fibrillation (for example, against faradic currents one hundred times as strong as are usually effective) and, in combination with cardiac massage, as regards recovery from the actual attack. These methods are, at present, only applicable under experimental conditions. There is reason to believe that in man, as in animals, an undue susceptibility to fibrillation is sometimes temporary and depends on circumstances that may be more or less transitory, though, it is often persistent and due to abnormalities of the ventricular musculature.

Sore Throat Caused by Elongated Styloid.—Cases in which sensations of pain or discomfort in the pharynx are complained of without discoverable cause are frequent. It has long been recognized that the styloid process may project into the tonsil, and even form a projection in the lateral wall of the pharynx. The elongation is probably due to ossification extending down the stylohyoid ligament, but has been regarded as an anatomic curiosity rather than as of clinical importance. Wright has seen two cases in which this condition gave rise to symptoms which were entirely relieved by removal of a portion of the bony process. Eight other cases were collected from the literature.

2: 311-346 (Aug. 25) 1923

Medical Diathermy. E. P. Cumberbatch.—p. 311.
Treatment of Gonorrheal Affections by Diathermy Currents. C. A. Robinson.—p. 312.
Diathermy in High Blood Pressure and Other Conditions. F. H. Humphris.—p. 314.
*Acidosis and Alkalosis in Children. J. P. Cammidge.—p. 318.
*Cow's Milk in Infant Feeding. R. J. Blackham.—p. 322.
*Prognosis After Removal of Semilunar Cartilages. R. J. McN. Love.—p. 324.
Antiseptic Action of Styryl-pyridines and Styryl-quinolines. C. H. Browning, J. B. Cohen, S. Ellingworth and R. Gulbransen.—p. 326.

Acidosis and Alkalosis in Children.—It is generally assumed that the depletion of the alkali reserve which occurs in diabetic acidosis is entirely dependent on the formation of acid products of imperfect fat metabolism, but the whole blood analyses which Cammidge has made in a large number of cases suggest that this is not the only explanation, and that incompletely utilized protein derivatives are a contributory factor; also, that in some instances defects in the excretory functions of the kidneys, similar to those met with in interstitial nephritis, accentuate the acidosis. In many cases, too, analysis of the feces reveals an inorganic ash content considerably in excess of the normal, pointing to an abnormal excretion of bases through the intestinal wall, a condition which would serve to diminish the alkali reserve still further. It is not surprising, therefore, that acidosis of an advanced type, in which several of these factors are probably at work, is difficult to control, and especially in children, whose metabolism is less stable than in adults, as is shown by the fact that comparatively small changes in the diet of a diabetic child will often produce very striking results. Thus, Cammidge has seen the addition of a single egg, or a dose of cod liver oil, induce a ketonuria, which rapidly disappeared when the addition was discontinued. In Cammidge's opinion, it is probable that an increase in the alkali reserve is partially responsible for the symptoms met with in pyloric stenosis and infantile tetany, but accurate observations are apparently lacking. It is known that tetany can be induced in animals by injecting alkalies, and Cammidge refers to one case in which tetanic convulsions followed an attempt to treat a diabetic acidosis in an infant by intravenous injections of sodium bicarbonate. Analyses of the blood in the few cases of alkalosis Cammidge has met with in adults have invariably indicated the existence of some ductless gland deficiency, and treatment with appropriate gland preparations and calcium by the mouth has brought about improvement.

Milk Powder in Infant Feeding.—Blackham advocates the use of milk powder for mixed feeding, in which, perhaps, the best practice consists not in giving breast feeds and bottle feeds alternately, but at each feed giving first the breasts and then a bottle in which the amount of milk corresponds as nearly as possible to that in which the former was deficient. Blackham's experience has been chiefly in hot countries, where milk is more putrescible, more adulterated, and even more liable to contamination than in temperate climates.

Prognosis After Removal of Semilunar Cartilage.—Of the fifty cases reported by Love, the results of operation were: good, 35 cases; fair, 11 cases; poor, 4 cases. In one patient in this series who was apparently cured, the condition suddenly recurred after an interval of nine months of strenuous life. In only one of these cases was the external cartilage involved.

Calcutta Medical Journal

17: 241-288 (June) 1923

Ocular Complications of Malaria. S. K. Mukerjee.—p. 241.
Main Principles of Cardiologic Practice. S. C. Bose.—p. 254.
Medical Education and Research Work in Bengal. N. Sircar.—p. 260.
Some Interesting Kala-Azar Cases. D. Banerji.—p. 265.

Medical Journal of Australia, Sydney

2: 83-108 (July 28) 1923

Hyoscin and Morphin Narcosis in Management of Labor. F. A. H. Michod.—p. 83.
Simplified Method of Preparing Modified Romanowsky Blood Stain. D. L. Barlow.—p. 90.
Lethargic Encephalitis. C. A. Hogg.—p. 90.

South African Medical Record, Cape Town

21: 317-340 (July 28) 1923

Benign Tertian Malaria. D. McK. MacRae.—p. 318.
*Method of Blood Culture in Undulant (Malta) Fever and Other Diseases. L. J. J. Orpen.—p. 325.
Rupture of External Lateral Ligament of Ankle-Joint with Protrusion of External Malleolus Through Skin. H. R. S. Walford.—p. 325.
Uterine Displacements. O. J. Currie.—p. 326.
Recollections of Smallpox Epidemic of 1882. H. Meijer.—p. 330.
Short Sketch of History of Hospitals. C. C. Elliott.—p. 331.

New Method of Blood Culture in Malta Fever.—The method used by Orpen is described as follows: Ten c.c. of blood are taken into a centrifuge tube containing from 0.5 to 1 c.c. of 10 per cent. citrate. Sodium chlorid solution is added, and the whole is centrifuged at a good speed for from fifteen to twenty minutes, so that both red cells and organisms are

thrown down. The sodium chlorid addition and centrifuging are repeated twice. The deposit (consisting of about 4 c.c. of washed red cells and organisms) is then taken up in a pipet and 1 c.c. is added to each of four tubes of ordinary agar (10 c.c. melted and cooled to 45 C.). Plates are poured at once, and incubated at 37 C. With this method the organism can be picked off for identification in a few days.

Annales de Médecine, Paris

14: 1-88 (July) 1923

*Cardiophonography. L. Michaud and A. Fleisch.—p. 1.
*Eunuchoid Infantilism. M. Letulle and Weismann-Netter.—p. 19.
*The Oculocardiac Reflex with Trigeminal Disease. J. A. Barré and L. Crusem.—p. 31.
*Dissociated Jaundice. M. Labbé and E. Doumer.—p. 44.
*Leukocyte Count During Digestion. Claude et al.—p. 52.
*Factors That Modify Glycemia. H. Labbé and B. Théodoresco.—p. 67.
Duodenal-Pyloric Ulcer of Traumatic Origin. J. Chalier and R. Desjacques.—p. 78.

Recording the Sounds and Murmurs of the Heart.—Michaud and Fleisch describe the comparative findings in normal and diseased hearts examined with W. R. Hess' cardiophonograph. They regard it as valuable both for diagnosis and prognosis, and to estimate the effect of treatment.

Eunuchoid Infantilism with Partial Giant Growth.—The necropsy of the man, aged 69, confirmed the total absence of gonads. Death had occurred from rupture of the aorta. Inherited syphilis was probably the primary factor.

The Oculocardiac Reflex in Disease of the Trigeminal Nerve.—In the twenty cases described, the oculocardiac reflex was lost on the sound side as well as on the side with trigeminal neuralgia, or other affection of the trigeminal nerve, in more than 50 per cent. of the cases. This bilateral modification of the reflex from a unilateral lesion suggests a crossed central arrangement of the reflex arc. The research was done with a special apparatus for graduated compression of the eyeball. In seven of the cases there was some destructive lesion of the trigeminal nerve.

Dissociated Jaundice.—Labbé and Doumer discuss the mechanism responsible for the cholaluria in the course of protracted jaundice, and after test ingestion of 1.5 gm. of bile salts.

Variations in the Leukocyte Count.—Claude, Santenoise and Schiff state that several factors are involved in the modifications in the leukocyte count in the peripheral blood after meals. With a normal liver, there is leukopenia when the oculocardiac reflex is strongly positive. On the other hand, there is leukocytosis when this reflex is lost or inverted. With deficient liver function, there is early leukopenia in subjects with positive oculocardiac reflex, and tardy and prolonged leukopenia if this reflex is lost or inverted. The direction, the rapidity and the duration of the digestive change in the leukocyte count, the hemoclastic crisis, thus throw light on both the functional capacity of the liver at the time and also on the balance in the vegetative nervous system.

Factors Liable to Modify the Sugar Content of the Blood.—Labbé and Théodoresco remark that tests for glycemia are liable to be misleading unless the subject has been fasting for fourteen or fifteen hours. Glycemia is a mirror that reflects the circulation and combustion of carbohydrates, revealing the efforts made by the system to throw off part of the sugar cumbering it. By repeated examination of the sugar content of the blood, we can supervise the influence of foods on accumulation and utilization of sugar in the organism in health and in diabetes.

Archives Franco-Belges de Chirurgie, Brussels

26: 311-422 (April) 1923

*Gastric and Duodenal Ulcers. E. Enriquez and P. A. Carrié.—p. 311.
Noncomplicated Ulcer of Lesser Curvature. M. Charbonnel.—p. 321.
Hemigastrectomy for Ulcer in Hour-Glass Stomach. M. Goullioud.—p. 336.
*Grave Gastric Hemorrhages. G. Leclerc.—p. 349.
*Gastropylorectomy for Perforated Ulcer. L. Courty.—p. 355.
Care Before and After Operations on the Stomach. V. Pauchet.—p. 369.

Indications for Operation in Gastric and Duodenal Ulcers.—Enriquez and Carrié say that when the surgeon is called in, after failure of medical measures, the internist should demand a more complete and certain operation than gastroenterostomy alone. Too often, with this, they add, a supplementary operation becomes necessary. They have tided patients along for twelve days with absolutely nothing allowed by the mouth, and the ulcer healed smoothly. All gastric secretion ceases with thirty-six hours of total fasting. With glucose solution by the continuous drip method the patients felt well; by the third day they had no further thirst or hunger, while urine was voided in abundance. They think this could have been kept up even longer than twelve days. They have found olive oil excellent in ulcer cases. Every hour, except eight hours at night, a cup of milk (100 or 130 gm. of milk) is ingested, and with it a dessertspoonful or tablespoonful of olive oil, alone or in the milk. The pain is promptly relieved, and the patients sometimes gain over 2 pounds a week. This treatment is kept up for three or four weeks or longer; the benefit may be from the protecting coating of the oil or its modification of gastric secretion or a cholagogue action. Medical treatment is most durably successful with duodenal ulcer, while it fails most often with ulcer of the lesser curvature. They ascribe this to the fact that ulcer in the lesser curvature does not attract attention until in a comparatively advanced phase. They explain recurrence of ulcer by the persistence of the cause; the ulcers themselves always tend to heal.

Treatment of Grave Hemorrhage from the Stomach.—Leclerc has applied jejunostomy in three cases. This rests the stomach and gives it a chance to heal, while allowing ample nourishment. If medical measures fail and the stomach continues to bleed in spite of fasting and complete rest, he advises jejunostomy without further delay.

Gastropylorectomy for Perforated Ulcer.—Courty has compiled seventy-eight cases in the last three years in which this operation was done at once after the perforation, with recovery of 83 per cent. of the patients. The bacteriologic factor determines the outcome in the ultimate analysis, but clinically and practically it is determined by the time that has elapsed since the perforation.

Archives des Maladies du Cœur, etc., Paris

16: 401-480 (June) 1923

*Heart Sounds with Branch Block. M. R. Castex.—p. 401.
*Stain for Fresh Dried Blood. J. Sabrazès.—p. 408.
Epinephrin Test in Thyroid Disease. H. Vaquez and C. Dimitracoff.—p. 414.
Electrocardiography of the Auricle. P. Veil.—p. 428.

The First Heart Sound with Partial Branch Block.—Castex reports five cases in which the electrocardiographic tracings indicated block of the left branch of the bundle of His. The first heart sound was either double or only half the normal sound.

Stain for Fresh Dried Blood.—Sabrazès comments on the instructive findings in blood recently dried and stained with toluidin blue.

Bulletin de l'Académie de Médecine, Paris

90: 97-112 (July 24) 1923

*Serotherapy in Acute Myelitis. G. Etienne.—p. 102.
*Neuralgia in Epidemic Encephalitis. M. Bureau.—p. 106.
History of Inoculation Against Smallpox. V. Torkomian.—p. 108.
Apparatus for Taking Moving Roentgenograms. H. Béclère.—p. 110.

Serotherapy in Acute Myelitis in Adults.—Etienne reports extremely favorable results from the poliomyelitis antiserum prepared at the Paris Institute Pasteur, and administered in eight cases. Myelitis in adults seems to be prevailing in epidemic form, and in his two fulminatingly acute cases the serotherapy arrested the disease and the symptoms began to subside the next day. In the less acute cases the diagnosis was not made so promptly, and treatment was not begun till the fourth day or later. The effect was good, but slower in becoming manifest. The interval in three cases was eighteen days, two months, or eleven weeks after the onset, but the benefit was unmistakable, although not apparent for six or seven days. He gives the details of a number of other cases in which no serotherapy had been given. They all ran a very severe course, testifying to the gravity of the disease in the present epidemic. In one woman the myelitis had been ascribed to syphilis and treated accordingly, and she now has complete paraplegia.

Neuralgia in Epidemic Encephalitis.—The disease began in the farmer, aged 36, with diplopia, and the complete parkinsonian picture was six months in developing. During the year and a half since, there have been almost continual pains in the domain of the left trigeminal and intercostal nerves and brachial plexus. These pains are increased by the slightest noise, the sound vibrations causing agonizing exacerbations of the pain. The condition was unchanged after three months of treatment for this echolalgia, as Bureau calls it.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 679-715 (May 11) 1923

*Inefficiency of Intestinal Diphtheria Antitoxin Immunization. E. Lesné.—p. 679.
Anatomy and Physiology of the Left Ventricle. E. Géraudel.—p. 680.
*Perivenous Injections in Treatment of Hemorrhoids. R. Bensaude.—p. 686.
Radioscopy of the Bronchi and Trachea. E. Sergent and P. Cottenot.—p. 693.
*Autogenous Vaccine Therapy in Respiratory Diseases. G. Vallet.—p. 696.
*Effects of Arsphenamin on Pregnant Syphilitics. Pomaret and Benoit. p. 699.
Attacks of Unnatural Somnolence of Anaphylactic Origin. E. May.—p. 704.
Perinephritic Abscess Cured by Vaccine Therapy. P. Emile-Weil and Pollet.—p. 706.
*Oculocardiac Reflex in Mumps. R. Benard.—p. 708.

Inefficiency of Diptheria Antitoxin Given by the Digestive Tract.—Lesné says that as a rule passive immunization by introducing diphtheria antiserum into the intestines is impossible. Certain infants are capable of absorbing the ingested antitoxin, but this is attributed to defects in the intestinal epithelium, insufficiency of gastric juice, of hepatic function, or to more or less latent gastro-intestinal lesions. Older children can be immunized by intrarectal injection of diphtheria antitoxin only when the bowel is diseased. Absolute immunity can be obtained only by subcutaneous, intramuscular or intraperitoneal injections.

Treatment of Hemorrhoids by Perivenous Injections.—Bensaude made two injections of alcohol with excellent results but the patients suffered severe pains for two days after the treatment. He prefers injections of 3-5 c.c. of 5 per cent. urea and quinin hydrochlorid once a week, which he has used regularly during three years in treatment of a large number of patients. During the last six months he has made the injections only in the submucous cellular tissue at the base of the hemorrhoid. It produces a local edema and later the sclerosis which retards the venous circulation. Usually from six to ten injections are required to produce results, but in case of pain about the anus, the injections are suspended, as the pain is due to a fissure or to inflammation which must be relieved before proceeding with the injections. In the majority of cases the injections are painless, the solution of urea and quinin having an anesthetic effect which lasts several days. The hemorrhages returned in from six to ten months in four patients who had received ten injections, but a new series of injections seems to have produced a definite cure. The mode of action is that of closing the vessels by producing a perivascular, submucous sclerosis. Of fifty-two patients, only six had recurrence, but four cases of prolapsed hemorrhoids have been improved slightly or not at all. The results of the injections of quinin and urea may be inferior to those of phenol and glycerin or 96 per cent. alcohol, but they are less inconvenient, requiring no anesthetic.

Treatment of Acute Respiratory Diseases by Autogenous Vaccine.—Vallet calls his method of autogenous vaccination "ptysmatherapy," and he says it has produced favorable results in 75 per cent. In his thirty-one cases the injections were made subcutaneously in doses increasing from 1 to 2 and at times to 3 c.c., frequently daily. For obtaining 10 c.c. of vaccine, 5 c.c. sputum is placed in a test tube with 1 c.c. chloroform, and agitated until a milky emulsion is obtained. Then physiologic salt solution is added to the 10 c.c. mark, and shaken again. In viscid sputum the salt solution should be added at the same time as the chloroform, but in watery sputum a smaller quantity of salt solution or none must be used.

Research on Abortion from Arsphenamin Treatment.—Pomaret and Benoit say that in exceptional cases arsphenamin treatment may be considered powerless to counteract the feticidal action of syphilis, and it may even cause abortion. Experimentally, not only arsphenamin but most other organic forms of arsenic tend to cause abortion. Experience has shown that it must be used with care in small doses by intramuscular or subcutaneous injection, rather than by large intravenous doses at long intervals. Experiments on gravid rabbits showed them to be more sensitive than male rabbits to bismuth intoxication, but the toxic dose did not produce abortion.

Oculocardiac Reflex in Mumps.—Bernard, for study of the oculocardiac reflex in a contagious noneruptive disease, selected fifty patients with mumps, aged 20-22. In making the test, he informs the patient who is reclining on his back, that somewhat disagreeable tests will be made, but makes no pressure during the first ten seconds. The figure obtained, which may be notably high because of apprehension, is the first test and the increase above normal furnishes the measure of the cardiac instability of the subject. Ten seconds later he makes progressive pressure with his fingers which reaches the maximum in ten seconds, noting the figures obtained during three to five similar periods. The pressure is suddenly removed, and the figures taken for at least three ten second periods. All figures are multiplied by six to correspond to the one minute unit of the pulse, and to make them comparable with figures of those who use the quarter of a minute count. In 50 per cent. of his observations the pulse showed no change, and he concludes that mumps, which naturally determines an intense bradycardia, does not predispose to an oculocardiac reflex. This on the contrary is more rare in mumps than in normal persons of the same age, and it requires longer pressure to produce it in mumps than in a normal condition.

Médecine, Paris

4: 733-808 (July) 1923

*Nutritional and Digestive Disorders in 1922. L. Lortat-Jacob.—p. 733.
*Test Hyperglycemia in Diabetes. M. Labbé and F. Nepveux.—p. 743.
*"Gastric Claudication." F. Ramond and J. Mignac.—p. 748.
*Syphilitic Disease of the Intestines. R. Bensaude and L. Rivet.—p. 750.
*Enterorenal Syndromes. E. Antoine.—p. 755.
*Latent Exophthalmic Goiter. M. F. Beaulieu.—p. 760.
Vertical Stretching of the Stomach. G. Faroy.—p. 767.
*Arthritis in Gout. Mathieu Pierre Weil.—p. 773.
The Cruveilhier-Baumgarten Cirrhosis of the Liver. J. Huber.—p. 777.
*Lesions in Arteries in Diabetes. J. Heitz.—p. 783.
Rôle of Carbohydrates in Treatment of Diabetes. F. Rathery.—p. 786.
*Feeding by the Duodenum. R. Damade.—p. 792.
Treatment of Obesity. G. L. Hallez.—p. 797.
Indications for Operative Treatment of Gastric and Duodenal Ulcers. G. L. Hallez.—p. 798.

Recent Literature on Digestive and Nutritional Disorders.—Most of the works analyzed by Lortat-Jacob have been reviewed in THE JOURNAL as they appeared. He calls attention in particular to the disappearance of cancer in the esophagus after several applications of radium to the point of stenosis, Guisez having reported several cases of the kind. Loeper and Marchal have published several works on what they call gastric leukopedesis. They have established that leukocytes pass through the vessel walls into the stomach during the progress of digestion, and take an important part in the digestion process. Carnot and Libert have found feeding by the drip method through the duodenal tube very useful when the stomach had to be rested. It proved a life-saving measure in one case of mental anorexia with intractable vomiting. Linossier asserts that the acidosis of fasting and diabetic acidosis are due to the same cause—deficiency in glycolysis. But in fasting, the glycolytic function is lacking because there is no glucose to act on, while in diabetes the glycolytic function is lacking because—although there is plenty of glucose—the organs which normally carry on the function of glycolysis are not working so far as this function is concerned. It seems paradoxic to try to combat diabetes with fasting, but Linossier advises a trial of it, giving the diabetic patient infusions sweetened with levulose, as Kulz has shown that diabetics can form glycogen out of levulose.

Hyperglycemia Test in Diabetes.—The exaggerated glycemia that follows ingestion of 50 gm. of glucose is useful in the diagnosis of diabetes, but recent tests of twenty-seven diabetics have demonstrated that it throws no light on the prognosis.

Intermittent Limping of the Stomach.—Ramond apologizes for using the term *claudication gastrique* to explain the results of intermittent shutting off of the blood supply of the stomach. Besides occupational injury, syphilis, and lead or gout poisoning, these intermittent disturbances may be due to sympathetic vasomotor derangement. In this latter case there is usually violent pulsation in the abdominal aorta, with signs of a neurosis and tendency to visceral ptosis. The cramps and distress come on two or three hours after eating, as a rule, and, if the patient vomits, usually all the disturbance subsides at once. The diagnosis must be based mainly on the age, tendency to atheroma, the distressing nature of the pain, the absence of much dilatation of the stomach, the injurious influence of meat, fat soups, cold drinks, and the fact that alkalies fail to relieve. Rest during digestion and a milk-vegetable diet should be enforced. During an attack, rest, warm drinks, a tablespoonful of liquid petrolatum, and very hot compresses to the epigastrium are the main reliance, possibly supplemented by subcutaneous injection of 0.5 mg. of atropin sulphate, or tentative treatment for syphilis. The latter has rendered good service in intermittent claudication of the legs.

The Intestinal Manifestations of Syphilis.—The main thing is to think of the possibility of syphilis when confronted by an intestinal disorder. Bensaude and Rivet review the diverse clinical pictures for which inherited or acquired syphilis may be responsible. They cite a recently published case in which an ulcerative colitis—that had forced the surgeon to make an artificial anus—healed promptly under specific treatment for syphilis. In six of thirteen cases of cancer of the large intestine, there was a history of syphilis.

Influence of Intestinal Disease on Urinary Apparatus.—Heitz-Boyer recently pointed out a set of symptoms referable to the kidney from disease in the intestine on the right side. Antoine here describes an analogous clinical picture with disease in the descending colon and rectum. The secondary urinary derangement in such cases is characterized by pus and colon bacilli in the urine.

Hyperthyroidism Soon After Puberty.—The disturbances may be nervous, circulatory, genital, or of a general nutritional character, but without decided symptoms of exophthalmic goiter. Tests reveal exaggeration of basal metabolism, and under roentgen exposures of the thyroid, the normal balance is soon restored. Beaulieu describes four cases in detail, all in girls of 15 to 21. The basal metabolism in all corresponded to that of severe hyperthyroidism, and the hyperglycemia test paralleled it. In another case, the excessive basal metabolism in a man aged 50 with severe exophthalmic goiter dropped nearly to normal after four applications of electricity to the thyroid in three weeks.

Gouty Arthritis.—Weil comments on the multiplicity of forms that gout may assume in a joint. It may induce a clinical picture suggesting phlebitis, an ordinary infection or a tuberculous process. Gout should be thought of in all cases of arthritis. Tentative colchicin treatment will generally decide the differential diagnosis.

Circulatory Derangement in the Legs in Diabetes.—Heitz warns that the cholesterolemia in diabetes predisposes to arterial lesions. The slightest sign of reduction of the permeability of an artery in the leg in diabetes warns of the necessity for vigorous measures. The diet should contain only fats, with little cholesterol, and saline purgatives should be given. Sodium citrate (12 to 20 gm. a day) will reduce the pain with advanced obliteration. Tepid douches, mild local light baths, Vichy waters to combat the acidosis, and carbonated baths (Royat) aid in reducing the tendency to intermittent claudication and chilling of the extremities. Left untreated, diabetic arteritis tends inevitably to gangrene.

Feeding Through Duodenal Tube.—Damade enumerates a number of minor points useful in insuring ample nourishment while resting the stomach. He has succeeded in keeping the duodenal tube in place for fifteen or twenty days without incommoding the patients unduly. In the very nervous, the feeding can be by the drip method. The duodenal tube passing through the mouth does not interfere with ingestion of bismuth or alkalines to act on the stomach mucosa.

Nourrisson, Paris

11: 145-208 (May) 1923

*Heatstroke in Infants. E. Weill and Bertoye.—p. 145.
*The Cough with Tuberculous Glands. A. B. Marfan.—p. 157.
*Nursing Home in Rhône District. P. Commandeur.—p. 164.
Pseudoileus in Pneumonia in Infants. G. L. Hallez.—p. 167.
Antiscurvy Action of Elements of Milk. Lesné and Dubreuilh.—p. 172.
Radiologic Triangle in Pneumonia in Infants. H. Lemaire and Lestocquoy.—p. 174.
Congenital Absence of Pectoralis Muscles. W. Szczawinska.—p. 187.

Heatstroke in Infants.—Weill and Bertoye state that eight died of the sixteen infants with heatstroke among the twenty-one infants in a Lyons hospital during a hot wave in 1922. All were doing well when suddenly their temperature rose, and remained high, without appreciable morning decline. The skin and mucous membrane of the mouth and nose were dry, the pulse was small and often uncountable, and agitation and restlessness were extreme, but there were no convulsions, and gastro-intestinal derangement formed no part of the clinical picture. The infants died or began to improve after three days. The eight that recovered showed no sequelae. Although it was May, the thermometer registered 93.2 F. in the shade. Experience has shown that a temperature above 86 is dangerous for young infants especially when the humidity is high. The authors are convinced that some infants owed their survival to cool baths for ten or twenty minutes every three hours. Since then, the air of the hospital has been cooled with ice. Three zinc boxes, each containing 66 pounds of ice, are placed in the central passage of the ward on which the cubicles open. An electric fan above the box, playing on the ice, distributes the chilled air to all parts of the ward.

The Double Sound Cough.—Marfan declares that when a young child's cough is composed of two distinct, simultaneous sounds, this is always a sign of tuberculous glands in the tracheobronchial region. The cough is not paroxysmal nor protracted, and the child's crying does not show this bitonal character. The double sound cough is not only a certain sign of tuberculosis in the bronchial glands but it indicates compression of some organ in the mediastinum, and hence is important for prognosis. The course is almost always progressive in children under the age of 1 year; above this age the lesions may retrogress. Improvement has seemed to be promoted by intramuscular injection of 1 c.c. of a mixture of 3 c.c. of ether and 7 c.c. of olive oil, his routine treatment of chronic tuberculosis in young children. He makes the injection daily, increasing to 2 c.c. by the fourth day, and suspending after the sixth injection for four or five days. He then begins a new series and repeats this for weeks and months.

The Vinatier Nursing Home.—This institution gives a home to girl-mothers and abandoned wives who agree to nurse their infants. In two years there have been 166 mothers thus sheltered for from four to twelve months, and there have been only six deaths among the infants. There is also a department for motherless infants, with seven deaths among the fifty-three in this group. When a woman is nursing her own and another infant, the latter seldom thrives as well as her own infant.

Paris Médical

13: 437-460 (May 19) 1923

Works on Diseases of Liver, Pancreas and Spleen in 1923. E. Chabrol.—p. 437.
*Diagnosis of Jaundice from Retention. Carnot and Gachlinger. —p. 451.
*Roentgenography of Biliary Passages. P. Duval, J. Gatellier and H. Béclère.—p. 456.

Diagnosis of Jaundice from Retention of Bile.—The duodenal tube may aid in diagnosis by the pigments and bile salts in the bile thus obtained; also by the pancreatic ferments in the duodenal contents—showing that the obstacle is not in the pancreas—and further by the presence or absence of blood, of cells and of bacteria. Usually the duodenal findings merely confirm the clay-colored stools in regard to the complete obstruction to the course of the bile. With cancer, blood is found continuously, but only irregularly with ulcer. Blood may be found in the duodenal content when it does not reach the stools. Erosion from a gallstone may induce bleeding, but blood mixed with bile does not clot. Carnot

and Gaehlinger noticed that the blood after extravasation in the duodenum was coagulated or in small clots. The duodenal tube will thus aid in differentiating obstruction of the bile ducts (from gallstones or a primary tumor, or indirectly by enlarged glands or adhesions), from tumor in the pancreas or bowel.

Roentgenography of Gallstones.—This article presents the results of comparative study of the normal biliary passages and those with gallstones by surgeon and radiologist working together. In about 60 per cent. of the cases of cholelithiasis, the roentgen rays aid decidedly in the diagnosis and in determining the coexistence of lesions in or around the duodenum or colon.

13: 461-476 (May 26) 1923

Functional Adaptation of Bone to Pathologic Conditions. L. Dieulafé.—p. 461.
*Signs of Incipient Lead Poisoning. A. Feil and R. Heim de Balsac.—p. 463.
Experiences with Bismuth and New Arsenical in Treatment of Syphilis. S. Nicolau.—p. 467.
Endoscptal Access to Pituitary. L. Dufourmentel.—p. 473.

Diagnosis of Incipient Lead Poisoning.—Feil and de Balsac examined 179 persons working with lead but not presenting symptoms suggesting injury from the lead. The lead line on the gums was found in 65 per cent., parotitis only in 3 per cent. Lead colic was the first symptom in 5 or 6 per cent. None of the other clinical signs or symptoms were specific or early. "The only reliance is on finding lead in the urine and basophil granulations in the erythrocytes."

Presse Médicale, Paris

31: 649-656 (July 25) 1923

*The Vegetative System. D. Daniélopolu (Bucharest).—p. 649.

The Vegetative Nervous System.—Daniélopolu reports the results of recent research which apparently establish that the balance between the sympathetic and the parasympathetic innervation of each organ is determined in the organ itself, not in the nervous centers. The balance may be upset by a lesion in the afferent nerve tracts, by a lesion in the organ itself, or by a general excitability or lack of excitability in the sympathetic or parasympathetic, or in both. Variable compression of the eyeball induces a number of visceral reflexes, as does compression of the vagus in the neck, which throw light on the factors involved. Tests with drugs, recording the effect on the contracting force of the heart, bladder, stomach, and other viscera by methods he has worked out, give some insight into the functioning of the vegetative nervous system. He claims that the methods he describes, especially his application of Marey's principle of manometer estimation of the contractile force of the viscera, from within, allow hitherto unattainable precision in such tests. He insists that drugs for these tests must never be injected subcutaneously; the intravenous route is indispensable. He gives the findings and charts from cases of each type of vegetative disturbance.

31: 657-668 (July 28) 1923

*Hemorrhages After Arsphenamin. P. Emile-Weil and Isch-Wall.—p. 657.
*Pathogenesis of Trophic Skin Lesions. Lévy-Franckel and Juster.—p. 660.
Cinchonin in Treatment of Malaria. L. Cheinisse.—p. 662.

Hemorrhagic Reaction to Arsenical Treatment.—Weil and Isch-Wall have been impressed by their ten cases of a hemorrhagic tendency developing after arsphenamin treatment in the last two years. The hemorrhages range and may progress from epistaxis, hemoptysis, bleeding from the gums and excessive menstrual hemorrhages to various forms of purpura, sometimes fatal. The slightest tendency to hemorrhage in the course of treatment with arsenicals should lead to suspension of this treatment. In four of their cases, during a previous series of injections, jaundice, or an eruption or edema with itching and fever, had developed. In their last six cases, the signs of intolerance, vomiting, diarrhea, fever or nitritoid crisis, had been observed only at the injection just preceding the one followed by hemorrhage. Subcutaneous injection of human blood arrested the hemorrhagic tendency at once in the mild cases. With grave hemorrhages, repeated transfusion of 200 to 300 c.c. of blood combated the anemia as well as the hemorrhages. One patient was thus tided along for four months, with less than one million erythrocytes, before the blood began to regenerate. She is in good health now, a year later, but a slight tendency to hemorrhage is still manifest at times. They generally supplemented the hematotherapy with a drip glucose solution, containing a maceration of 100 gm. of pig liver, and gave 40 drops of epinephrin solution by the mouth. When a hemorrhagic tendency had once developed, it flared up anew on resumption of arsenical treatment, even after a long interval. Even mercury roused the tendency anew, but bismuth was borne well in their cases. Bismuth seems less injurious for the liver and blood, but Drouet has reported a case of hemoptysis under bismuth, and two other clinicians purpura with metrorrhagia or an eruption. Whenever the bleeding time was found abnormal, the patients invariably manifested intolerance for the arsphenamin preparations. If a preceding hemorrhagic tendency is known, the nature of the manifestations of the intolerance can be foretold. Otherwise it appeared as an eruption, digestive derangement, jaundice or nitritoid crisis. The bleeding time alone may suffice as a guide to treatment, but a single test is not conclusive.

The Endocrine and Sympathetic Systems in Pathogenesis of Skin Anomalies.—Changes in the hair, nails, and the skin proper, pigmentation and horny degeneration, have a trophic origin, direct or reflex. "The epidermis, with its appendages, is like a mirror reflecting the functional disturbances of the different endocrine glands."

Revue de Médecine, Paris

40: 193-256 (April) 1923

*Physiology of the Suprarenals. E. Gley.—p. 193.
*Epinephrin Content of the Blood. A. Tournade and M. Chabrol.—p. 222.
*Acute Suprarenal Insufficiency. A. Sézary.—p. 246.

The Physiology of the Suprarenals.—Gley insists that study of suprarenal function should not be restricted to the properties of epinephrin. He urges further study of the toxicity of blood in suprarenalectomized animals. The attempt to explain all the phenomena by the loss of epinephrin has misled physiologists and pathologists. Sergent has recently called attention to the clinical picture of acute suprarenal insufficiency which bears the imprint of severe toxic action.

Epinephrinemia.—Tournade and Chabrol protest against the assumption advanced recently by certain writers that epinephrin is merely an excretory product. They present new arguments to demonstrate the important physiologic significance of epinephrin in the blood. By anastomosis of the suprarenal vein of one dog (after removal of one suprarenal) with the jugular vein of another dog, they found it possible to induce the two forms of physiologic reaction, nervous and hormonic, such as follow stimulation of the splanchnic nerve. In the normal subject, these two reactions blend and induce hypertension and hyperglycemia. But in the paired (one partially suprarenalectomized) dogs, the two mechanisms worked separately. The receiving dog showed excessive epinephrin content in the blood, actual hyperepinephrinemia, and all the various apparatus which epinephrin stimulates, started to work vigorously. The donor, on the other hand, had no suprarenal secretion (one suprarenal having been removed, and the secretion from the other being diverted into the other dog), but the blood pressure and the sugar content of the blood rose, showing that the splanchnic nerve is able to play the dual rôle of vasoconstriction and sugar regulation. They describe further research which demonstrated that the blood pressure-reducing action of suprarenalectomy could be arrested by transfusion of blood from the suprarenal vein. Severing the splanchnic nerve in the donor annuls the effect, but this can be counteracted by artificial stimulation of the splanchnic nerve. The functional cycle is thus complete: the tonic action of the splanchnic nerve, the secretory activity of the suprarenals, and the physiologic play of the suprarenal hormone.

Acute Suprarenal Insufficiency.—Sézary defines more clearly the clinical picture, showing what really belongs to the acute insufficiency of the suprarenals and what should be ascribed to other causes. He recalls that nine-tenths of the suprarenals can be destroyed without the loss proving fatal, and

hence these glands can be seriously compromised without clinical symptoms appearing. On the other hand, only insignificant lesions are found sometimes in cases of supposed fatal acute suprarenal insufficiency. All his evidence thus tends to prove that the triad of symptoms supposed to be characteristic of this may be indueed by disease elsewhere, in the liver, the nervous or the endocrine system. In short, he adds, the domain of acute suprarenal insufficieney should be materially restricted.

Schweizerische medizinische Wochenschrift, Basel

53: 637-656 (July 12) 1923

*Treatment of Older Girls with Goiter. W. Silberschmidt.—p. 637.
Course of Oxidation Processes. H. Wieland.—p. 639.
Relations Between Parkinsonianism from Influenza and Catatonic Stupor and Mental Torticollis. J. Kollarits.—p. 642.
Balneotherapy as a Form of Nonspecific Shock Treatment. M. Favarger. —p. 645.
Gaseous Interchanges in Case of Exophthalmic Goiter in Mountain Climate. G. Michel.—p. 648.

Iodin Treatment of Goiter in Older Girls.—Silberschmidt reports the outcome of systematic iodin tablet treatment of girls, aged from 15 to 22. Two years' observation has shown that the treatment is borne well and never did harm, and many pronounced goiters retrogressed. The outcome was better with soft goiters than with hard, and iodin treatment is undoubtedly more promising for children than for adults. Goiters with connective tissue infiltration are not likely to show much benefit from iodin tablets or iodized salt, which has now been introduced into Zurich canton.

Pediatria, Naples

31: 521-576 (May 15) 1923

Case of Congenital Hemihypertrophy. O. Cozzolino.—p. 521.
*Hemophilia in Female Infant. L. Auricchio.—p. 532.
*Magnesium Sulphate in Treatment of Chorea. A. de Capite.—p. 537.
Paratyphoid Meningo-Encephalitis in Infant. G. Artom.—p. 545.
*Whooping Cough in Infants. A. Cantilena.—p. 555.

Hemophilia in Breast-Fed Female Infant.—A hematoma on the head after easy birth, ecchymoses on the skin later, and persistent bleeding from slight excoriations were explained by the coagulation time of an hour and a half on a watch glass and more than twice this in the test tube. No instances of hemophilia were known in the family, but the parents responded positively to the Wassermann test. After two intramuscular injections of normal horse serum, the coagulating time was reduced to one hour. Venous stasis did not induce punctate hemorrhages in the skin.

Magnesium Sulphate in Treatment of Chorea.—De Capite reports great improvement after subarachnoid injection of 0.10 or 0.15 gm. of a 25 per cent. solution of magnesium sulphate. A single injection cured the chorea in one of the three cases he reports; the others required from five to seven injections, given on alternate days. In another series he injected 2 c.c. intramuscularly on alternate days until the choreic movements subsided. The results were equally favorable by this route. The best effect was noted in two children who had had a little fluid drawn by lumbar puncture beforehand, to reduce the high intracranial pressure. The chorea disappeared after three injections in these cases; the other two required from seven to nine injections. He increased the doses in some of the cases, the maximum being 1.5 gm. intraspinally, and 4 c.c. intramuscularly.

Whooping Cough and Breast Feeding.—Cantilena remarks that only bottle-fed infants develop rickets as a rule, and latent tetany is common among them. He adds that nothing rouses latent tetany to such an extent as whooping cough. In the recent epidemic of whooping cough at Venice, very few of the younger children escaped, and convulsions were frequent. In seventy cases in his service, in three months, the children with convulsions were all in the artificially fed group. No signs of meningitis or encephalitis were found in the fatal cases.

Policlinico, Rome

30: 617-648 (May 14) 1923

*Diagnosis of Hydatid Cyst in Lung. B. Masci.—p. 617.
*Obesity After Epidemic Encephalitis. E. Sartorelli.—p. 624.
Calcium in Treatment of Tuberculosis. M. Borgogno.—p. 627.
*Technic for Measuring the Blood Pressure. G. Galli.—p. 629.

Diagnosis of Hydatid Cyst in Lung.—Masci inquires as to contaet with dogs, and whether scraps of membrane have ever been noticed in the sputum. A peculiar depression and discomfort may be in striking contrast to the appearance of florid health, and the interspaces may bulge on one side. There is no atrophy of musele, or point of special tenderness, but percussion is instructive if the cyst is large, even if it is deep in the superior lobe. He warns that exploratory puncture has proved fatal in 60 per cent. of the cases in which it has been applied. Radiography, the blood picture, and biologic tests are all useful. An abscess in the lung is usually preceded by pneumonia, and the course is rapid and febrile. Syphilitic disease of the lung is generally aecompanied by other signs of syphilis, and is located low in the lung, and is improved by treatment for syphilis. Actinomycosis and other myeoses generally have a more rapid and febrile course, and yield to iodid treatment. The main thing, he reiterates in conclusion, is to think of the possibility of eehinocoecus disease.

Progressive Obesity After Encephalitis.—A tendency to transient obesity as a eomplication or sequela of epidemic encephalitis has been reported by several writers in various countries. But in Sartorelli's case the obesity, which began at the fourth month, has continued to increase at the rate of 5 kg. a month until the man, aged 30, now weighs 98 kg. (205.6 pounds).

Blood Pressure Measurements.—Galli relates that when the cuff was inflated with hot air, alternating with ice eold air, the blood pressure readings sometimes varied by 40 mm. of mercury. He covers the sphygmomanometer cuff with a tricot slip to prevent any vasomotor reaction to the cool rubber.

30: 221-268 (May 1) 1923. Medical Section.

*Vitamins in Mushrooms. P. di Mattei.—p. 221.
Blood Transfusion in Grave Anemia. P. F. Zuccòla.—p. 239.
Comparative Tests of Renal Function. G. Diena.—p. 256.

Vitamins in Mushrooms.—Di Mattei's research in this line was done on pigeons and guinea pigs at the institute for experimental pharmacology at the University of Rome. The results showed a notable vitamin content in dried *Boletus edulis* and *Boletus scaber,* the most common mushrooms on the market. The vitamin factor does not seem to be totally soluble in either water or alcohol. Iceland moss does not contain a vitamin element. As we know that there are different vitamins and as each has its special field, he suggests that the elinical picture of beriberi should be separated into its component parts, and these be tested with separate vitamins. He thinks it significant that the vitamins in the mushrooms he tested were not impaired by heating, while every trace of Funk's vitamins is destroyed by heating. Mushrooms contain from 20 to 37 per cent. of nonprotein nitrogen while Iceland moss and other lichens contain none. For these and other reasons, he calls attention to nonprotein nitrogen, saying that under certain circumstances this and many other heterogenous substances can act like a true vitamin in deficiency disturbanees. The nonprotein nitrogen compounds (alkaloids, betain, hypoxanthin, guanin, vernin, arginin, amids and their derivatives) may form a large percentage of the total nitrogen in vegetables. In germination, pyrimidin bases are developed, and their affinity with purin bodies deserves careful study in the seareh for new articles of food.

30: 269-316 (June 1) 1923. Medical Section

*Experimental Reproduction of Malaria. T. Pontano.—p. 269.
*The Colloidal Gold and Mastic Reactions in the Cerebrospinal Fluid. C. de Sanctis and D. Pisani.—p. 287.
*Anaphylaxis and Antianaphylaxis. E. Trenti.—p. 300.

Experimental Reproduction of Malaria.—To throw light on the baffling tenacity of malaria, the recurrences when cure had seemed complete, Pontano inoculated eleven persons free from malaria with blood of tropical malaria patients containing crescents alone. In six of the experiments the donors had been long under quinin treatment, and the blood contained only crescents. In three other experiments the malaria had been apparently cured by quinin, and no parasites could be found in the blood. These experiments were all negative. In two other experiments the donor had not been treated with

quinin and the plasmodia were in the ringlike form. The two receivers in these cases developed malarial fever in nine and fifteen days thereafter, but it subsided in a month in both under quinin treatment. Four of the six inoculated with from 5 to 10 c.c. of blood containing crescents alone developed tropical malarial fever, and it proved rebellious, recurring again and again. The plasmodia were first found in the blood the seventh, eleventh and fortieth days, but the malarial attacks developed in seven to eleven days. He gives the detailed fever charts from these patients inoculated with crescents. The species of plasmodium always corresponded to those of the source in his research. Another fact to which he calls attention is that malarial blood can be soon rendered sterile when the schizonts are only in the peripheral blood, but not when they accompany the crescents in the general circulation. This is explained by the reproductive capacity of the gametes and their resistance to drug treatment.

Reactions in Cerebrospinal Fluid.—Among the various tests applied in 157 cases, the mastic resin technic proved the simplest and the most reliable. Goebel's directions were followed.

Anaphylaxis and Antianaphylaxis.—Trenti reviews the history and brings the subject down to the latest acquisitions in different countries.

Riforma Medica, Naples

39: 601-624 (June 25) 1923

In Death Do All the Tissues Die? G. Cagnetto.—p. 601.
Artificial Production of Aneurysms. De L. Tommáso.—p. 606.
*Treatment of General Paralysis. C. Goria.—p. 609.

Tuberculin and Bismuth Treatment of General Paralysis.—Goria has only one case to report, but says the effect of the combination of tuberculin and bismuth was so striking that he does not wait for further confirmation before advising others to give this treatment a trial. The treatment at first aggravated the symptoms, but this was followed by their complete subsidence, and the woman has resumed her ordinary life. There has been no change in the Wassermann reaction in serum and spinal fluid, but the other reactions in the fluid disappeared as improvement progressed. He theorizes that the tuberculin paves the way for the bismuth to act on the neurosyphilis.

39: 625-648 (July 2) 1923

*Syphilitic Disease of the Stomach. R. E. Leone.—p. 625.
Syringe for Exploratory Puncture or Aspiration. B. Bisbini.—p. 628.
*Connection Between Furuncles and Tuberculosis. G. Grossi.—p. 630.
*Artificial Anus with Rectal Cancer. V. Pauchet.—p. 634.
Present Status of Subphrenic Abscess. E. Aievoli.—p. 637.

Gastric Syphilis.—In both of the cases Leone reports, the syphilis had induced stenosis. One patient was a woman, aged 32, the other a man, aged 42. After gastro-enterostomy the woman regained clinically complete health under intensive treatment for the syphilis. The man refused this treatment, and conditions grew rapidly worse, with death in three months. The stenosis in the woman was from granulomatous tissue; in the other, there was fibrous sclerosis from an old gumma, and the prognosis could scarcely have been favorable even under intensive treatment. Gastric syphilis affects the young and the mature, and men more than women. A syphilitic tumor in the stomach is indolent, movable, with regular outlines, and the general health shows little impairment. In the ulcer form, one or more elements of the triad, pain, bleeding and vomiting, may be lacking, and the exacerbations may be nocturnal. There may be hypo-acidity and absence of free hydrochloric acid. In case of doubt, tentative treatment for syphilis will usually clear up the diagnosis.

Furuncles and Pulmonary Tuberculosis.—Grossi queries whether there is any causal significance in the fact that in 49 of 200 cases of pulmonary tuberculosis there was a large furuncle in the case history, generally on the neck, and in 67 per cent. on the same side as the pulmonary process. In 10 cases there seemed to be a family tendency to furunculosis.

Rectal Cancer.—Pauchet's routine procedure is to make an iliac artificial anus; two weeks later he applies radium treatment, and waits for six weeks before removing the rectum. The whole is thus complete in two months. He draws the iliac colon through the obliquus muscle, which serves as a kind of sphincter.

Tumori, Rome

10: 1-128 (Aug. 5) 1923

*The Albumin Content of the Blood in Cancer. S. Gussio.—**p. 1.**
The Reticular Tissue in Tumors. F. Speciale.—p. 37.
Primary Teratomas in Fowls. S. Dentici.—p. 47.
*Psammoma and Tumors of Cerebral Meninges. G. Tarozzi and G. Baggi.—p. 53.
*Adenoma Sebaceum in Three Generations. M. Camplani.—p. 92.
*Primary Epitheliomas of the Epicardium. A. Businco.—p. 99.

The Albumin Content of the Blood in Cancer.—In cases of cancer, Gussio always found the globulin content of the serum in an abnormally high proportion while the serum-albumin was below normal. This inversion of the usual albumin ratio seems to accompany debility from various causes, but with cancer the change from normal is more pronounced, and it occurs earlier, while the general health still shows only slight impairment.

Tumors in Cerebral Meninges.—Tarozzi and Baggi analyze the necropsy findings in four cases of tumor of the cerebral meninges. Three had originated in the dura, one in the pia.

Adenoma Sebaceum.—Camplani gives the chart of three generations of a family with adenoma sebaceum in several members. He regards it as a kind of nevus, with symmetrical fibromatous angiectasia.

Tumors of the Inner Layer of the Pericardium.—Businco has compiled six cases of a benign tumor and twelve of a cancer originating in the inner layer of the pericardium. The cancers rarely induce metastasis as the malignant disease of the heart proves fatal before the metastasis stage is reached. The nonmalignant tumors were generally necropsy surprises.

Deutsche medizinische Wochenschrift, Berlin

49: 807-838 (June 22) 1923

Concentrated Saline Spring Water. H. Kionka.—p. 807.
*Operative Treatment of Pruritus Ani. F. Karewski.—p. 810.
*Diagnosis of Malaria. A. Rosenburg.—p. 811.
*Synthetic Epinephrin. K. Fromherz.—p. 814.
Psychiatric Advice Before Marriages and Adoptions. Hübner.—p. 814.
Nervous Complications of Typhus. N. Hirschberg.—p. 817.
Silica in Treatment of Pulmonary Tuberculosis. W. Düll.—p. 820.
Painless Mobilization of Stiff Joints in Hypnosis. H. Grage.—p. 821.
*Treatment of Pyocyaneus Infection. W. Paetzel.—p. 821.
Three Cases of Narcotic Poisoning with Suicidal Intent. B. Felden.—p. 822.
Hexamethylenamin in Treatment of Epidemic Encephalitis. Lehrmann.—p. 822.
History of Cesarean Section. M. Henkel.—p. 823.
Present Status of Radiotherapy of Tuberculosis. O. Strauss.—p. 825.

Operative Treatment of Pruritus Ani.—The man had been cauterized to relieve the pruritus ani but without relief. The old cicatricial tissue was resected, and the skin around the anus was separated from the tissues beneath. The illustrations show how the two large flaps thus obtained supplied a new covering for the area around the anus, and cured at one stroke the intractable pruritus of years' duration.

Differential Diagnosis of Tropical Malaria.—Rosenburg refers to cases in which the sudden onset and symptoms or other features deceptively simulated some acute surgical abdominal affection. The arsphenamin preparations frequently rouse a latent malaria, so that tropical malaria seems to be endemic in Berlin just now. Fully 37 per cent. of all the malaria patients in the last few years, and 50 per cent. of those with tropical malaria, had never left Germany.

Synthetic Epinephrin.—Fromherz states that only the optically active levorotatory epinephrin corresponds to the natural hormone in its action on the blood pressure.

Pyocyaneus Infection in Suppurating Wounds.—Paetzel reports favorable experiences with pulverized boric acid dusted on the wound. In several hundred cases, the green or blue suppuration had vanished by the next change of dressings.

Medizinische Klinik, Berlin

19: 929-964 (July 8) 1923

*Adiposis Dolorosa. H. Curschmann.—p. 929.
*Chronic Forms of Epidemic Encephalitis. F. Stern.—p. 931.
Erroneous Use of Term "Apical Catarrh." A. Winkler.—p. 937.
*After-Treatment of Pleurisy. M. Kaufmann.—p. 941.
Universal Suspensary. B. Chajes.—p. 943.
*The Peritoneal Fluid. E. Vogt.—p. 943.
Insulin in Treatment of Diabetes. K. Brandenburg.—p. 945.
Trauma Not Responsible for Progressive Paralysis. H. Engel.—p. 946.
Principles for Treatment of Leg Ulcer. E. Clasen.—p. 947.

Dysmenorrhea. E. Runge.—p. 949.
Mutual Relations of Dental and General Disease. S. Gräff.—p. 950.
Recent Works on Disease of the Eye. Adam.—p. 952.

Adiposis Dolorosa.—Curschmann emphasizes the thyroid element in the clinical picture in the three cases he reports. Under thyroid treatment the pains subsided, and the women lost their tendency to obesity almost entirely. No other measures except the thyroid treatment were applied. In a month the women, aged 60, 49 and 42, said they "felt as if they had been born again." The extreme tenderness of the bunches of fat is characteristic, as also symptoms of deficient endocrine function, especially of the thyroid. But the main thing is to think of the possibility of Dercum's disease, instead of ascribing the symptoms to neuralgia or rheumatism or to the menopause.

Epidemic Encephalitis.—Stern remarks that the official statistics for Prussia recorded 526 cases of epidemic encephalitis in 1920, but this figure probably would have to be multiplied by twenty, at least, to represent the actual prevalence of the disease. At the Göttingen clinic alone there have been 200 cases which dated from 1920, but they did not reach the hospital till a year or two later. The "recurrence" he ascribes to the persistence of the virus in the brain, regarding the disease as a chronic encephalitis. Nine cases are described to illustrate the wide variety in the clinical picture, but they all fall into the category of symptoms induced by lesions in a certain circumscribed region of the brain.

After-Treatment of Pleurisy.—Kaufmann describes some breathing exercises which he has found of great benefit after pleurisy and pneumonia. He insists that something of the kind is the most important of all measures after pleurisy and pneumonia, and his three years' experience has demonstrated the value of these special exercises.

Biology of the Peritoneal Fluid.—Vogt reports the results of his chemical, physical and biologic study of the fluid from the peritoneum obtained at seventy-five laparotomies.

Münchener medizinische Wochenschrift, Munich

70: 795-828 (June 22) 1923

Debt of Psychiatry to Neurology. O. Bumke.—p. 795.
The Mental Disturbances in Epidemic Encephalitis. E. Meyer.—p. 795.
*Influence of One Internal Disease on Another. E. Veiel.—p. 796.
Diagnosis of Latent Syphilis. W. Schmitt.—p. 798.
Creatinin Metabolism with Atrophy of Muscle. E. Nedelmann.—p. 800.
*Intermittent Colic from Adhesions. Landerer.—p. 801.
*Pernicious Anemia. E. Kulcke.—p. 803.
*Causal Psychotherapy in Asthma. E. Moos.—p. 805.
The Unduly Fastidious Appetite. R. Geigel.—p. 808.
*Treatment of Salivary Fistulas. K. Kleinschmidt.—p. 809.
*Stasis Hyperemia in Treatment of Chorea Minor. Esau.—p. 810.
*Diagnostic Import of Speaking Movements. E. Weisz.—p. 812.
Cerebellar Syndrome in Migraine. H. Siebert.—p. 812.
Rapid Recovery After Suture of Stab Wound of Heart. R. Engel.—p. 812.
History of Discovery of Circulation of Blood. v. Brunn.—p. 814.
Febrile Acute Meningitis. H. Curschmann.—p. 814.
The Professional Secrecy Question. T. von der Pfordten.—p. 816.

Influence of One Internal Disease on Another.—Veiel reports some cases in which an intercurrent disease seemed to cure a preexisting chronic disease. Among the cases cited is that of a physician, aged 45, whose severe gout has never returned since an attack of dysentery, a few years ago. The sudden change for the better with intercurrent measles the seventh week of severe transverse myelitis in a girl, aged 9, recalls the benefit from measles in chronic skin disease to which Rubens and others have called attention. Intercurrent scarlet fever speeded up the course of pulmonary tuberculosis in one youth, aged 17. Veiel queries whether inoculation with measles might not be justified in severe myelitis with a grave prognosis.

Adhesions from Duodenal Ulcer.—The two men presented an identical clinical picture of years of periodical attacks of pain in the right abdomen, between the costal arch and the McBurney point. The colic lasted for hours or days, and there was often vomiting but it brought no relief. The operation disclosed adhesions entailed by an old duodenal ulcer. Under the influence of some change in position or unusually hearty meal, the colon became compressed temporarily by the adhesions, binding down the bowel.

Pernicious Anemia.—Kulcke analyzes 69 cases at Dresden in the last ten years. From 6, 4, 3 and 5 annually before 1920, the number of cases jumped to 11 in 1921 and to 17 in 1922. The youngest patient was 17, the oldest 76. This latter patient has improved materially under quinin, arsenic and iron. In another patient, aged 74, the disease proved fatal in sixteen days. An autogenous vaccine seemed to benefit in one case but failed completely in three. Arsenic is still the main reliance. It seems to be as effectual by the mouth as by any other route, and is borne particularly well in pernicious anemia. Treatment otherwise is directed to combat autointoxication from the intestines.

Psychotherapy in Asthma.—Moos reports seven cases which sustain his assertion that psychanalysis may succeed in curing asthma after failure of all other measures. The circumstances attending the first attack will often give the clue to treatment. In only two of his cases was a sexual element plainly involved. The cure included abandonment of all drugs, and courses of graduated exercises. The psychotherapy pulls up the asthma with its roots, and the psychanalysis is generally most successful in connection with an attack, the attention of the patient being then concentrated on the asthma.

Treatment of Salivary Fistulas.—Kleinschmidt has found that under one or two exposures to the roentgen rays the fistula into the parotid gland dries up for a couple of weeks. This gives the fistula a chance to heal. This was prompt and complete in four of his six cases; the other two required excision of the fistula. The outlet into the mouth must be permeable for this treatment to be successful.

Stasis Hyperemia in Chorea Minor.—Esau applied a Bier constricting band to the neck in treatment in two cases of severe recurring chorea, and in four primary cases. In two or three weeks the choreic movements had nearly all subsided. Four weeks were required for this in the case of one girl, aged 13. This was the seventh recurrence of the chorea; each previous recurrence had lasted for four or five months.

Speech Phenomena in Diagnosis.—Weisz has been studying the phenomena in neck, chest, abdomen and back which accompany the act of speaking. The unlike behavior of symmetrical points often aids in the diagnosis of internal affections.

Casopis lekaruv ceskych, Prague

62: 417-444 (April 21) 1923

*Medicolegal Significance of "Hypnosis." K. Kuffner.—p. 417.
Case of Eccentric Site of the Fovea and Congenital Changes in Its Region. J. Janku.—p. 419.
*New Method of Caloric Reaction. Zaviska.—p. 423.
Hypertrophy of Prostate and Its Surgical Treatment. Haim.—p. 425.

Medicolegal Significance of "Hypnosis."—Kuffner publishes a medicolegal case of alleged rape of a hypnotized girl. Besides giving the reasons which speak against the reliability of the witness, and against the alleged hypnosis, he asserts his belief that a hypnosis is principally the expression of willingness of the person to be mastered by the hypnotising subject. Everybody likes to be suggested to do what he would like to do, and agrees to follow in the hypnosis as far as his own wishes go.

New Method of Caloric Reaction.—Zaviska applies five drops of ethyl chlorid on a scrap of cotton to the tympanic membrane of the middle ear. The method is advantageous in dry perforations of the tympanic membrane, because it does not lead to infection. It avoids contamination of instruments in chronic inflammations.

62: 445-472 (April 28) 1923

Two Cases of Otogenous Abscess of Cerebellum. A. Precechtel.—p. 445.
Medicolegal Case of Homosexuality. T. Hegner.—p. 448.
*Neuritis of Auditory Nerve from Nicotin. P. Zaviska.—p. 451.
Friedreich's Hereditary Ataxia. J. Blatny.—p. 452.
Widal's Hemoclastic Crisis. J. Bures.—p. 454.

Neuritis of Auditory Nerve from Nicotin.—Zaviska reports four cases of affection of the auditory nerve due to nicotin. Two of them had disturbances, which could be localized in the central part of the vestibular nerve (nystagmus center).

Geneeskundige Gids, The Hague

1: 1-28 (May 11) 1923

*Obstruction of Bile Ducts from Chronic Pancreatitis. D. H. Klinkert.—p. 4.
Eruption with Acute Meningitis. P. H. Kramer.—p. 13.

Obstruction of Bile Ducts by Chronic Pancreatitis.—The intense jaundice and itching were apparently explained by the hard tumor felt in the pancreas. The surgeon's diagnosis was cancer of the head of the pancreas, but Klinkert, on the basis of preceding cholecystitis and urobilinuria, urged anastomosis between the gallbladder and stomach. The course of the two cases justified his assumption that the tumor in the pancreas was a secondary chronic inflammatory process. It subsided when clinically normal conditions were restored. in the biliary apparatus.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

1: 2494-2616 (June 9) 1923

The Scientific Work of R. H. Saltet. J. J. van Loghem.—p. 2494.
*Pyramidal Malformation of Chest. C. W. G. Micremet.—p. 2503.
*Substandard Children. C. J. van der Loo.—p. 2519.
*Muscular Force Versus Intellect. A. Querido.—p. 2527.
Obesity in Boy of Ten. J. Koopman.—p. 2533.
Fracture of First Lumbar Vertebra. F. S. van B. Bastiaanse.—p. 2538.
Form of Glucose in the Blood. S. van Creveld.—p. 2542.

Pyramidal Malformation of Thorax.—Mieremet refers to van den Bergh's "tetrahedral" shaped chest in persons who have had asthma from childhood. He encountered five cases of this combination and Elias another. Both exclude rickets as a cause, but de Bruin noted this pyramidal shape of the chest in two boys, and he ascribed it to rickets. Mieremet here reports the necropsy findings in van den Bergh's earliest case, five years after it was published. No trace of rickets was found, but there was pronounced emphysema of the lungs and the heart was dilated and hypertrophied.

Diagnosis and Treatment of Substandard Children.—Van der Loo accepts seven classes of substandard children, the undernourished and the overfed, those with too narrow chests, anemia, extrarenal albuminuria, chronic enlargement of lymph glands, nervous, and mixed forms. He describes in detail the means for recognizing each of these forms, and the measures that should be applied in each. His formula is based on the difference between the weight and chest measure and the weight and chest measure that correspond to the height in the table of normal standards. With a narrow chest, special exercises are necessary, but as the vital capacity is low, these children should rest a great deal, and overexertion should be guarded against. For the excessively nervous he advises a change of environment, and for chronically enlarged lymph glands, treatment as for tuberculosis, especially the seashore, cod liver oil, calcium and outdoor life.

Muscular Force and Intellect.—Querido reports tests on twelve brain workers and twelve hand workers which showed that the latter could exert more muscular force than the first group, but could not maintain the effort as long as the others. The total output of energy was thus greater in the brain workers. The tests were made on the thumb.

Acta Ophthalmologica, Copenhagen

1: 1-96, 1923

New Method for Expressing the Magnifying Power of Ocular Optical Instruments. H. Gertz.—p. 3.
*Familial Degeneration of Retina. V. V. Alkio.—p. 27.
*Tuberculosis of the Conjunctiva. K. K. K. Lundsgaard.—p. 39.
*Elliot's Operation. C. F. Bentzen.—p. 43.
*Advancement Sutures. H. Rønne.—p. 46.
Central and Eccentric Fixation. E. Holm.—p. 49.
*Spectacles Inducing Delusions of Movements. H. Rønne.—p. 55.
Coloboma of the Vitreous Body. E. Holm.—p. 63.
Anomaly of Optic Disk with Arteria Hyaloidea Persistens. E. Holm.—p. 66.
Semicentennial of Helsingfors Eye Clinic. K. K. K. Lundsgaard.—p. 68.
*Historical Illustration of Cataract Operation. G. Norric.—p. 71.

The Acta Ophthalmologica.—This is the first issue of the newly founded journal which is the result of the cooperation of the ophthalmic surgeons of Denmark, Finland, Norway and Sweden. The articles, as in all these *Acta* published in Scandinavia, are in either English, French or German, the Scandinavian writers refraining from using their own language. Even the society proceedings in this issue are in English. Prof. K. K. K. Lundsgaard, Lundsgade 6, Copenhagen, is the editor in chief. The annual subscription is 25 Danish crowns ($6.00).

Familial Degeneration in the Macular Region.—Alkio illustrates the peculiar hereditary degeneration of the macula in four adult brothers and sisters. It affected both eyes and induced relative central scotoma. The five other children were normal in this respect. The cases belong in Stargardt's category of progressive familial degeneration in the macular region.

Tuberculosis of the Conjunctiva.—Lundsgaard states that twelve of his twenty-five cases of primary tuberculosis of the conjunctiva have been under observation for years, and none of these patients has developed tuberculosis elsewhere. All the others were asked to return if tuberculous lesions developed later, and the fact that nothing has been heard from them is presumptive evidence that they have escaped, like the rest. The eye lesion in all healed completely under Finsen light treatment.

Elliot's Operation.—Bentzen discusses the preferable technic for making the conjunctival flap in Elliot's operation.

Effect of Advancement Sutures on Elevation of the Visual Axis.—Rønne remarks that the importance of unsymmetrical placing of the sutures in operations for squint is not stressed enough in the textbooks. It is sometimes possible to correct pre-existing deviation by overcorrection at the first suture, and proper correction at a second suture, as he describes.

False Movements Seen Through Spectacles.—Rønne analyzes the significance of these illusions of movement, and their connection with the vestibular apparatus.

Historical Illustration of Cataract Operation.—The painting, which is reproduced, was in the center of a target, dated 1784, used by the Danish Shooting Guild. Each year the champion for the year presented a new target to the guild, with a picture on it suggesting his business or profession. The donor that year must have been a surgeon. The target bears the inscription "My brother must his sight renew, Remove the mote, and lead runs true." This guild dates from before 1443.

Svenska Läkaresällskapets Handlingar, Stockholm

49: 71-156 (June 30) 1923

*Clinical and Experimental Studies of Hypertension. E. Kylin.—p. 73.

Clinical and Experimental Study of the Pathology of Hypertension.—Kylin reports the results of his study, started in 1918, in 156 pages, and reviews the literature. He considers the capillary pressure the central problem in kidney pathology. He discusses arterial or essential hypertension and the hypertension with glomerular nephritis. In essential hypertension there is no injury of the capillaries, and the blood pressure is characterized more by great fluctuations than by a high level, the rise and fall being due to impulses which cause constriction or dilatation of the vessels. Even a high pressure may be unaccompanied by kidney disease, the vascular injury being located in the arteries. Carbohydrate tolerance is less in essential hypertension than in normal conditions, and the disturbance of the vegetative nervous system is indicated in certain diabetics in whom mental states cause glycosuria more easily than in healthy individuals. There are no edema or retinal lesions; capillaries and capillary pressure are normal but there are pathologic diurnal variations in the blood pressure, paradoxic reactions to epinephrin, increase of mononuclear elements and frequently increased blood sugar. In glomerular nephritis the hypertension is due to injury of the capillaries caused by toxins of certain acute infectious diseases, and this precedes the symptoms of kidney disease. It is accompanied by edema, high capillary pressure, retinal lesions, normal or only slightly increased diurnal variations in blood pressure, normal reactions to epinephrin and normal blood sugar. Though urinary symptoms appear only after hypertension has set in, glomerular nephritis is concomitant with, rather than the result of, hypertension, which is indicated by the fact that the abnormal pressure may disappear even when the kidney lesions remain and cause death. He concludes that this division of hypertension leads to two different lines of research, one including the capillary system, with edemas, cellular tissue nutrition and the contractility of the capillaries, which he calls the peripheral heart action, while the other line includes the vegetative nervous system and metabolism.

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THE PLACE OF MEDICINE IN PUBLIC HEALTH *

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From a theoretical standpoint, the practice of medicine bears the same relationship to public health today that it did twenty years ago. Actually, the changes that have occurred in this relationship are extremely drastic. In recent years a new social point of view has developed, but most practitioners are apparently unaware of the awakening of the nation's social conscience and of the new demands on the profession that must naturally follow. It is my purpose in this paper to outline the more recent development of the demand for public health protection and the general trend of its fulfilment.

The advancement of learning in America is the most outstanding achievement of the age in which we live. We are in the midst of an enlightened public opinion. Our educational systems have become so extensive that even our recently arrived immigrants have little or no difficulty in securing at least the rudiments of an education. For the last few years many of our universities have been graduating classes of three and four thousand students, whereas a few years ago such graduating classes consisted of but two or three hundred. The development of our secondary schools and the growth in their patronage is unparalleled in the history of education. Many of our high schools today have the status of our colleges of a decade ago. Elementary schools cannot be built fast enough to provide for our growing population. Education is becoming universal, and the results are clearly reflected in public opinion.

Our educational progress, however, is not marked simply by the acquirement of a large amount of information and opinion. It is marked by a distinct demand for more information and for the practical application of scientific knowledge. There is, without doubt, more widespread activity in the expression of a desire for the conservation of public health than for any other existing function of government. Every individual and every community knows that without health they cannot enjoy the advantages of our complex civilization. While the development of this public demand for the safeguarding of its health is along natural lines, the advancement of learning has been the chief factor in its growth. Its further development has been fostered through the activities of civic, social, medical and semimedical organizations.

Perhaps the most forceful demand for public health has come through the medium of women's organizations. Everywhere in our country, women have grouped themselves together to study our health and welfare problems. Woman's interest is largely centered in the home, and it is not surprising that she has devoted herself to the betterment of the health and welfare of the mother and the child. So intensive has been this zeal to apply the scientific health facts which they have gained for the development of child welfare that they have been able to influence not only local government, but even national legislation.

Another stimulating force of great intensity was provided by the late war. Our men, while under arms, learned the advantages that could be gained by organized health protection. Under continuous health supervision for many months they received first hand demonstrations of the way medical science can maintain health among large groups of individuals. On his return to civil life, each of these veterans has become either a potential advocate or an active missionary in the advancement of public health among the people of his community. He has become an important factor in the development of this tremendous demand which is now being felt in every corner of our country.

Rural life in America has completely changed during the past decade. The urbanization of the rural districts of America is taking place so rapidly that it is doubtful whether we are fully aware of its significance. The former isolation of the rural community is disintegrating so rapidly that the United States, even now, is fast becoming one big city. Improved transportation is perhaps the greatest factor in bringing about the change. Improved means of communication, of which the radio is the newest, also have helped. Travel, with its educational advantages and the rapid spread of ideas, is reorganizing completely the old time rural mode of living. As a result, there is a continued advance in the economic and social point of view of our rural population. The path of this advance is indicated in the development of union schools, cooperative marketing organizations, farm bureaus, university extension, and library service. It is shown in the expressed desire of rural residents to possess all of the attributes for better living, which through their former isolation have been denied to them.

Rural districts, until the last few years, have almost without exception lacked the machinery for safeguarding community health. At present, however, there is a tremendous impetus to the establishment of full-time health departments in such communities. Stimulated by the activities of the International Health Board and the United States Public Health Service, these newly formed public health units are extending health edu-

* Read before the joint meeting of the Section on Diseases of Children and the Section on Preventive Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

cation in rural districts as well as safeguarding the health of rural residents. In fact, the demand for full-time county health departments is so great in many states that it is imposible to find trained public health men to administer them. Rural America is awakening to the fact that urban America is keeping its residents in health; and when rural America once awakes, it advances solidly, resolutely and permanently.

One of the general results of this widespread demand for individual and community health protection is seen in the growth of clinics and in the large number of new health centers that have been established during the last few years, many of which are concerned primarily with the correction of physical defects in children. How these public dispensaries and clinics have increased in number and how their patronage has grown during the last few years are shown in a report issued by the American Medical Association in 1922. There were 3,944 known dispensaries operating in the United States during the year 1921, of which number 935 are out-patient departments of hospitals, or individual dispensaries which provide general medical and surgical service for their patients. The total number of patients for the year 1921 in all general and special dispensaries and clinics is estimated at eight million, and the total number of visits by these patients during the year is estimated at 29,500,000. Most of these institutions are located in the larger cities; and, while many of them provide free service, the report indicates that there is an increasing tendency to charge nominal fees, thereby placing part of the cost of the institution on the patient. With the total poulation of the United States a little over one hundred million, it is obvious that approximately one twelfth of the population of the country attended these dispensaries and clinics during the year 1921. The number attending these institutions at the present time is undoubtedly much greater, for there is a marked increase in the number of patients seeking treatment in general clinics. The increased attendance in dispensaries for child and maternal hygiene, tuberculosis, venereal diseases and mental hygiene is particularly noteworthy. The important part these institutions play in the extension of medical service and in the provision of health education must not be overlooked. That they are growing and that more are being established continually indicate that there will be no hindrance to their further development, and that they constitute a permanent factor in our national life.

That the rural community of today is quick to take advantage of the improved social and institutional facilities provided in the large cities is shown also in the increased number of community hospitals in rural districts. It is indicated in the growth of clinics and in the more extended practice of group medicine in smaller towns. It is seen in the large number of new health centers that have sprung up during the last few years, and in their growing patronage by residents of rural communities. The report referred to indicates that one twelfth of the population of the United States in 1922 attended dispensaries and clinics, nearly all of which are located in large cities. If the number of clinics and health centers in rural districts, together with their patronage, continues to grow at the present rate, it would appear that in a few years at least one fifth of the population of the United States will receive medical service in institutions of this sort.

Organized womanhood, the veterans of the World War, and residents of rural communities, together with the masses of the better educated persons throughout the country, are gradually but surely forcing preventive medicine to the foreground. Strange to relate, the leaders among the profession engaged in fulfilling the demand for the intensive application of preventive medicine are few. This is undoubtedly due to the fact that medical education in the past has not fitted practitioners for fulfilling the requirements of this newer preventive aspect of medicine. It is essential that new methods of teaching medicine be evolved in our medical schools, not alone for the benefit of the newer and better men who are to take our places, but for the advancement of the generations of Americans to follow. The attitude of medical students cannot be guided along public health lines unless the members of the faculty of medical schools have the correct perspective. They must first of all have a social point of view with a full understanding of the obligations that are placed on the profession, and they must also appreciate the relative value of preventive and curative medicine. The instructor of today must recognize the changes that have occurred in medicine and in public health as professions during the last few years, and his teaching objectives must be directed to meet this point of view. Fortunately, some of our medical schools are appreciative of the newer methods that must be used to meet present conditions. The more progressive schools are establishing methods by which the medical student in his undergraduate studies will learn to serve his patient with preventive as well as curative measures, and to remember that he must always serve the best interests of his community.

Significant changes have been adopted recently in the curriculum of the medical schools of the University of Pittsburgh and of Yale University. The dean of Yale University School of Medicine and the members of the faculty have outlined a policy which involves the centering of the whole university hospital around the dispensary and the centering of the dispensary around the health clinic; and each course, from pathology to pediatrics, is imbued throughout with the new idea that the function of the physician is to promote health and not merely to alleviate disease. In the University of Pittsburgh School of Medicine every instructor in every department is teaching preventive medicine on every possible occasion. Dr. Samuel R. Haythorn,[1] director of hygiene and preventive medicine of the Pittsburgh school, says:

> Some departments have greater opportunities for emphasizing prophylaxis than others. The department of medicine has perhaps the widest range of subjects. With every acute infectious disease, the means of spread should be discussed, the kinds and relative amounts of immunity afforded should be emphasized, and the means of controlling the spread to other persons mentioned. Much of this is repetition, but it serves to fix the facts in the student's mind. . . .
>
> Venereal disease prevention should be discussed during the courses in gynecology, obstetrics, skin diseases and genito-urinary surgery; prevention of blindness, in ophthalmology and obstetrics; child welfare work, in obstetics and pediatrics; cancer prevention, in medicine, surgery, gynecology and the specialties; fatigue, in physiology; dietetics, in metabolism and medicine; prevention of general infection, tetanus, anthrax, etc., in surgery, and so on indefinitely.
>
> It is well recognized that these matters are receiving consideration at present, and I do not mean to insinuate that they are not. I do mean that still more emphasis should be placed on them, and that the instruction should be more

1. Haythorn, S. R.: The Problem of Preventive Medicine in Practice and in Medical Education, J. A. M. A. **80**: 885 (March 31) 1923.

pointed, namely, that both the instructor and the student should be conscious, at the time, that preventive medicine is being discussed. . . .

The teaching should be carried out with a view to informing the student of the best preventive measures available, and should be directed toward preparing him for leadership in progressive health movements. If the public is convinced that the physician and student are doing everything within their power to decrease sickness and prolong life, there is no danger that it will not continue to extend to them the protection and support they have always enjoyed.

Medical education must in this way provide for future needs of the American people. The new generation of physicians must be equipped to fulfil the demands that are being made of medicine. The physician of tomorrow must be made to understand that his relation to the community is not entirely individualistic. He must not make the mistakes of the physician of the past, who had little conception of his duties as a citizen, who had little knowledge of community life or of the social relations that existed between him and the people of the community, who knew little of the social aspects of disease and of his obligations to society. Sir George Newman has said:

No medical man who is in a right sense a man of the world can have failed to ponder on the near relationship which obtains between the practice of medicine and the social life of the people. It has often been said that our patients are not cases but men, women and children, each with a separate personality, environment, heredity and variation, with individual habits, training, temperament and psychology. We cannot be wise healers of the patient of the community without a large sympathy and a liberal humanism. We are the witnesses of a strange and rapid transition in the life of the people as a whole, an enlarging franchise and new social complexes; higher wages, shorter hours of work, increased leisure, high prices and democratic aspirations are not remote from the national health and well being. The doctor must be the missionary of hygiene, the chief educator of the people in ways of health. In being that he cannot escape his share of responsibility in the study and handling of many of the medical-sociological questions which surround us—education, sobriety, cleanness of living, the prevalence of venereal disease, prostitution, the penal laws, the causes of certain crimes, the integrity of family life—all such questions concern us and to fulfil our vows we must be concerned with them. The cultivation of international science, cooperation and amity should also, I think, be added. It is essential that we should remember that whilst these issues belong to the warp and woof of medical polity, the decisive factor is not medical, and movements in favor of their determination on medical ground are only due to failure.

The physician of tomorrow must live and work as much for his community as he does for his individual patient, and each individual patient must be considered with relation to the community as a whole. He must know that he is not merely an alleviator of suffering. He is a citizen, teacher, philosopher, counselor, and leader in community life. He must be possessed of scientific knowledge, and he must use this knowledge for the benefit of his fellow men. He must take his place in the forefront when projects for the advancement of community life are considered. The future prestige of the medical profession in America depends on whether practitioners of medicine in the future shall practice their profession entirely for the benefit of individuals or partly for the benefit of the community as a whole. The answer lies in the teaching methods of our schools of medicine throughout the country. If they fulfil this demand, it will enhance not only the prestige of medicine, but it will bring healthier, happier lives to the people of the commonwealth.

The time has come when every practitioner of medicine must take his place primarily as a leader in his community. Dr. Louis B. Wilson[2] has said:

The American medical graduate of the last ten years has become on the face of it the most schooled man of his age. He should be not only the most scholarly, but he should come to stand in his community for the highest citizenship, the broadest culture, and the most noble character. If he does not seek in his daily life, professionally, intellectually and morally to develop himself to the highest level to which he is capable of attaining, he is betraying the trust of the state, which has expended on his early training thousands of dollars more than he or his parents have ever paid into school treasuries; but so long as physicians foster the fiction that their sole duty is caring for the sick, so long will the well take them at their word and concede to them no measure of public work either in small or large affairs of state. I would urge, therefore, physicians to be not less faithful in their duties as physicians, but also to be much more faithful in their studies as citizens, since they owe it to themselves, to their profession, and to the community.

No professional man can be under greater obligation to give freely of his skill in advancing the best interests of humanity than the practitioner of medicine. He is vastly more than a mere alleviator of physical suffering. His long years of schooling and his intimate contact with his fellow men should fit him for the very highest and most consecrated, constructive work in safeguarding the health of all the people. He must give full cooperation to organized health departments. He must consider every case of communicable disease as the property of the state, and therefore subject to the control authorized by the whole people. He must do, not only more for his individual patients, but also for the community in which he lives. In Sir Thomas Moore's "Utopia," the physician was made one of the most important units in that ideal government. He was charged with caring for the sick, but first of all, with keeping people well. Is it not possible that we may be on the borderland of Utopia?

ABSTRACT OF DISCUSSION

DR. S. B. MCKERRIHAN, Portsmouth, Ohio: When we speak about our social conditions, we have a great question to deal with. The important thing to bring before the minds of the people is the question of who should marry and who should not. It is important to prevent the birth of the feebleminded person. He is the dangerous element in society. Buildings are being erected in Ohio for the incompetent and those who are a burden to society. But if we are to better the nation, physicians and the women must be taught who should marry and who should not. If a moron marries a healthy woman, half of his children will be morons or feebleminded. To those who are not familiar with defectives, a large and dangerous element is the moron type. He can read and write and he can remember; therefore he is the dangerous man. We shall have to do much in our social work to prevent that kind of individual. Therefore, our women should be taught, and their fathers should be taught who their daughters and sons should marry. Social agencies have much to do, and education will do much in that line to prevent propagation of the race by the mentally and physically unfit.

DR. LULU HUNT PETERS, New York: In a short paper like this it is impossible to mention all the points bearing on prevention of disease. I know that if Dr. Dickie had had the time he would have laid stress on one most important phase of preventive medicine—the question of normal dietetics. He says that there is a strong demand for enlighten-

2. Wilson, L. B.: California State J. Med. **21**: 73 (Feb.) 1923.

ment on public health, and I think, perhaps, that those of us who are doing the public health writing realize it more than any other physicians. We receive from 400 to 800 letters every day. The larger number of those letters ask about matters of diet. I encourage that, because I believe that a knowledge of dietetics will do more in preventive medicine than any other one feature. We have known for years that scurvy and rickets are dietetic diseases, but have not appreciated how many other diseases are due to lack of knowledge of normal dietetics. How many people are overweight? I have said that three fourths of our adult population are overweight, and one fourth are underweight, and the rest are normal. Of course, I am a faddist on this overweight question, but I believe that by emphasizing the prevention of overweight alone, I am doing more in preventive medicine than I can in any other field. I know that I am preventing diabetes, high blood pressure, kidney, heart diseases and flat feet. As to the teaching of dietetics in medical colleges: A year ago at least, at Harvard, they were not giving courses in normal dietetics. I don't know of any colleges that are. There are splendid books written on the subject. I make this little plea to the average physician, to get a knowledge of normal dietetics. The majority are without this knowledge.

THE PREVENTION AND CONTROL OF TUBERCULOSIS AS IT CONCERNS THE MEDICAL PROFESSION *

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The prevention and control of any disease is dependent on two factors: (1) The high ideals of the medical profession having for its object the saving and prolongation of the span of human life, and (2) the demand of the people for protection.

The medical profession for centuries, out of altruistic motives and love of service, endeavored to find a ray of light in the impenetrable darkness and unfathomed mysteries surrounding tuberculosis which would prevent or ameliorate the ravages on the human family, but not until Villemin, about 1870, proved it transmissible from animal to animal was the faintest hope discerned. Immediately following this, in 1882, Robert Koch succeeded in isolating the causative agent. Thus, hope became an attained fact. To this point only the profession had been concerned in the attainment of ambition.

Beginning now, the suffering public, which had groped with fear in ignorance, demanded the practical application of professional attainment, and out of this demand grew voluntary and official organizations having for their object the protection of the body politic against the plague, which movement has grown so rapidly until at present there are scores of voluntary agencies actively working with the official agents for its control.

The disease is so universal that no one practicing medicine, however limited his specialty may be, fails to see it and be called on to advise concerning it.

Any plan to control tuberculosis must have for its object (1) the prevention of new infections, or, rather, the activation of latent infections, and (2) the cure and handling of existing cases. And it is one of the very few diseases whose treatment is properly a public function.

The prevention of new infections and activation of latent ones must be on a broad basis, for the reason that active tuberculosis is usually secondary to some other disease, overwork, worries, dissipation, irregular habits, faulty nutrition or bad housing. That a cure is possible in a good number of cases by the proper application of modern knowledge of scientific medicine is well known. The innocent can and should be protected from the incurable.

All well founded official and nonofficial or voluntary agencies have built on these fundamental principles and have, for their scheme of work, (*a*) the education of the public in the cause and transmission of the disease; (*b*) the predisposing factors, and (*c*) the necessity for early treatment. These facts are being given to the suffering public by these agencies in printed literature, motion pictures and lantern slides, lectures on health, clinics, sanatoriums and social work.

The literature usually is designed carefully to teach the lesson of accomplishment of scientific medicine, to teach the importance of the public in keeping in close touch with the family physician, who is interested in a human way, as against the unscrupulous quack, who preys on the inherited fear of this disease, with a purely selfish motive.

Motion pictures, slides and lectures should be used to increase the effectiveness of printed information. In a well organized campaign they are used by the advice of the profession of the community. Owing to the fact that the profession never advertises and that there are cults and so-called professions using this very effective method of getting public attention, it is all the more important that we have in our work the advice and counsel of the general profession, so that in a well conducted campaign the people receive the benefit of our information.

Under this heading comes one of the functions of official agencies which sometimes meet with criticism—that of accurate reporting of individual patients by the profession. This was first demanded of physicians in Italy in the first half of the eighteenth century, and a penalty of from $300 to $700 was imposed for failure to report. At this time it is required in almost every well organized country, and not only assists the health agencies to prevent spread, but gives them the opportunity to assist the family physician in holding the patient in check to prevent quackery or, what is worse, wanderlust.

The predisposing factors named above should be under the control, as an individual, of the family physician, and collectively, of official agencies, assisted by whatever volunteer agencies may be in existence. The family physician stands as guardian. His high ideals and honesty command the confidence and respect so necessary in the protection of young life. All agencies should assist him rather than work independently.

It is my belief that clinics are necessary in the control of tuberculosis only as a demonstration in a given community, and should be always conducted under the auspices of the local profession.

The primary object of a clinic is to get an early diagnosis, which could be fairly well established by the family physician, by the use of clinical knowledge, which is often lacking in a less experienced man, who depends to a large extent on mechanical means for diagnosis.

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* Read before the joint meeting of the Section on Diseases of Children and the Section on Preventive Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

The high degree of specialism, with its attendant egotism, has led the modern physician to the belief that only our experienced specialist can make an early diagnosis; while this is true in some cases, the average man with more confidence in himself could make accurate diagnosis in at least 75 per cent. of cases.

I believe that a different line of education should be instituted by official agencies. I am aware of the fact that many believe that the public clinic, whether it be free or pay, is necessary to control; but one has only to look at past achievement to be convinced; that is, the rapid decline in death rates before any organized effort to control.

Sanatoriums are necessary in most states and large cities, owing to the inadequacy of private institutions. These should be operated on a plan of close cooperation with physicians to act as a clearing house for them, as well as to serve the public. The patients sent to these institutions not only should be taught tuberculosis, but also should be given a broad public health knowledge, as well as shown the importance of relying on their family physician for constant health advice and periodic examinations for self and family.

The sanatoriums should be open at all times to the physicians for study, and should be equipped for this purpose.

With this ideal plan must come the ideal physicians, who are able and willing to do ideal conscientious work, with ambition to relieve the roaming, grasping victim of his physical suffering and mental anguish. When this is done, quacks, isms and cults will be reduced, tuberculosis will be controlled, our people will no longer fear it, and the spirit of our physicians, who labored for centuries to make it possible, will be enthroned in the hearts of mankind.

ABSTRACT OF DISCUSSION

DR. F. M. POTTENGER, Los Angeles: I agree partly that the prevention of tuberculosis cannot be attained without the full and intelligent support of the general practitioner. Tuberculosis has decreased 50 per cent. in the last twenty-five years in America and 50 per cent. in the preceding fifty years. In order to continue this progress we must solicit the hearty cooperation of the profession as a whole. Tuberculosis, because of the pessimistic psychology surrounding it from time immemorial, has been treated as a stepchild of medicine. It has been and still is considered hopeless by too many physicians and laymen, in spite of all progress made. To correct this, the general medical man must be made to understand that tuberculosis, when treated early and under proper conditions for a sufficient length of time, will nearly always yield a satisfactory result. But if diagnosis is made, and treatment begun late, or if early cases are not treated properly and for a sufficient length of time, the prognosis is very serious. General practitioners can make a diagnosis of tuberculosis in 80 per cent. of cases they see if they will take the time to ascertain and analyze the clinical history, and make a physical examination according to their ability. This leaves about 20 per cent. of borderline cases in which the diagnosis is difficult and the help of specialists might be necessary. There are certain pertinent facts that medical men as a whole should know. First, that infection takes place in childhood; that nearly all persons are infected before they attain the age of 15 years; that disease in later life is probably in most instances an extension from these early infections. An infection does not mean clinical disease. Clinical disease is the only one to be treated. If pediatricians would recognize it as their duty to see that the more severe infections in childhood heal, it would materially decrease clinical tuberculosis in later life. The curability of tuberculosis should be estimated by the best results that are obtainable under ideal conditions. Early diagnosis is the key to the prevention of tuberculosis, but early diagnosis itself is comparatively valueless unless accompanied by intelligent treatment.

DR. H. A. PATTISON, New York: It is a great mistake to say that the general practitioner cannot diagnose early tuberculosis. He could if he would. The reason he does not do it is that he is careless. I do not know how to make the careless physician careful. Probably the solution is a change in medical education. I know of no tuberculosis specialist who does not say that the most important element in the diagnosis of tuberculosis is the family and personal history of the case. How many physicians sit down when the patient comes to the office complaining of symptoms of focal infection of some sort and actually talk over the family and personal history of the patient? I am convinced that a very small percentage do this. One of the reasons given is that they cannot afford it, that the fees are too low. The first thing to do is to give service, and then we can charge the extra fee. A day or two ago I visited the Abrams clinic and spent two hours watching a demonstration by Dr. Abrams. There were about fifteen doctors there taking the course. My companion had heard that in a city in the state of Ohio there had been recently a convention of doctors who were following the Abrams cult, and that there were 125 physicians, osteopaths and chiropractors there. Most of those physicians at this clinic the other day appeared to be country practitioners, and, after watching them for a while and listening to the questions, I came to the conclusion that the poor devils were trying to find out how to diagnose disease, not having been adequately instructed in medical schools. They were trying to have Abrams tell them how to diagnose the disease by percussing the abdomen of a man, with the patient's blood on a piece of blotter, in a cylinder. There are hundreds of men all over the country who are doing just that sort of thing. The answer is education, and I wish that Dr. Dodson's paper might be put in such form that it would get into the hands of every general practitioner in the country.

DR. LOUIS BOONSHAFT, San Jose, Calif.: There is one thing that has been omitted in today's discussion that is of great importance, and that is the preventorium—a place for the care of children who have been exposed to tuberculosis. I have been instrumental in the establishing of a county preventorium in San Jose for the care of children who have been exposed to tuberculosis and show physical signs of early tuberculosis. It is amazing to see the results that have been obtained by the proper treatment of these undernourished little patients. Clinical examination shows that these children are 15 or 20 pounds underweight, and are usually coughing and have some glandular involvement. Four or five months' treatment in the preventorium will in nearly all cases restore them to a normal condition. This is one way in which we shall wipe out tuberculosis in future generations. In order to cure tuberculosis, we must prevent it first. The whole trend of medicine today is along the lines of prevention of disease, and there is no better way to eliminate tuberculosis than by preventing it in childhood. If we take those children who have been exposed and place them in a preventorium, they will develop a resistance so that, when they become adults, they will not break down with the active disease. In our association we make a practice of following up these children who have been through the preventorium for a period of at least five years, and for a longer period if possible. In this way we are bringing about this desirable condition that Dr. Pottenger spoke of; namely, the prevention of the further increase of tuberculosis in future generations.

DR. THOMAS D. WOOD, New York: For thirty years I have divided my time between the work of the physician and an attempt to do something in education in institutions training teachers for the general field. All institutional physicians have been attempting to advise teachers and students with reference to the problems of health, and I have been cheered by the gradual but steady progress during these thirty years in the growing appreciation on the part of practitioners of medicine in all parts of the United States with reference to their interest in health, in their willingness and ability to advise students and teachers regarding problems of health,

of preventive medicine, and the treatment of disease. I wish, therefore, to express my keen appreciation of the growing recognition by physicians of the health side of this whole program of the practice of medicine. It is certainly heartening to those of us who have been trying to work in the field of preventive medicine and health education for many years to see that physicians are coming to appreciate the socialization of medicine. I mean, essentially, what the newly elected President of the American Medical Association is reported to have said regarding the future progress in the development of the work of the medical profession. It is apparent that we must have combined in the training, in the understanding, in the professional work of physicians the recognition and treatment of disease, with a coordinate appreciation and understanding of, and cooperation in, the prevention of disease and in the field of health education. I know of nothing that seems more important not only for the promotion of health but also for the progress of civilization and of human culture in this land and in other lands than a more perfect mutual understanding and cooperative effort of those who are working in the medical field and in the educational field; in closer mutual understanding and cooperation between the physicians and teachers in this general promotion of education and of health. Dr. Holt has aptly phrased this in relation to one phase of this problem in the program of the newly organized American Child Health Association: "Health in education, and education in health."

Dr. Montague Cleeves, Los Angeles: As a school physician, I should like to say that what school physicians do is not to practice medicine so much as to see that those thousands of children who are now going without any treatment get treatment. So, of all physicians, the children's physicians are the most helped. It has been somewhat the fashion lately to criticize school physicians. I was speaking the other day with one who had been a school physician for about ten years. She was a graduate of one of our best schools, and spoke with great pride, saying that after ten years' work in one of the Los Angeles schools she had at last succeeded in getting a class to graduate to the high school who had had all physical defects attended to. She herself had not attended to any of them, but had seen to it that those girls had progressed from the eighth grade of this school to the high school in apparently perfect health. That is what I think has been overlooked: that these children, unless the school physicians and state physicians and school nurses go among them and urge their parents to get something done, do not go to the doctors at all. As public physicians we are consulted by people who consult all of the sects. People such as the osteopaths are at present displaying much more interest in the Sheppard-Towner bill and similar bills than we are. The regular physicians often do not cooperate with the families and the schools as they should. The pediatric section should certainly cooperate with and endorse the work of the school physicians, who are strictly pediatricians and trying to keep the children healthy.

Dr. O. M. Gilbert, Boulder, Colo.: So far as the present generation is concerned, more is to be accomplished by early diagnosis even than by means of prevention. In preparing a paper along this line some time ago, I became convinced from consulting my records that cases could have been diagnosed on an average of from four and a half to five years earlier than they were. I would go much stronger than Dr. Pottenger in saying that 90 per cent. can be cured. In a much larger percentage the trouble can be arrested and rendered innocuous. One of our eastern physicians said some time ago: "We cannot expect every busy practitioner to become an expert in physical diagnosis, but we can expect him to become an expert in the use of the clinical thermometer and the scales." I would put, first of all, a good personal history.

Dr. Henry Boswell, Sanatorium, Miss.: I merely drew in outline the actual relationship that should exist between the health agencies controlling the fight or handling the fight against tuberculosis and the family physician, or practicing physician, whatever his specialty may be. It does not matter what he practices; he meets tuberculosis every day. So far as fighting tuberculosis as a disease is concerned, if we handle that from the standpoint of the specialist it never will be controlled. It is necessary to fall back on the family physician, who has the confidence of his clientele, and who has control of the predisposing factors and of those things that are the foundation for the breakdown. There should be cooperation between the medical profession and the volunteer agencies or official agencies, as the case may be, if we are going to prevent the wandering of the patient from physician to physician. I am not criticizing the physicians any, but we do have this particular occurrence in our profession—that, if a man goes over here and his disease is diagnosed as tuberculosis, he steps across the street because he does not want to have it, and the other fellow, recognizing that he does not want to have it, tells him what he wants to hear. Unless we can get away from that sort of thing and have physicians working hand in hand with the health agencies, with appreciation enough to realize that it is on the altruistic work of our physicians in the past that the best health work is standing today, and that we owe it to them and to the public to work hand in hand in some sort of fashion to control not only tuberculosis but all those things that go with it, we shall not make much real progress in the solution of our problem.

FATIGUE AS A FACTOR IN THE CAUSE AND TREATMENT OF TUBERCULOUS DISEASE*

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The discovery of the bacillus of tuberculosis by Koch, in 1882, inspired the hope of a speedy solution of all the perplexities surrounding this illusive disease, tuberculosis, with its protean manifestations. Forty years of effort with hundreds of students of tuberculosis have served further to demonstrate the complexity of the problems to be solved. Krause,[1] on the one hand, claims great accretions to our knowledge, while Lawrason Brown[2] declares: "We are all impressed by the fact that many utterances relating to this subject, often ipse dixit in character, are sustained not by proof but by weight of authority. In fact, we have had thrust upon us so many half truths that, if we seriously consider the whole problem today, we find that students of pulmonary tuberculosis are in complete accord upon only one fact, established thirty-nine years ago; namely, that pulmonary tuberculosis is due always to the presence of tubercle bacilli in the lungs." Later he adds, "However it occurs, we know that a large proportion of the urban population, at least, harbor the tubercle bacillus by the time they reach puberty. This might be stated as a second uncontrovertible fact." Certain it is that our knowledge concerning infection and its relation to immunity and resistance is still far from complete.

The tuberculin reaction and numerous series of postmortem findings have established the fact of the wellnigh universal infection by the tubercle bacilli among civilized peoples, and yet only 2 per cent. of the population develop active tuberculous disease. Why, and how, are questions as yet not fully answered.

It is generally accepted that the primary infection occurs in childhood or adolescence. But the controversy over inhalation and ingestion as the one or the other more important avenue continues, and "bids fair to be settled by the decision that both are important,

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Krause, A. K.: The Tuberculosis Problem, Am. Rev. Tuberc. **5**: 771 (Dec.) 1921.

2. Brown, Lawrason: Some Causative Factors in Pulmonary Tuberculosis, Am. Rev. Tuberc. **5**: 518-519 (Aug.) 1921.

and are not separate modes in fact."[3] If, as held by Baldwin[4] and others, "adult tuberculosis is the result of first infection and reinfection before the age of 21," what are the contributing factors that transform latent tubercle into active disease processes? There is first in importance the problem of susceptibility. What are the inherent physiologic factors of resistance, including heredity and race? Then there is the question of mere mechanical resistance and the accident of location of the tubercle; also such contributing factors as the physical and emotional stresses and strains of early adult life, due to educational and industrial conditions; dissipation; pregnancy and parturition; nutritional disturbances and deficiencies; worries; infections and diseases due to other bacteria, and certain occupational hazards, causing either fine or gross traumas and fatigue.

That fatigue and its accompaniments constitute a larger factor in arousing latent tuberculous infection than appears to be generally recognized is the subject of this inquiry. It is possible within the limits of this paper to make only a short sally into a field of inquiry where, it is hoped, experienced investigators will go much farther.

NATURE OF FATIGUE

The nature and causes of fatigue involve considerations as interesting as they are complex. Adequately to define fatigue is difficult because of the numerous phases involved—psychologic, physical, chemical, nutritional.

Rivers[5] defines fatigue as "a lowered capacity for work which follows, or occurs during, the performance of work of which it is the direct result."

Amar[6] defines fatigue as "the effect which limits the duration of work," and in another connection says: "It is the result of muscular and nervous phenomena which give rise to an increasing malaise or uneasiness, and, above all, a feeling of impotence. This feeling progresses through every stage, from mere lassitude to the acutest suffering, and it persists for a varying space of time."[7]

Spaeth[8] considers it as "resulting directly from the accumulation of the products of activity and varying with the duration, rate and intensity of the performance and the initial strength or capacity of the physical system involved."

Drever[9] points out that:

> The answer may be given in subjective or in objective terms. Subjectively, fatigue is a state of consciousness, usually more or less disagreeable, determined by a mass of sensations, sometimes with fair definiteness localized, and vague feelings which are not localized. . . . It is accompanied by a disinclination for work and a desire to rest, with a felt incapacity for work added. Such a definition, however, is of very little service even to pure psychology, and of no use at all outside the limits of that science. . . . "Weariness" is probably a better word to employ to the subjective state, inclusive of boredom and of real fatigue. . . . This subjective weariness does not necessarily imply diminished capacity for work, nor does its absence imply that capacity for work is not really diminished. If we define fatigue in objective terms, we are practically compelled to define it in terms of output. That is, we have to define it as a state of lowered efficiency in the organism, brought about by the expenditure of energy in doing work, and showing itself either in impairment of the quality of the work subsequently done, or in diminution of the quantity, or in both. This definition by no means escapes all the difficulties. Considerable fatigue may apparently be present without any of these objective results being produced. At a certain stage, as Myers points out, fatigue may produce a general excitement with extravagance in the expenditure of energy, and as a result increased output with no falling off in quality.

The similes of Collis and Greenwood[10] are illuminating. Fatigue, they say, is not merely due to the using up of the combustible material in the muscles, or to loss of the power of the nerves and end-organs to convey impulses, or to weakening of the capacity of the brain and spinal cord to originate impulses; it is not merely the running down of the car for want of gasoline; it is not the cessation of a chemical reaction because the latter is complete. It is rather interference with the mechanism due to accumulation within of the chemical products of activity; i. e., of catabolism; somewhat as the products of combustion by fouling a sparking plug may slow down or stop a motor which still contains a plentiful supply of gasoline, or somewhat as some chemical reactions are interfered with by one of the products formed.

It appears to be widely accepted that fatigue is not an effect on the muscular system as much as on the nervous system:

> In reality, the most severe bodily activity fails to produce any close approach to complete fatigue of the muscles. The fatigue is fatigue of the nervous system, though in sensation its effects may be referred to the muscles themselves. . . . Even in laborious work it is doubtful whether a man by voluntary effort can cause his muscles to approach advanced fatigue. It is well known that a man apparently "run to a standstill" in a race may upon some new excitement run freshly again, under augmented stimulus from the nervous system, initiated there perhaps in part along new paths.
>
> The problems, then, of industrial fatigue are primarily and almost wholly problems of fatigue in the nervous system and of its direct and indirect effects.[11]

Mosso[12] writes:

> Whether man works muscles or brain, the nature of the fatigue is always the same, because there is only one actuating force in existence, nervous force.

Kent[13] writes:

> Fatigue depends partly upon the using up of fuel—a conception so familiar that it requires no further emphasis—and partly upon the accumulation of waste material. The latter factor is not unimportant, even when the muscles alone are considered; an isolated muscle which has contracted until to all appearance completely tired may be refreshed and induced to work again by merely washing out its blood vessels with a solution of common salt. Evidently the salt can afford no fresh supply of energy. It merely removes waste products, and the muscle acts again. Fatigue in this instance was largely a matter of the clogging of the mechanism. But it is not only the muscles that we have to consider. They are under the control of the nerves and of the central nervous system—the brain and the spinal cord. And the nervous sys-

3. Baldwin, E. R.: The Etiology of Tuberculosis in Its Modern Aspects, New York Tuberc. A. Bull. **3**: 4 (Nov.-Dec.) 1922.
4. Baldwin (Footnote 3), p. 6.
5. Rivers, W. H.: Influence of Alcohol and Other Drugs on Fatigue, Croonian Lecture, Roy. Coll. Phys. London, 1906, p. 2.
6. Amar, Jules: Human Motor, New York, E. F. Dutton & Co., 1920, p. 206.
7. Amar, Jules: Physiology of Industrial Organization, London, 1918, p. 76.
8. Spaeth, R. A.: Problem of Fatigue, J. Indust. Hyg. **1**: 214 (May) 1919.
9. Drever, James: Psychology of Industry, New York, E. P. Dutton & Co., 1921, p. 61.
10. Collis, E. L., and Greenwood, M.: Health of the Industrial Worker, Philadelphia, P. Blakiston's Son & Co., 1921, p. 81.
11. Great Britain Munitions Ministry, Health of Munition Workers Com., Hours, Fatigue and Health in British Munition Factories, reprinted, Bull. 221, U. S. Labor Statistics Bureau, Washington, 1917.
12. Mosso, Angelo, quoted in: Amar, Jules: Human Motor, p. 214.
13. Kent, A. F. S., in: Industrial Administration: A Series of Lectures, Manchester, University Press, 1920, p. 189.

tem is a far more delicate structure than the muscles, and likely sooner to be damaged by the presence of waste material.

Thomas [14] says:

The waste products added to the blood act upon the nerve endings in muscle and upon the gray matter in the brain, and create a sense of fatigue. Although the sense of tiredness is referred by us to overworked muscles, the location of the cause is less in the peripheral than in the central nervous system. On the one hand, waste products act on the muscles, diminish their contractility, and render them less responsive to nerve stimuli, and on the other hand they poison the large nerve cells in the gray matter of the brain, render them less receptive of sensory stimuli, and in this way reduce their power of emitting volitional impulses. There is therefore in fatigue an element that is mental as well as physical.

The offending products, referred to as fatigue substances, resulting from the combustion of glycogen are not fully known but are chiefly carbon dioxid and lactic acid. "The physiologist," writes Drever,[15] "has established the following" main facts:

When energy is expended in the doing of work by a muscle there is consumption of energy-producing material, and the production in the muscle itself of substances . . . which act as poisons on the tissues. The substance in the muscles which produces the energy, which acts therefore as fuel, is glycogen, and the chief toxic substances produced are carbon dioxide and latic acid. Glycogen in the form of "animal starch" is stored in the liver and the muscle cells. The liver acts as a storehouse for the muscles, and in strenuous muscular work the blood brings glycogen from this storehouse to keep the muscle supplied. Complete fatigue would be produced if this store were exhausted. That does not happen, however, for the accumulation of toxic substances in the muscles produces . . . the cessation of muscular activity long before this . . . exhaustion.

CAUSES OF FATIGUE

The causes of fatigue are diverse. Occupations requiring close attention are a serious cause of fatigue, especially when there are continued extraneous irritations tending to divert attention, such as loud noises, flickering or dazzling lights, and jarring processes. Prolonged labor and monotony of operations cause fatigue, which is hastened and augmented if there is lack of interest in the work, with little recreation. Swift [16] emphasizes the importance of interest in the daily task in retarding fatigue:

The effect of the emotions upon fatigue shows that the vocation which a young man selects means much more than the financial returns. His ability to put his work through depends upon his working capacity, and the latter draws its energy in no small degree from his enjoyment of what he is doing.

Bad ventilation, high temperature and humidity of the working place, resulting in the lack of stimulation to the skin and the cooling properties of atmosphere in movement, are potent causes of fatigue. Irregular or curtailed sleep, imposed responsibility, chronic pain, grief or worry, infections, the waste products of labor or of faulty digestion all contribute to fatigue.

Ample evidence is found in the literature of medicine, hygiene and industry of a widespread belief that fatigue is a predisposing cause of impaired health and of disease in general.

Kober [17] asserts that "one of the important predisposing causes to disease is overwork or fatigue, because of the accumulation of waste products in the blood from muscular wear and tear, together with expended nervous energy, combining to render the system more susceptible to disease. . . . Long hours and hard work are calculated to diminish the general power of resistance and thus bring about physical deterioration."

Roth [18] names, as "the chronic effects of fatigue, anemia, digestive derangements, neurasthenia, respiratory and cardiac difficulties."

A British committee report [19] states that:

The results of persistent fatigue are shown in reduced physical capacity and a loss of resistance to disease or an unsatisfactory environment, which are further reflected in returns of sickness or broken time and of the number of accidents recorded. . . . Fatigue naturally occurs earlier in underpaid, underfed persons; and the secondary results of overstrain, including sickness, are most common and excessive among this class of workers, which is mainly composed of women and girls.

Watkins [20] writes that "fatigue, which is the expression of a poisoned organism, inevitably results in reduced resistance to disease."

Thompson [21] writes:

Fatigue is known to diminish the number of antibodies in the system and hence to increase its susceptibility and lower its resistance to infectious disease such as grip, pneumonia and tuberculosis. General fatigue further acts by inhibiting digestion and ultimately interfering with nutrition.

It has been stated [22] that:

We all know that the tubercle bacillus is almost omnipresent . . . and yet relatively few come under its full influence and develop signs which can be recognized as active tuberculosis; and we all recognize now that those who are thus affected are those who suffer from lowered nutrition, often caused by long and excessive fatigue. The same may be said of pus cocci and many other microbes, and Nature has provided phagocytes, which in healthy blood continually guard us against their harmful influence, but which fail in their duty when the vital system is lowered by excessive fatigue, either physical or mental.

Spaeth [23] remarks:

Partly because of its evasive qualities, we have failed to look upon cumulative fatigue as one of the most serious health hazards in industry. As a health hazard, the most serious characteristics of fatigue are: (1) the difficulty of detecting it in its earlier stages; (2) the fact that a "nervous breakdown" frequently means the permanent injury to health; (3) the fact that cumulative fatigue is not well understood, and neither the symptoms nor the treatment have received the attention they deserve.

According to Hayhurst: [24]

Fatigue is one of the most common causes of occupational disability. This is a prime cause of the fact that bodily development in factory classes remains inferior to that in other social classes. . . . Fatigue symptoms should never be permitted to exist in industries. These are, in a minor way,

14. Oliver, Thomas: Diseases of Occupation, New York, 1908, p. 6.
15. Drever, James: Psychology of Industry, New York, E. P. Dutton & Co., 1921, p. 62. Compare Swift, E. J.: Psychology and the Day's Work, New York, Charles Scribner's Sons, 1918, pp. 165-167, 171. Hill, Leonard: Recent Advances in Physiology and Bio-Chemistry, p. 501.
16. Swift, E. J.: Psychology and the Day's Work, p. 184.
17. Kober, G. M.: Industrial and Personal Hygiene, Washington, 1908.
18. Roth: Ermuderung durch Bereufsarbeit, Tr. Internat. Kong. f. Hyg. u. Demographie, Berlin **2**: 620, 1907.
19. British War Cabinet Comm. Rept. on Women in Industry, 1919, p. 222.
20. Watkins, G. S.: Introduction to the Study of Labor Problems, p. 205.
21. Thompson, W. G.: The Occupational Diseases, New York, D. Appleton & Co., 1914, p. 625.
22. Industrial Medicine, Easton, 1915, p. 47.
23. Spaeth, R. A.: Prevention of Fatigue in Industry, Industrial Management **59**: 7-9 (Jan.) 1920.
24. Hayhurst, E. R.: A Survey of Industrial Health Hazards, Columbus, 1915, pp. 33, 35, 36, 37.

tiredness, sore muscles, stiff joints, aches and pains, etc., while in a more severe form we have such signs as muscular cramps, obstinate lumbago, wry neck, neuritis, neuralgia, and "occupational neuroses," in which any attempt to return to the regular work results in spasms of the muscles used, accompanied by soreness, constant aches and pains, trembling, gradual emaciation and partial paralysis of the parts. . . . Young persons, particularly those under 18 years of age, are permanently and more seriously damaged by the poisons and toxins of fatigue than those of maturity. . . . During this age period . . . energies must be especially conserved for the functions of growth. Where fatigue substances are allowed to factor, growth is stunted, concrescence is interfered with, and reserve forces are so dissipated that there result deformities, weakened constitutions, and a greatly increased liability to the inception of chronic diseases, particularly of tuberculosis and organic heart disease.

Kober and Hanson [25] state that:

The connection between fatigue and disease is probably much more frequent and close than is usually recognized. To disease, fatigue stands in the relation of both cause and effect. That it may be a facor in causing disease is indeed often believed, and this belief is justified by laboratory experiments. Thus, it has been shown experimentally that of two groups of animals, the one resting and the other fatigued by muscular work, and both inoculated by pathogenic bacteria, the fatigued animals exhibit a fall of the opsonic index and succumb to the disease in larger numbers. . . . If this is true of one species of bacterium it is probably true of others, and from the prevalence of infectious diseases in the life of man it is obvious how important is the matter of avoiding undue fatigue. . . . Outside the realm of infections, fatigue as a causative factor in disease is perhaps most obvious in neurasthenia; the nervous system is the primary seat of the preceding fatigue process. . . .

Industrial overwork often occurs and puts the worker into a physical condition, at present difficult to recognize by any specific test, wherein his physiological mechanism is in a state of depression and ready to fall a prey to specific maladies. Treves speaks of this as not presenting a well-defined morbid picture; but it is a slow deviation, often obscured by its very slowness, and predisposing to illness of any nature; it is the borderland of illness.

Lee [26] states that:

In connection with the great prominence of industrial disease in the life of today, fatigue must be recognized as one of the chief factors. Several years ago . . . a valued friend of mine, one of the leading American pathologists, expressed to me his firm conviction that in the course of time fatigue would be recognized as one of the main causes of disease; and Sir James Paget is quoted as writing, "You will find that fatigue has a larger share in the promotion or transmission of disease than any other single causal condition you can name." Here may be mentioned an instructive research by Abbott and Gildersleeve (Influence of Muscular Fatigue and of Alcohol Upon Certain of the Normal Defenses), who found that when rabbits were inoculated with pathogenic bacteria and were then fatigued by running several hours each day in a wheel, they died; while other rabbits, inoculated, but not fatigued, survived. With the fatigued rabbits, the opsonic index . . . was gradually reduced as the fatigue progressed. Cessation of the fatiguing process for even a day resulted in a partial recovery of depression in the opsonic index. The bearing of such an experimental result on the causation and prevention of infectious diseases in industrial work is sufficiently obvious.

Vernon,[27] who stated that "one of the most important contributory causes of sickness and of the loss of working time is fatigue rising directly from industrial work," tested this statement on a large scale in three national shell factories. In each case the time lost from sickness varied according to the hours worked and the consequent fatigue. The factories were grouped together, giving the figures in the accompanying tabulation.

Time Lost According to Hours of Work

	Men			Women		
Hours of work	68¼	62	54	62	54	44
Per cent. of time lost in sickness	7.0	5.7	4.0	6.4	4.3	3.1

Legge [28] writes:

Application of the experimental methods chiefly carried out in this connection by Professor Kent on industrial fatigue will throw a flood of light on this class of occupational disease, and, perhaps by suggesting alternation of employment, render the outlook in regard to them more hopeful than I see it now. What wonder is it that the twister in the cotton trade who, by a dextrous twist of his fingers, joins up 8,000 threads per day at his prime finds his earning capacity reduced when, day after day and year after year in repeating this movement, his fatigued fingers can join up only 600. And I believe that the problems which have already been gone into so elaborately in regard to the effects of artificial humidity and other causes upon health will have to be revised in the fresh light which can be brought to bear from the study of industrial fatigue.

Vernon,[27] again, has observed that:

There can be little doubt that in many cases fatigue is a predisposing cause of sickness, even if it is not the direct and immediate cause. Fatigue may impair digestion, and therefore interfere with the adequate nutrition of the body. Vitality is lowered, and the system becomes more liable to bacterial infection. Professor Fisher, when discussing the effect of the long working day on the health of workmen, says, "A typical succession of events is, first, fatigue, then colds, then tuberculosis, then death."

Sir Arthur Newsholme [29] says:

Overfatigue is a contributory influence similar to ill nutrition, in which the toxic effect of the products of fatigue replaces the effect of inanition; and, in context with overfatigue, it is convenient to group the ordinary occupational disadvantages which combine with overfatigue to lower the inhibitory powers of the workers, favoring catarrhs, rousing into activity foci of infection, which may have remained latent in the bronchial or other lymphatic glands for many years. . . . Overfatigue probably causes a much larger number of attacks of tuberculosis than malnutrition; and much of the excess of pulmonary tuberculosis among men as compared with women is due probably to this. It is not suggested that there is not abundant infection in the workshops, nor that the dust of workshops is not largely responsible for the result under consideration. If a reliable test for the limits of physiological fatigue were applicable, which would eliminate the element of personality in the testing, and would enable work to be given in accordance with individual fitness, much avoidable disease might be prevented. At present we are without any such test, capable of being used in practical life.

Malnutrition, so often cited as a causal factor in the development of tuberculosis, is in turn frequently the result of overfatigue, according to Emerson,[30] who gives it as third in importance as a cause of malnutrition.

25. Kober, G. M., and Hanson, W. C.: Diseases of Occupation, Philadelphia, P. Blakiston's Son & Co., 1916, pp. 255, 256, 259.
26. Lee, F. S.: The Human Machine and Industrial Efficiency, New York, Longmans, Greene & Co., 1919, pp. 79-81.
27. Vernon, H. M.: Industrial Fatigue and Efficiency, London, 1921, pp. 143-146.
28. Legge, T. M.: Industrial Administration, pp. 96, 97.
29. Newsholme, Arthur: The Prevention of Tuberculosis, London, Methuen, 1908, p. 177.
30. Emerson, W. R. P.: Malnutrition and Tuberculosis, Tr. Nat. Tuberculosis A. **17**:559, 1921.

Not all voices are in accord with this view of fatigue as a strong contributing factor in the etiology of disease. Oppenheimer and Spaeth [31] found that "fatigue, artificially induced in white and hooded rats by forcing them to run in motor driven drums, apparently tends slightly to increase their resistance to subcutaneous injections of tetanus toxin. . . . These results contradict the popular belief that a fatigued individual is more susceptible to disease (tetanus toxin and pneumococcus infection) than a nonfatigued individual."

Fisk [32] maintains that sickness is wrongly treated as the result rather than the cause of industrial fatigue.

The sense of exhaustion which persists often for many weeks or months following an attack of influenza is an example of fatigue as the effect rather than the cause of disease. On the other hand, exhaustion due to physical labor or mental stress or both is widely recognized as the contributing factor in such infections as furunculosis. For a period of two years or more after an attack of influenza, I was able repeatedly to predict the appearance of a furuncle from twenty-four to forty-eight hours after the symptoms of severe exhaustion. Immediate rest in bed appeared occasionally to abort a furuncle. Pneumonia as a complication during convalescence from exhausting injury or illness is a not uncommon observation of the general practitioner.

Paraphrasing Kober and Hanson, previously quoted, may we not say, If this is true of one species of bacteria, such as the staphylococcus, it is probably true of others, such as the tubercle bacillus, which, like the staphylococcus, is latent in a large percentage of the human race.

REST

Let us consider for a moment the most important of the fundamental factors in treatment—rest. Now thoroughly established as our most potent method of combating active tuberculous disease, it is nevertheless an empiric method. What is the rationale of prolonged rest treatment? Is it merely to slow respiration and circulation? Is it to relieve physical exhaustion and to conserve strength? Is it to bring about mental tranquillity? Is it to improve nutrition? Certainly, in the beginning of treatment rest is prescribed for the reduction of the pulse rate and febrile temperature when fever exists.

Mere physical exhaustion is recovered from in a few hours or a few days. Many patients with active tuberculous disease are not undernourished; but when poor nutrition exists, then rest and the other fundamentals of modern treatment, fresh air and good food, are essential.

Exhaustion from the toxins of tuberculous disease, especially if complicated by mixed infection, may need many weeks for restoration. Rest is essential, that the effort to wash out these products of bacteriologic activity may not be retarded by the products of combustion due to physical effort.

On the other hand, the exhaustion of fear and worry, which may be either the cause or the effect of tuberculous activity, may not be dispelled by bed rest but is relieved by controlled occupational therapy,[33] a useful means of securing mental rest. Kober and Hanson [34] point out that:

> During rest there is opportunity for the excess of carbon dioxid, lactic acid, and whatever other fatigue substances may be present, to be eliminated from the fatigued tissues and from the body. The carbon dioxid is passed out of the body through the lungs, while the other fatigue substances probably either pass out unchanged in the urine, or are broken down into simpler substances before being discharged. At the same time rest gives the opportunity for rebuilding within the cells the substances that are necessary for further activity.

The large percentage of those patients discharged from sanatoriums as having the disease in a quiescent or apparently arrested form, who subsequently break down, presents a serious problem. The causes are not alone undue physicial exertion. They are all those factors that contribute to fatigue: faulty diet while under treatment leading to a fat and flabby condition of the muscular system, with resultant disturbances of metabolism; failure to secure a period of hardening up by carefully supervised graduated exercises which are themselves a means of acquiring resistance to fatigue;[35] a return to the same domestic and industrial conditions under which the disease first became active; dread of the slumbering fires of reinfection or reactivation.

Unfortunately, so far as I am aware there exist no valid quantitative tests [36] for cumulative fatigue, nor have we any readily applicable measures of vital capacity by which we may have a guide for the wise vocational counsel of the tuberculous. We are compelled to rely on the clinical observations of public health nurses and clinic or private physicians, and on the subjective judgment of the patient to prevent relapses.

CONCLUSIONS

May we not conclude then, from these considerations that there are in the field of tuberculosis research the following worth-while problems:

1. The determination whether or not the "toxic substances" of fatigue are the cause or one of the important causes of the activation of latent tubercle and the manner in which they act.

31. Oppenheimer, Ella H., and Spaeth, R. A.: Relation Between Fatigue and the Susceptibility of Rats, Am. J. Hyg. **2**: 51 (Jan.) 1922.
32. Fisk, E. L.: Fatigue in Industry, Am. J. Pub. Health **12**: 212-217 (March) 1922.
33. Pattison, H. A.: Occupational Therapy and Vocational Guidance for the Tuberculous, Mod. Med. **2**: 10 (Jan.) 1920.
34. Kober, G. H., and Hanson, W. C.: Diseases of Occupation, p. 254.
35. "With moderate exercise there is no evidence that any other substance than carbon dioxid is formed, but with violent exercise lactic acid is also produced. A variety of experiments indicates that lactic acid appears with a relative deficiency in the supply of oxygen to the contracting muscle. The copious intake of oxygen that accompanies exercise would tend, therefore, to reduce the lactic acid formation. Respiration is essentially a gaseous exchange and takes place primarily in the cell. For these reasons, and since muscle in an atmosphere of pure oxygen does not fatigue as soon as in an atmosphere of nitrogen, and a muscle stimulated to exhaustion in an atmosphere of nitrogen recovers quickly in pure oxygen, it would appear that the presence of oxygen tends to push back the fatigue-point. All of this suggests the value of volumes of fresh air in delaying fatigue and of furthering recovery when fatigue has set in."—Swift, E. J.: Psychology and the Day's Work, New York, Charles Schribner's Sons, 1919, p. 171.

"Physical exercise as a means of acquiring resistance to fatigue has received too little attention, and the value of medicine has been overestimated. It is well known that a man in training has greater endurance than one who attempts exertion without previous systematic exercise or training. In general, it may be said that a person in the pink of condition is fit not only for physical but also for mental exertion. . . . The great majority of adults are far from being in condition, suffering either from lack of exercise or from too much exercise. . . . Could these conditions be remedied, endurance, as measured by capacity to withstand prolonged strains, might be greatly increased.

" 'Experiments have shown that physical endurance can be doubled by dietetic causes alone, or doubled by exercise alone. By both together it is not unlikely that it could be tripled or quadrupled. . . . It is not meant that the hours of his daily work, or even his daily output of work, could be increased in such a ratio. What it does mean is the removal of the fatigue limit, a freer and more buoyant life, and a visible increase in the quantity and quality of work per hour. In an ideal life, fatigue would be seldom experienced. But in most lives, unfortunately, fatigue is a daily experience' " (ibid., pp. 174-175, in part quoting Fisher, Irving: Bull. 30, Committee of One Hundred on National Health).
36. Spaeth, R. A.: Prevention of Fatigue in Manufacturing Industries, J. Indust. Hyg. **1**: 447 (Jan.) 1920.

2. The development of satisfactory, easily applied tests or clinical guides for determining cumulative fatigue.

3. The further study of occupations for the tuberculous with reference to those features of employment producing mental and physical fatigue.

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ABSTRACT OF DISCUSSION

DR. ROBERT A. PEERS, Colfax, Calif.: Fatigue in its relation to tuberculosis should be considered mainly from three points of view: (1) its significance in causing activity in inactive lesions; (2) its significance after the activity has been well established, and (3) its relation to the arrest of the disease. Dr. Pattison stated that infection by the tubercle bacillus is practically universal, and yet approximately only 2 per cent. of the population become actively tuberculous. Why? Our experience has been that the factor which causes the 2 per cent. to break down is what Kraus terms strain, which, in a majority of cases, means fatigue. The most important factors that cause this breakdown are overwork, overplay, overdissipation, excessive nervous strain, or a combination of two or more of these factors. It is not so important to the tuberculous patient how we define fatigue, or in what manner fatigue works, but it is important to everybody—especially to the individual who is infected but has not broken down—to know what leads to the breakdown. As to the significance of fatigue after tuberculous activity is well established, fatigue acts as a cause and as an effect of the toxic products that come from the active lesions which have been stirred up. It has been said also that industrial fatigue is the result rather than the cause of disease. I believe that fatigue is both the cause and the result. Then, as to the relation of fatigue to the arrest of the disease, Dr. Pattison said that rest is the most important fundamental factor in treatment. The value of rest cannot be overemphasized. The very fact that rest, which is the antithesis of fatigue, is the most important factor in the backward movement from active tuberculosis to inactivity is proof of the great part played by fatigue in the development of tuberculous activity. Rest reduces the factors that caused the breakdown and caused the fatigue, and is also breaks up the vicious circle of fatigue in the infected individual. One thing more: If we want to reduce the incidence of tuberculosis, that 2 per cent. of actively tuberculous, to a minimum of less than 0.5 per cent., we must not only lend our efforts to the prevention of the transfer of the tubercle bacillus from the sick to the well, but adopt proper social and industrial measures which will help to eliminate, so far as possible, the element of fatigue from the lives of our citizens.

Causal Factors of Juvenile Crime.—The number of criminal children who themselves possess criminal parents or criminal relatives is, after all, comparatively few. And, even here, small evidence exists to establish that the criminal propensities of the family have been transmitted to the offspring by direct biological inheritance. Other causes, less hypothetical in character, more obvious in their mode of operation, can often be elicited; and their removal, with immediate and entire success. Many of these provocative conditions were manifestly due to the moral laxity of the parents themselves. The only cases in which the vices of the child stood in a direct and apparently hereditary relation to the vices of the parent belonged to specifically limited types—namely, sex delinquency (by far the most frequent), and a few instances of wandering, violent temper, and impulse stealing. Of these every one may be accounted for by a simple assumption—by supposing that certain human instincts, which by their very definition are acknowledged to be inherited, may be inherited in differing degrees of natural strength. But even here the instinct is not itself inevitably a criminal one; and once it is afforded some legitimate outlet in social activities or wholesome recreation, its manifestations can be diverted from illicit enterprises, and directly into lawful channels.—Cyril Burt: *rit. J. M. Psychol.* **3**:14, 1923.

ROENTGEN-RAY THERAPY TWENTY YEARS AGO *

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As I see, now and again, reports on treatment of various diseases with roentgen rays and radium, my mind reverts to the time, twenty years ago, when we were learning the therapeutic use of roentgen rays. It has been interesting to me to compare the results then with the results now, and I thought it might be interesting for us to look over some of these old results and compare the present with the past in this field.

I began the therapeutic use of roentgen rays, Feb. 1, 1900, in a case of hypertrichosis. Soon after, in treating a case of hypertrichosis, I was amazed to see a bad acne clear up. In May, 1900, I treated my first case of lupus. In December, 1899, Stenbeck had demonstrated before the Swedish Medical Society a case of cured epithelioma, and about the middle of 1900, Johnson and Merrill had published the report of a good result in America. In January, 1901, I treated my first case of epithelioma. By the middle of 1901 I began to treat carcinomas of the breast. The results, except in the case of hypertrichosis, were so astounding that it was evident that we had a new principle of therapeutics of enormous potential usefulness in some of our gravest diseases. Naturally, the agent was given a trial in a wide range of cases.

THERAPEUTIC INDICATIONS

I believe that I may affirm with truth that I did not use the agent blindly and without a working hypothesis. I had taken up the use of roentgen rays after an evening spent with Freund in Vienna, when he explained his apparatus to me (although I never saw it), his technic, and his therapeutic indications. I shall always remember with gratitude the generous way in which he gave me the benefit of all his experiences and his technic. On the basis of Freund's generalizations on the therapeutic use of roentgen rays I elaborated a set of therapeutic indications for their use which has always been my guide. These therapeutic indications, which I published in 1903, were as follows:

1. To remove hair: (*a*) hypertrichosis; (*b*) sycosis; (*c*) favus; (*d*) tinea tonsurans; (*e*) tinea barbae.
2. To cause atrophy or diminution in size or in functional activity of the sebaceous glands: (*a*) comedo, acne, acne rosacea; (*b*) lupus erythematosus (?); (*c*) seborrhea.
3. To cause similar effects on sweat glands; (*a*) hyperhidrosis.
4. To cause exfoliation of the nails. (This was included for completeness.)
5. To destroy bacteria in living tissues. (This is the only indication that proved inaccurate.)
6. To stimulate tissues on the skin: chronic indurated eczemas, lupus erythematosus, lichen planus, psoriasis, and all of the chronic inflammatory diseases of the skin on which we use stimulants.
7. To destroy tissues of low resistance without destruction of their healthy stroma, the basis of their usage in all sorts of neoplasms, in granulomas and in lymphoid tumors.
8. Their anodyne effects—in neuralgias and itching dermatoses.

Of course, these therapeutic indications are very broad. I think it would be surprising to one to see how nearly these therapeutic indications of more than

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twenty years ago give reasonable working indications for the rational use of the agent, and how completely they include all of the suggested uses of roentgen rays which have since been developed. They include, as fully, the therapeutic indications for radium. Indeed, in his book, Simpson has used them as being the therapeutic indications for the use of radium. As a matter of fact, when I undertook to publish a book on roentgen-ray therapeutics, they enabled me to survey the subject with system and to discuss, not only what had been done with roentgen rays, but various things that might be expected to be done with them. I trust that my enthusiasm for these indications will be pardoned. It comes from the fact that they have stood me in such good stead. They still furnish me therapeutic indications. I claim very little credit for them. Nearly all of the credit belongs to Freund, who first elaborated them.

Most of the things that the treatment was tried on then are suggested by the therapeutic indications:

Hypertrichosis, tinea, acne and hyperhydrosis among the diseases of the appendages. I bought a duplicate of Freund's machine in the summer of 1899 for the specific purpose of treating hypertrichosis. I began the treatment of my first roentgen-ray case, one of hypertrichosis, in February, 1900. I see that woman to this day, after twenty-two years. She has never ceased to be grateful for the result, and I think it is the best result I ever got in hypertrichosis. I treated many subsequent cases, but ultimately gave up the method.

Eczemas, psoriasis, lichen planus and lupus erythematosus were all treated then with about the same results that we see now. I have shown the early results in lupus and blastomycosis. I have had few results in lupus since as good as those.

The cases of epithelioma that I have shown [1] illustrate fairly both in the successes and the failures the sort of results we got then. I am sure that I have had no better results since. Now I can treat superficial epitheliomas, and epitheliomas in inaccessible locations, more conveniently with radium than I was able at that time to treat them with roentgen rays. But I think the cases illustrated of lesions treated about the eye show that by taking trouble we could treat lesions anywhere on the skin with roentgen rays. I have used radium a great deal since in epitheliomas, but when I get in a desperate situation with an epithelioma that must be smitten, and smitten hard, I still prefer in most cases to rely on roentgen rays. A patient with an epithelioma of the lower lip, treated in 1902, lived seven or eight years, and died of an apoplexy without a recurrence. From that time to this I have treated hundreds (I have not lately made a count of them) of epitheliomas of the lower lip with roentgen rays. I have selected my cases, turning over the deep nodular infiltrations of the lip to the surgeon. But with selection of cases I can say that I have never had an occasion to have my conscience hurt me because of this method of treatment. I can hardly recall a case in which I had a right to expect a successful result in which I was disappointed. A man whom I treated for a prickle cell epithelioma of the nose with a good result, in May, 1901, has not had a recurrence to the present day, and has had throughout life a normal looking nose instead of an amputated one. Since that time I have treated many prickle cell epitheliomas with roentgen rays. They are more resistant than basal cell, but I had no hesitation, and still have none, in treating them. And I have never accepted with humble patience the statements that are reiterated that prickle cell epitheliomas cannot be destroyed with roentgen rays. As a result of my experience of twenty years ago I have long been convinced that roentgen rays or radium should supplant operation in the treatment of epitheliomas of the lids.

In carcinoma of the breast I think I have never seen as brilliant a result as in the third case I ever treated, in November, 1901. I have had the same sorts of results in recurrent carcinomas throughout my experiences; many symptomatic cures of the lesions or the chest wall; sometimes disappearance of lesions in the axilla and supraclavicular space; some permanent results, but, unhappily, few that have been permanent. In sarcoma, pseudoleukemia and leukemia the results were the same as we get now. I could remove then deep masses of connective tissue tumors. I saw twenty years ago a spleen as big as a watermelon become almost or quite impalpable, with corresponding improvement in the blood picture. Many years before the present intensive deep therapy, I saw patients with the abdomen like a nine months' pregnancy from uterine myomas, almost exsanguinated from hemorrhage, cleaned up and put on their feet with the old roentgen-ray technic.

There was one condition which I first treated with roentgen rays at the suggestion of Drs. Casey Wood and Frank Allport, for which I had no therapeutic indication, and have none yet, and that is vernal conjunctivitis. That hitherto utterly intractable condition I was able to get rid of permanently, and subsequently the treatment has proved successful by a similar use of radium, which is vastly more convenient for irradiating the inner surfaces of the upper lids.

Comparing the results of today and twenty years ago, I should say that, as a whole, the results were as good. In some conditions they were obtained with less regularity, and always with more difficulty to the operator, and often to the patient. In the treatment of acne I think my results were quite as good as they are now. But they required infinite pains and care, without the assurance that I feel of results today. In sycosis, my results were as good then as now. In chronic inflammatory diseases I see no difference in the results, and none in blastomycosis. In lupus, my early results, if anything, were better than my later ones. In epitheliomas, I see no difference in the results or in the regularity with which I get them.

TECHNIC

The technic which I used in those days, and continued to use until within a few years, was the old Schiff-Freund technic. I gave repeated exposures at short intervals, relying on the smallness of the quantity of roentgen rays in each irradiation in order to prevent a serious burn when the accumulated effect had produced an erythema if it was carried to that point, and, on the other hand, on the amount of roentgen rays which could be given in this way without danger in order to get the quantity through accumulation that was necessary to produce results. I was always afraid of soft tubes, and never felt happy with a tube until it was pretty well blackened up and pretty hard. I relied on

1. Lantern slide illustrations of cases were shown with the presentation of the paper. These are not reproduced because they were all long since published.

the hardness of my tube to get deep effects rather than on the filters. When I have used filters I have always used aluminum, nearly always of 1 millimeter. But for epitheliomas I have rarely used screens, and for affections like acne in which I want a superficial effect, I have practically never used them. In the early days I used to give many exposures in order to get an effect in any condition. In an epithelioma I would give ten, twenty or thirty exposures. As I acquired more confidence, however, I got so that I could treat an epithelioma often in three or four exposures given in the course of four or five to ten days. That technic, of course, was tedious and difficult. It required long practice on the part of the operator in order to carry it out. As a matter of fact, although many an assistant at different times did the work, most of my roentgen-ray work was done by the same assistant.

The new technic of MacKee and Remer and Witherbee is, in convenience and accuracy and ease of application, incomparably better than the old technic that I used. In my hands it has proved everything, it seems to me, that could be desired in the way of accuracy and convenience. It has the enormous advantage that it does not require years of training to carry it out. When one is used to the set-up, the exposures can be given by any careful intelligent assistant who has had a short training. And to my mind it is the one great addition to the therapeutic use of roentgen rays that we have had. There is still, however, I believe, the same use for judgment in the quality and quantity of the exposures that is an essential of all technics.

In the quality of the results with the new technic I see little difference. The only place that I see a distinct advantage in the new technic is in the treatment of conditions in which one must avoid burns or be sure of staying on the side of safety, such as in acne, tinea tonsurans and inflammatory dermatoses. As respects acne, MacKee's technic is a vast improvement. One treats the patients in a fairly definite time with more assurance of success and with less danger of damage. In tinea tonsurans, of course, the exact methods of measurement, of which MacKee's is the best, have made the treatment practicable. I have seen very little tinea tonsurans in private practice, and I treated none in the early days, as far as I remember. But I have no doubt I could not have treated it with the success of today.

Burns and chronic roentgen-ray atrophy are, of course, the nightmares in the use of roentgen rays and radium. It seems to me, by the way, that since the intensive therapy has come in I have been asked to see more roentgen-ray burns now than I ever did. When I began the use of roentgen rays in 1900 I knew the dangers of burns and I guarded against them with all the care and intelligence that I could bring to bear on the problem. As respects burns, I have been lucky. In some of my successful acnes there was a good deal of scarring, perhaps more than would have occurred without the use of roentgen rays; but of this I am not certain. None of the patients, so far as I remember, ever complained of it. As far as I know, no acne patient ever developed telangiectasia or distinct roentgen-ray atrophy. In some of my early hypertrichosis cases there was considerable crinkling of the skin, but in none of them, as far as I know, did any great amount of telangiectasia develop. In cases such as tuberculous glands of the neck, cases treated for carcinoma of the breast or after carcinoma of the breast, and in other similar conditions, I have had develop many areas of extreme telangiectasia. But in the hundreds of those cases I have seen hardly more than one or two epitheliomas, and I recall only one in which an epithelioma developed which gave me any anxiety. In one case of a young girl treated for tuberculous glands of the neck, I had bitter complaint because of the slight telangiectasia. I had one burn 1½ inches wide and perhaps 4 inches long develop on a woman's chest wall whom I was treating with what was understood to be dangerous vigor for a carcinoma in the mediastinum. I have had one roentgen-ray burn half the size of the little finger, which occurred in the treatment of a lupus of the face and which was excised on account of the pain. I have had one ulcer in a slight roentgen-ray atrophy on the forearm of a man treated for psoriasis, which was excised because we thought it was dangerous. These are the only accidents that I recall; and one remembers pretty vividly those accidents. Not one of my assistants has ever developed any chronic roentgen-ray changes.

In short, while I have admiration for and pleasure in my new tools, and am perhaps working more deftly, I look back with satisfaction, and, indeed, some affection, on the old, and am rather ready to defend them.

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ABSTRACT OF DISCUSSION

DR. EVERETT S. LAIN, Oklahoma City: After Dr. Pusey published his work in 1903, showing what might be accomplished, I went to Chicago, and Dr. Pusey showed me his cases. I went home and tried, in the best way I could, to emulate his work. I have in my files many cases of epithelioma treated with roentgen ray in 1903, 1904 and 1905, and the patients are still living. I also have cases of acne cured with the roentgen ray in 1903, 1904 and 1905, and the results as regards telangiectasia and atrophy of the skin were no more common in my work at that time than they are at present.

DR. HOWARD FOX, New York: Dr. Pusey was the first in this country to do this work in connection with skin diseases. The wonderful results he showed in epithelioma and lupus could not be surpassed at present. He was able to obtain these results, however, on account of his own particular genius in this field. The average man could not have obtained such results with the old unmeasured technic. Since the introduction of modern apparatus, the technic has become not only simpler but also much safer, and its knowledge can be passed from one to another.

DR. FRED WISE, New York: Having had considerable experience with both the old technic and the new, I think I can say without hesitation that the results obtained with the old method were as good as those with the new, modern method, especially in the hands of men who, like Dr. Pusey, exercised a considerable amount of care and judgment; but certain facts must be brought out in favor of the modern, or MacKee and Remer, method. When many cases are treated in a clinic in one afternoon, the time factor is an important thing. In many of the cases Dr. Pusey showed I have no doubt the patients received many times, probably twenty times, as much roentgen ray—I mean the measured time—that we use now. This means a lot in the time factor. Another factor lies in the treatment of favus and ringworm of the scalp. If roentgen therapy were a cure for those two conditions alone, it would be of great value in the treatment of skin diseases in the large cities. I do not know whether Dr. Pusey ever attempted to epilate ringworm and favus by the old method, but the results in regard to therapeutic epilation were usually poor. With the so-called MacKee method we are sure of what we are doing, and we know that if we

give a certain amount of roentgen ray to children's scalps, we are not giving too much.

DR. HENRY J. ULLMANN, Santa Barbara, Calif.: It requires an artist to paint a picture; it is not a measured, scientific thing. In the early days, the success of roentgen-ray therapy was due to the fact that it was an artist who used the roentgen ray. The following experience may help the younger men to appreciate some of the conditions under which Dr. Pusey and his associates worked: As late as 1920, when I first started my voltage measurements, I found variations as great as 20 per cent. below to 21 per cent. above the voltage the operator, with the point gap method of measuring, supposed he was using. Think what that means in the effect on the skin. When we think of all the unstabilized factors entering into his work, we shall realize what an artist Dr. Pusey was.

DR. WILLIAM ALLEN PUSEY, Chicago: Everything that has been said about the precision and the enormous increase in practicability of the new method is true. I tried to emphasize that as much as possible in the remarks I made. There can be no doubt about the wonderful time-saving value of the new technic; but what I had in mind was that we could accomplish results in the old days if we used patience and care. Another important thing is one's assistants. What the results might have been if I had had to change assistants I should not like to contemplate. I could depend on my assistant and knew that she could carry out these things, so that I felt safe. I have the greatest admiration for the work of MacKee, Remer and Witherbee. It is the greatest advance I know of. I did not treat ringworm in the old days, and I could not treat acne as I do now. I had to tell the patient that she would have to be available for six months. But the point I tried to make was that we could get results with the old method and that we should not forget the good old days.

THE PSYCHOLOGY OF THE NORMAL CHILD *

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The mind of the child differs from that of the adult quite as much, and in much the same way, as his body differs from that of the adult. Certain traits are his at birth and are modifiable only to a slight degree; on the other hand, changes for good or ill can be wrought in his mind which are as marked as are the changes sometimes seen in the bodies of certain primitive peoples who mold heads and alter features after a marvelous fashion.

Every child comes into the world with a set of tendencies transmitted through the ages from two long lines of ancestors. He is what he is largely because of his family, his sex and his race. Education may do much to develop small or latent powers, but nature has set definite limits for each individual beyond which he cannot go. It is futile to try to develop qualities of which there is no inherent trace and foolish to believe that tastes and abilities not ingrained can be created. Few human beings come near to the best use of all their faculties. Numerous accounts are available of accidents which have made necessary a complete change in the manner of living and have thus forced the development of latent and hitherto unsuspected powers. As one victim of an industrial accident remarked, he had to lose an arm to learn that he had a head. It is the function, then, of the environment to select and stimulate desirable qualities and to control and direct all. To educate a child in the true sense, it is imperative, first of all, to understand his native equipment and then to know all of the laws by which modification may take place.

Beside these inherent factors, which must be reckoned with throughout the life of the individual, there are certain other characteristics which belong to him because he is a child and not an adult and which are altered or lost with the passing years. First, and of utmost importance, is the fact of youth. Every healthy child is an investigating, experimenting, growing being, tingling with energy and with a dynamic vitality which embraces all about him and insures that he will develop and will respond to all of the experiences which come to him, regardless of their social value. Because of fresh youth, his organism is receptive and plastic and his habits begin to form even in the earliest days of life. The child cannot help forming habits; it is in the very nature of his nervous system to do so. Muscular habits develop, the disposition is formed, largely as an imitative process, and emotional attitudes, manners and morals all have their foundation in the early years. Habits of care of the body, of carriage and posture, of speech, formed during childhood, can seldom be broken, and such accomplishments as the learning of foreign languages, skill with certain musical instruments, or acrobatics must be acquired in youth if at all. The old adage says truly, "Let the child run until he is 6 and you never can catch him."

Among the natural endowments, there are certain instinctive tendencies, shared in greater or less measure by all persons, and appearing most prominently in childhood. McDougall names seven primary instincts, associated with corresponding strong emotions, which play an important part in the development of character. Some of these may have very undesirable aspects and need direction from their first appearance; most of them have decided elements of value; all can be made more useful socially by control. The seven primary instincts with their corresponding emotions are: (1) flight, associated with fear; (2) repulsion and disgust; (3) curiosity and wonder; (4) pugnacity and anger; (5) self-abasement and subjection; (6) self-assertion or self-display with elation, and (7) the parental instinct accompanied by the tender emotion. Besides these there are many more general tendencies, such as gregariousness, imitation, play and acquisitiveness, which are inherent and important, but the consideration of which is beyond the scope of this paper. Discussion of instincts here will be confined to those mentioned above.

In the child's life, fear is irrationally excited by many things, such as darkness, solitude, unexpected movement in objects, sudden loud sounds, or unfamiliar experiences. Fear, once established, haunts the mind and recurs again and again both in dreams and in the waking hours, often showing its effect throughout life as an inhibitor of action and a disturber of equanimity long after conscious memory of the fear-inspiring cause has been lost.

Repulsion and disgust appear early, and often suddenly, in children, and are associated with such experiences as disagreeable tastes, offensive odors, and slimy or furry things. The instinct of repulsion and disgust, as do most of the others, seems to appear at different ages in different persons and tends to change later, often disappearing in relation to certain objects. The repulsion for furry things, relatively common in young children, usually disappears entirely after a year or two. This suggests that, for the control of reactions

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resulting from instincts, it is important to recognize them, to realize their significance as they appear, and to direct and control them as they develop.

Curiosity is especially marked in children and shows great individual variation. When prominent, it becomes even stronger through exercise, but weak from disuse. Though directed at random in the child toward objects both trivial and important, it results in the expenditure of tremendous mental effort and can be regarded as responsible for much of the scientific and philosophical progress of civilization.

Pugnacity and anger appear very early in life and ordinarily serve to overcome opposition to the free use of other strong impulses. Important sources of reserve energy are brought into play by pugnacity, and, when rightly directed against difficulties which obstruct the way, it has great social value.

Self-abasement, in the presence of a supposedly superior person, is common with children, and the standards of conduct of admired persons are sure to have a large effect on the child's developing character. On the other side, there is the tendency to self-display, important in all children, and associated with a craving for approval and admiration. It depends on those in authority over the child what traits shall be regarded as admirable, and if the child has opportunity for self-display along desirable lines, this almost universal tendency may be entirely satisfied in a manner which is socially useful.

Lastly, the parental instinct and the tender emotion are very strong in most normal children and show as a tenderness toward weak and helpless things and a dislike for suffering. Many children are sheltered from the sight of suffering and unhappiness, and some persons may even go through life with eyes averted from any spectacle involving suffering. The tender emotion is probably the basis for most of the disinterested and altruistic good in the world.

Besides the instincts, there are the affective states, the dislikes and fears, and the pleasures and satisfactions, which are coming to be regarded as making up a large part of the character or the personality of the individual. Early in life the child shows displeasure or fear of pain, bad tastes and smells, slimy things, solitude, disapproval and many other experiences; while sweet tastes, glitter, color, motion, rhythm and the like cause unmistakable signs of pleasure or satisfaction. Many of these traits aid in the development of the love of nature, art, poetry and music, and their usefulness for educational purposes is obvious.

In the intellectual field there are differences between the child and the adult, owing to the differences of experience and to what appear to be differences in the power of some of the mental processes. In attention, for instance, intense stimuli are more effective for both children and adults, but adults, largely as a result of practice, can hold the attention to an uninteresting object to the exclusion of others, whereas little children are almost incapable of such mental activity. The ability to force attention to uninteresting things increases steadily up to adult years, partly as a result of increased knowledge. The more we know of a thing, the more points of interest there are in it capable of holding our attention. Hence the attention of the child is usually less intense and of shorter duration than that of the adult. Children also can attend to fewer objects at one time than can adults, and, to be effective, the objects of attention must be simpler for the child. The child attends only to one item, while the adult may attend readily to an entire system of ideas. In the child the mechanical habits of attention are lacking. The adult has learned to do many things almost automatically, as a result of long experience, but the child is only a learner and must attend painstakingly to each particular. The child's attention is sensory and concrete rather than intellectual and abstract. The contacts of the child with the outside world are relatively new and exciting; through his sensory equipment he is acquiring data which will later enable him to reflect. His store of facts at any time is too small to be exclusive of new experiences; hence he goes about seeing, hearing and enjoying every detail of his surroundings, whereas the adult, with his mind engrossed in his thoughts, is often entirely oblivious of much in his environment.

Memory is a faculty in which both nature and training are of great importance. Immediate memory is known to be inferior in children and to improve steadily until about the age of 15. So well has this fact been established that tests of immediate memory are included in most of the intelligence scales now in use. Permanent memory is probably better in children than in adults, and outright memory is a faculty used relatively more by children than by adults. The adult retains new facts by associating them with old, familiar experiences, and he may also reason many conclusions from other elements of his knowledge. The child, from lack of knowledge and experience, is often compelled to depend on memory, when the adult finds other methods more accurate and better suited to his purposes. Poor memory is frequently due also to poor attention, and, since the child's power of attention is inferior to that of the adult, the difference in memory ability is further explained.

The imagination of the child is an important element in his make-up and is often misunderstood. Children's mental images are vivid and real and are likely to contain a large creative element. The child from 3 to 7 years of age may have a rich imaginary life, which tends to become more matter of fact as knowledge of the limits of the possible and contact with other persons increases. Some children find it difficult to distinguish memory from pure imagination and may even fail to distinguish percepts from images; hence the fantastic tales of adventure which children tell before experience has taught them to distinguish the possible from the impossible. Much of the lying of children is due to this confusion, and after a tale has been told and retold the child himself may be quite unable to distinguish the remembered from the imagined. Here his emotions readily help him to make things be as he would like them to be. But the faculty of recognizing the difference between facts of memory and of imagination can be acquired. This distinction is not always clear with adults, as shown by the differences in testimony given by persons trying to give an account of the same incident. Imagination often gives the lonely child imaginary companions, which may become so real as to interfere with his normal association with other children and to deprive him of the give and take involved in the enjoyment of the companionship of actual children.

The thinking of children is characterized by seeming triviality, which results largely from the differences in the problems of the child from those of the adult. The little child, when asked about Lincoln, is likely to respond that he lived in a log cabin or that he got his clothes dirty pulling a pig out of the mud rather than that he was a great president who freed the slaves.

Getting clothes dirty is much more real to the child than the freedom of slaves, about whom he knows almost nothing.

With most persons there develops a moral sense in which intelligence is a factor but which includes also a feeling of the rightness or wrongness of certain acts. This sense, if it may be called that, is relatively late in appearing, and in a few instances seems never to appear. The little child may know from precept that lying and stealing are wrong, but unless he feels a repulsion toward the commission of these acts, he will almost surely lie or steal if there is small chance of unpleasant consequences. The moral conduct of the child is very largely dependent on training and the approval of others; with the adult, self-approval is important.

The discussion of the characteristic mental traits of children must of necessity be brief in a paper of this kind, and many important elements cannot even be touched on; but enough can be brought out to indicate clearly that a child, though bound by the limits of his inherited nature, presents many individual features that are characteristic of childhood. It is the purpose of child psychology to study these features and to seek out all laws governing their appearance and development and of education to select and stimulate desirable traits and to control and, in some cases, to transform or suppress undesirable ones.

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THE SUBNORMAL AND PSYCHOPATHIC CHILD AS EXEMPLIFIED IN SPECIAL CLINIC*

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Within recent years, much attention has been given to the study of subnormal and psychopathic children. This study has been greatly stimulated by the introduction of the various psychometric tests, especially the Binet-Simon tests, by means of which a workable classification and standardization of subnormal children have been made possible. These tests, being psychologic, account for the fact that for a long time the development of this field has been principally in the hands of psychologists and social workers. Now, however, we are beginning to realize more and more that the whole problem is distinctly a medical one, and concerns primarily the psychiatrist, who, in order to succeed, must aline himself with the pediatrician on the one hand, and with the psychologist and social worker on the other.

The whole of life, according to Herbert Spencer, is an adjustment, a continuous adjustment of inner to outer relations, and it is precisely on the plane in which life's inner relations meet the outer ones that human maladjustments occur. Man's mind is at the center and crossing of all those inner relations which Spencer defined as requiring adjustment to the outer world.[1] Psychiatry might, therefore, be broadly defined as the study of the conduct reactions of the individual resulting from his attempted adjustment to his environment.

Man represents the highest product of evolutionary life. Ethnologic study, however, would appear to show that the process of evolution apparently has ceased to function. For many thousand years man has been substantially the same physical being, and this in spite of the fact that he has been widely scattered over the earth and has been subjected to the most varied climatic conditions. This has led to the statement that "man is unchanged in a changing environment." Animals exposed to the cold of the arctics grow furry coats. Man under similar conditions changes little, if at all, physically, but does provide himself with external raiments of such quality as to protect him from the deadening cold. This adaption, then, is external, and implies the possession of a mental capacity for this adjustment.

The nature of an individual's reactions and the possibility of a successful adjustment, therefore, will depend on two fundamental factors: (1) his innate physical and mental capacity for reacting, and (2) the nature of his environment. The interplay of these two factors permits of various possibilities:

1. An individual may be born without capacity for reacting or adjusting, no matter how simple the environment—for example, the idiot.

2. An individual may be born with only a partial capacity for reacting, one insufficient for a complex environment but amply sufficient for a simpler one. For example, a moron may be a failure in a position requiring ingenuity and foresight, but be very successful if called on to do only work of a mechanical or automatic nature.

3. An individual may be well born so far as his capacity for reacting is concerned, but his environment may be such that it tends to thwart or stifle the normal development of his conduct reactions. This is the situation that makes for truancy, delinquency and other psychopathic states.

It is apparent to all, and especially to the physician, that a child's failure to adjust socially—to get along in the world—may be due to a defective physical organism, to an endocrine deficiency or imbalance, or to an unstable nervous system. We are not, however, so apt to appreciate the fact that a great many children become problem cases not because of their heredity, but because of their environment. Certain environments may be as pernicious to the child's mental development as exposure to infectious diseases may be to his physical development.

Therefore, when confronted with a child showing some form of psychopathy, such as delinquency, antisocial behavior, a psychoneurosis, mental defectiveness or retardation, it becomes imperative to determine (1) the innate physical and mental capacity of the child, and (2) the make-up of the child's environment.

A social history might show that a child accused of incorrigibility lived in an overcrowded and insanitary home, located in a poor neighborhood, and that his associates were also delinquents. Is it correct to assume that the incorrigibility can be directly traced to the poor environmental and social influences? We know that a great many children, living under similar conditions, do not become incorrigible and delinquent; instead, they rise above their environment. Just as exposure to infectious disease does not invariably result in contraction of the malady, so exposure to perni-

* Read before the Section on Diseases of Children at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Southard, E. E., and Jarrett, M.: The Kingdom of Evils.

cious surroundings does not necessarily result in the development of a pernicious mental state.

Nevertheless, an unwholesome environment is fraught with the greatest danger to the adolescent boy or girl. How, then, are we to determine accurately the importance of environmental factors in any given problem case? To meet this need, the Psychopathic Institute of the Jewish Hospital of Cincinnati was established. This institute provides the medium for observing the child's social reactions in a normal environment with the same scientific precision as is applied in examining his physical condition. At this place every effort is made to carry out the atmosphere of a normal home. Although on the grounds of the hospital, the institute is housed in a modernized dwelling surrounded by a lawn and playground. The interior arrangements and furnishings are those of the average home. To carry out this idea further, the capacity of the home is limited to twelve children, eight beds being reserved for boys and four for girls.

Before being admitted to the institute, the child undergoes a definite routine examination at the hospital proper. This includes physical, neuropsychiatric, visual, dental and serologic examinations. Special examinations are made as the indications arise. Each examination is made by a member of the staff of the hospital, especially qualified in his particular field. In this way the patient receives the benefit of diagnostic group medicine. The child is then transferred to the institute, where he finds himself in a home. Sundry tasks are assigned, similar to those expected of a child in a normal home. If of school age, he is sent to the public school in the neighborhood. Definite time is set aside for study, and, when necessary, a teacher is provided for additional instruction. Several afternoons a week are devoted to vocational training in the form of bead stringing, sewing, carpentry, weaving, pottery and reed work. These occupations are of direct benefit to the patient and of great importance to those observing him.

The psychopathic and retarded child, who probably has become discouraged through inability to cope with the more or less abstract work of the regular school curriculum, rejoices in his ability to perform manual tasks and to accomplish definite results. Self-esteem is thus unconsciously engendered and a wholesome mental attitude created. Many of these children, as a result of constant failure either at school or in industry, have developed an inferiority complex by the time they are sent to the Psychopathic Institute. This must be overcome before any permanent adjustment can be made. Nothing is more conducive to effort than the knowledge that one has the ability to accomplish or produce something. At the same time, the method and character of the child's performance discloses his potentiality for future industrial training and for social adjustment when he is returned to the world.

Recreation and creature comforts are not overlooked. The effects on the child of clean clothes, clean bed, a clean body, and clean living in general are noted. Various forms of entertainment provided by volunteer social workers, such as outings, club activities, theater parties and athletics also present opportunities to observe the child while at play.

All of these social reactions, including the report from the school, are carefully recorded on special charts and finally correlated with facts obtained from the physical and mental examinations. These comprehensive data serve as a basis for diagnosis and plan of treatment.

The following case reports will illustrate our methods of procedure:

CASE 1.—*History.*—C. C., a boy, aged 11 years, referred to the Psychopathic Institute by the pediatric service of the Cincinnati General Hospital, complained of severe headaches, dizzy spells with and without loss of consciousness, and a speech difficulty so marked that he could hardly be understood. At the age of 5 the boy was kicked by one of his playmates in the testes, and was in bed for about three weeks. The local condition gradually improved, but from this time on the boy suffered from severe frontal headaches, which at times continued for days and weeks. He was unstable, and his feelings were easily hurt. The boy became reticent, not caring to play with children of his own age, and staying in the house a great deal of the time with his mother. The speech defect developed later. Two years ago, the boy was in an automobile accident, and although not injured, his nervous instability had been much aggravated since then. Although at present he is 11 years of age, he is only in the third grade of school. He is said to be normal in arithmetic and in doing mechanical things with his hands, but in other respects he is far below his age. The patient's maternal grandmother was said to be very "nervous" and high tempered. His father is very neurotic. For the last two years, he has had headaches and attacks of vertigo similar to that of the patient. The mother is easily worried and emotionally highly unstable. One sister is also said to be "nervous." The child's past history is uneventful except for the fact that he did not begin to speak until the age of 2.

A general physical examination made at the Cincinnati General Hospital revealed no pathologic findings. Serologic examinations of the blood and spinal fluid were negative. A roentgenogram of the skull showed no evidence of any pathologic condition. The child's condition remained unchanged during his stay at the hospital, and no definite diagnosis was made. The boy was then transferred to the Psychopathic Institute of the Jewish Hospital. One very prominent neurologist who saw the boy at the institute suggested the possibility of a glioma of the brain. Our examination brought to light several facts: 1. It was found that the boy had a highly arched hard palate, an elongated soft palate, and a small, narrow jaw with crowded and irregularly placed teeth. 2. It was noticed that he spoke more distinctly if the examiner did not look directly at him while questioning him. This was so pronounced at various times during the first examination that the examiner felt convinced that the boy could speak distinctly, being prevented from so doing through a feeling of inferiority or some other emotional complex. When, a few days later, the social history was obtained, this belief was further strengthened.

This history showed that the boy entered the public schools at the age of 6. Everything went along smoothly until one day he was caught crossing the lawn of the school after this had been forbidden. The principal, in order to make an example of the child, shook him roughly and threatened to beat him until the blood ran down his legs and to send him to a reform school if he ever did such a thing again. Furthermore, he warned him not to tell his parents what had been said to him or there would be more punishment. The boy went home sick with fear. That night he had a chill and appeared very ill. He was in bed for five days. Finally, the family physician pronounced him well and told him that he could return to school. At the mention of the word school, the boy fainted. His speech difficulty was noticed after this, and finally became so pronounced that he had to be taken out of school.

The following year he was sent back to the public school, and again the speech difficulty became pronounced. At this juncture, his headaches also became very severe. Little by little the symptoms became more marked, so that the child was almost helpless. No one was able to understand him, and to complete his isolation, the headaches began to come at more frequent intervals, accompanied occasionally by dizzy

spells and with loss of consciousness. Following a tonsillectomy, he had a headache that lasted twenty-four days.

Further observation of the boy at the institute showed that temperamentally he was shy, depressed and reticent. In addition, he was highly suggestible and emotionally very unstable.

The diagnosis was psychoneurosis, the headaches, dizzy spells and speech defect being defense reactions against intolerable social conditions to which the child could not or would not adjust. As a result, the patient had also developed a marked feeling of inferiority, a vicious circle thereby being produced.

Treatment and Course.—Mental reeducation was prescribed. The boy's self-assurance and self-esteem were raised through moral encouragement and by showing him that every effort was being made to overcome his speech defect. He was sent to a special school for speech defectives, and orthodontial treatment was instituted. He was praised for every effort he made, with the result that his feeling of inferiority gradually left him.

The boy is now at home. During the last two years he has not complained of any headaches, nor has he had any dizzy spells. He is able to pronounce every letter of the alphabet, and has no difficulty in making himself understood. He is attending school regularly and in every way is leading a normal life.

COMMENT

This case illustrates the necessity of understanding not only the mental mechanism involved in the formation of a psychoneurosis, but also the importance of a good social history and of observation of the psychoneurotic child in a normal environment. In dealing with children we must remember that they cannot express their difficulties concretely. This may be due either to an inability to visualize complex situations or to a poverty of expression or to both. Hence the observer must not only be able to comprehend the child's difficulties but must also be able to express it in terms comprehensible to the child himself.

In this particular case, the social history showed that the child belonged to a family, most of the members of which have very unstable nervous systems. In addition, the child very early in life had been subjected to severe mental trauma. As a result of one of these traumas, he became afraid to return to school. In addition, he was afraid to confide in his parents. Thus, an intolerable situation arose. Subconsciously, the boy sought for a way out of his difficulty. A wish longing developed which was satisfied in a very unexpected manner.

When the boy returned to school, he was in a highly nervous state, being in constant fear that he might inadvertently do something that would displease his superiors. When called on to recite, he became confused and, as is natural in such cases, began to stutter and stammer. This called forth a reprimand, which only tended to heighten the child's nervousness. This condition was further aggravated at home, through the attitude of the mother, who was very impatient with the boy and made no effort to gain his confidence. Instead of helping him with his difficulties, she repeatedly taunted him at his failure in school.

Finally, the child's nervousness and speech difficulty became so marked that the teacher suggested that the boy be kept out of school for the balance of the year, with the hope that a few months of rest would help stabilize the boy's nervous system. This was exactly what our little patient wanted. Here was a way out of his dilemma; his wish longing was satisfied. The following year the boy was sent back to school. This time it was very simple. His stuttering was even worse than the previous year, and again the parents were advised to keep the boy at home. Subconsciously, the boy shouted "Eureka." We must bear in mind, however, that this was not a conscious process. The mental mechanism involved was entirely beyond the child's reasoning powers. He himself accepted his speech difficulty as a natural component of his mental make-up, which in turn produced in him a marked feeling of inferiority. This again in turn produced other defense reactions, which intensified his abnormal mental state. As a result, the child was growing up physically and mentally retarded and unable to cope with his surroundings.

The following case is of an entirely different nature and illustrates another phase of the work of the Psychopathic Institute.

CASE 2.—*History.*—R. M., a boy, aged 13 years, was admitted to the Psychopathic Institute because of nervousness, lack of interest and mental retardation. Subjectively, the patient complained of hyperthermia and an abnormal desire for sweets, fats and fluids. The boy had had an uneventful infancy. At the age of 2, however, he became "nervous" and restless, and exhibited a great deal of motor activity. He was considered a "spoiled child." This condition persisted, and at the age of 6 he was diagnosed as feebleminded and committed to a state institution for the feebleminded. Here he remained until he entered the Psychopathic Institute of the Jewish Hospital, seven years later. The patient's father and mother were both living and well. The father's uncle and brother were insane and confined. The mother was of the hyperthyroid type.

Examination.—The general physical and mental examinations were negative except for the fact that there was a marked endocrinopathic state, the boy being 42 pounds (19 kg.) overweight. The skull was macrocephalic, being 23½ inches in circumference. The face was acromegalic in type, and prognathism was pronounced. The whole body had a feminine contour, as shown by well developed breasts, a broad pelvis and knock knees. The hands and feet were large. There was marked pigmentation all over the skin, which was oily and gave the white line on being stroked. There was also the feminine distribution of hair over the pubis.

Basal metabolism tests showed great variation under similar conditions, the readings ranging from —30 to + 95 per cent. Roentgen-ray examinations of the skull showed a large, shallow sella turcica. The posterior clinoid processes were not visualized. The blood Wassermann test was negative.

The patient's mental make-up paralleled his physical or, rather, endocrine, make-up. He was effeminate in action as well as in build. He exhibited a placid temper, was sanguine, tractable, neither alert nor dull, and emotionally very stable.

The diagnosis was adiposogenital dystrophy, associated with mental retardation.

Treatment and Course.—The boy was given extract of the whole pituitary gland in gradually increasing doses. Occasionally, thyroid extract was added. There has been a steady mental improvement. The boy was not permitted to return to the institute for the feebleminded; instead, he was placed in the opportunity class of the public school. Here he was the honor pupil, and, as a result, was transferred the following year to the regular class at the school, where he has been doing very satisfactory work. During the last vacation, the boy earned $55 delivering ice. He solicited his own customers and kept his own accounts. A copy of his bookkeeping system is on file at the Psychopathic Institute, where he still reports regularly. This speaks volumes for his potentiality for future social and mental rehabilitation.

COMMENT

It is such cases that make one feel that feeblemindedness is not the hopeless condition that it appears to be. The sooner we discard the belief that feeblemindedness is a distinct clinical entity and adopt the view that it is merely a symptom associated with some underlying constitutional disturbance, the sooner can

we hope to see definite constructive efforts made to eradicate this condition. Building more and more institutions for the feebleminded obviously is not the proper solution. Furthermore, so long as feeblemindedness is considered a condition that is diagnosable by means of a psychometric examination alone, so long shall we be hampered in solving this question. The problem is primarily a medical one, and the case just quoted shows what may be accomplished when the problem is attacked from this standpoint.

We have already made a small beginning along these lines in Cincinnati, where we have established, in addition to the Psychopathic Institute, an institution known as the Home School. Here we have placed a number of definitely feebleminded children who have been thoroughly studied at the Psychopathic Institute and who, as a result of that study, show that their feeblemindedness is associated with some organic condition that can be corrected by the exhibition of the proper therapeutic measures. These children will be kept at the Home School for a period of years, and will be given, in addition to the proper medical treatment, intensive social and vocational training in the hope that thereby their mental condition will be so improved that, instead of being committed for life to custodial institutions, they will be able to take their places in society as self-respecting and self-supporting individuals, in their proper spheres.

Up to the present, more than 150 cases have been studied at the Psychopathic Institute of the Jewish Hospital. The reason for admission has been either mental retardation or some form of antisocial behavior or conduct disorder, such as delinquency, incorrigibility or lack of social adjustment.

From the medical standpoint, these cases have been conveniently divided into two large groups, namely, functional and organic. Numerically, the cases are almost equally divided between these two groups.

In the functional group we have placed those children who present conduct disorders but who on examination are found to be normal physically. This group contains the neurotic children, the emotionally unstable, the hyperactive types and those suffering from pernicious environmental influences. This grouping permits of a further subdivision into (*a*) the environmental and (*b*) the individual.

In the first subdivision (the environmental) belong those problem cases in which the abnormal conduct reactions are due primarily to influences external to the child, while in the second subdivision (the individual) belong those cases in which the abnormal conduct reactions are due to functional disturbances within the child himself. It is in this group especially that the tactful psychiatric social worker is of the greatest help. Here also the quickest and most startling results may be expected.

In the second or organic group are placed those children who show some form of psychopathy as a result of a definite organic lesion.

As is to be expected, lesions of the central nervous system are the most numerous, and of these syphilis of the nervous system constitutes nearly 50 per cent. Next in frequency to involvement of the nervous system come disturbances of the incretory glands. A very large percentage of the organic cases have been improved through medical treatment. A critical analysis of these cases will appear in a later paper.

SUMMARY AND CONCLUSIONS

I wish to emphasize three very important facts:

1. The nature of a child's conduct reactions depends on two factors: (*a*) his innate physical and mental capacity for reacting and (*b*) the nature of his environment. Hence, when we are confronted with any form of psychopathy in childhood, both of these factors must be properly evaluated. In addition, the reactions of the child when placed in a normal environment must also be known. The data thus obtained, when correlated, permit the making of a correct diagnosis and the outlining of the proper treatment. At the Psychopathic Institute of the Jewish Hospital we have created an observation station where such a complete study is carried out scientifically.

2. Enough children have been reclaimed for society as a result of the intensive study carried out at the Psychopathic Institute to warrant the statement that it is unfair to commit any child who shows any form of antisocial behavior or conduct disorder to a corrective or custodial institution before he has been given the benefit of such a complete study.

3. Feeblemindedness should not be considered a clinical entity. Rather, it should be looked on as a symptom of some grave, underlying constitutional disturbance, the correction of which very often leads to a marked improvement, if not to an entire cure, of the retarded mental state. Such a thesis opens enormous possibilities for solving a problem that has been looked on by many physicians as hopeless. Furthermore, it permits the adoption of a constructive program in place of the merely palliative one of building more and more institutions for the feebleminded.

4 West Seventh Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BRIDGMAN AND LURIE

DR. WILLIAM PALMER LUCAS, San Francisco: I want to emphasize the need for the general practitioner who has to deal with children, and for the pediatrician who is making a specialty of children, to take up the study of the normal mental and psychologic development of the child. Without such knowledge, he cannot understand even their physical defects. Information of this kind is very difficult to find in medical textbooks. We, as medical men, must see to it that it is put into the medical curriculum as part of the teaching in pediatrics. The question that Dr. Lurie raises as to special clinics and opportunities for diagnosis and the outline of the treatment of these cases brings forward a new field of development. We need other assistants. We must call in the psychologist to evaluate the mental processes of the child. That is just as much needed in diagnosis as is the physical examination. How much are these clinics going to do to keep children out of state institutions? This is a very important and difficult point. I am sure that the doctor did not mean to leave the impression that there are not certain hereditary defective cases, or that there is a cure for all defectives. That is not at all what Dr. Lurie meant; but a large percentage is not due to heredity, and, in these, treatment such as Dr. Lurie outlined would be of tremendous value. Such clinics are, I am sure, present in all large cities. We have them here. Patients with disorders of the endocrine glands have by their means undoubtedly been saved from institutions, and their problems solved in their own homes. This is the type of work that needs careful diagnosis and treatment, over long periods, and it can be carried out only under the observation of some one who understands what these various endocrine glands really mean in the development of physical and mental makeup. A few cases will respond as definitely as the ones Dr. Lurie cited. Unfortunately, at

present our knowledge is not sufficient to unravel the cases in which multiple gland defects are present, and those need the most careful study. Every institution for the care of defectives should be so equipped that a diagnosis of a case of internal gland derangement can be made in the institution itself. Too many state institutions think that custodial care is all that is needed. There are undoubtedly many cases in our institutions that could be salvaged if we could have the right type of intensive training and intensive study developed in the institutions. Many subjects could in this way be sent home cured.

DR. JOHN A. FOOTE, Washington, D. C.: For a long time the medical profession has neglected this particular branch of science, although, in our folk lore, we have all sorts of statements showing that people always knew something about child psychology. Proverbs, of course, are frequently not true, but many proverbs relating to the child are true. The pedagogic psychologist has been studying this question for a long time, and doubtless has had occasion to study school children that might have had early corrective treatment if physicians had known a little more about the thing that is being discussed today. Perhaps one reason why many physicians, even pediatricians, are not taking due interest in the normal and abnormal psychology of the child lies in the fact that we become confused when we try to read the textbooks dealing with this subject. That is not at all remarkable when we remember that this science in its present application is comparatively new. The physician who reads something about child psychology will probably find the behaviorists contradicting the pure psychologists, and that certain writers are 100 per cent. freudians and others one half of 1 per cent. freudians. That simply means that the science of child psychology is a growing science; that there is still a great deal of very valuable information to be gathered which will be available if we follow the underlying principles as they were outlined here today. One thing brought out here was well said at the St. Louis meeting of the American Child Health Association, when Mr. Herbert Hoover stated that "a great many of the parents still need bringing up." Mr. Hoover was speaking, not about child psychology particularly, but about the general treatment of the child. It is very true that our work in psychologic treatment will be largely concerned with the parents, at least quite as much concerned with the parents as with the child. If the physician will try to teach parents and guide them with such helpful suggestions as will enable them to retain self-control; if he will make them realize the imitativeness of the child, and the fact that, if the parent does not have self-control, the child will not have self-control—such teaching will help a great deal.

DR. RALPH H. KUHNS, San Francisco: A few years ago we took care of children when they had pneumonia, tonsillitis and typhoid fever, and paid little attention to the development of the normal child in the home. The most important idea now is that pediatricians are supposed to take care of the normal as well as of the abnormal child. It is not so much a question of the sick child today as it is the proper training and development of the child. We are getting back to preventive medicine and proper training along proper medical lines. Few people realize the importance of proper development. Physicians have always known what is normal and proper for children, but the laity has not been informed on these points. In the medical schools, more attention should be given to the training and development of normal children. At the University of California, we are working hand in hand with the Department of Psychology, and also with the social workers in the homes. Too little attention has been paid to the significance of the child in the home in regard to the social follow-up and the social progress.

DR. CLIFFORD D. SWEET, Oakland, Calif.: I should like to call attention to two points in regard to the management of children that are practical and that apply to every-day practice. The first is this: It is exceedingly important to use our best efforts to interest the father of the child in the child's problem. I find, many times, that the father actually knows very little about the child. He is a good father; he loves his children, but it has not occurred to him that the problem of training the child is at least equally his problem and concerns him in every way as much as it does the mother. With a little understanding and a little encouragement, he can be made to feel this and to apply his abilities to this problem. Hence we should become acquainted with the father as well as with the mother, and encourage the father to come to the office with the mother and the child, when we are going to talk over some particular problem, or sometimes make it our business to go to the home at an hour when we know the father will be there, in order to interest him. The other point is to encourage both father and mother to realize that they must be absolutely honest with the child. We must illustrate this by being honest and fair with the child. If we have to hurt him, we should explain to him why it is necessary to hurt him, and that we are doing it for his benefit. Sometimes it apparently does not do any good, but at many other times a child immediately becomes one's fast friend from that time on and trusts one under any circumstances.

DR. OLGA S. BRIDGMAN, San Francisco: The discussion has been very interesting. If I had to write another paper on the psychology of the normal child, I might write a more intelligent one. The whole subject of the psychology of the normal and of the abnormal child is the most interesting thing that any one could possibly be thinking of and working with, day after day. I hope that the good work will go along, until we have done more than just touch the subject, which is the situation now.

MASTOIDITIS WITHOUT APPARENT INVOLVEMENT OF THE MIDDLE EAR*

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Three cases of definite mastoiditis, in which there was no apparent involvement of the middle ear, have been observed in the Mayo Clinic. The incidence of this condition is low, when compared with the 500 cases in which there was involvement of the middle ear observed during the same period. The term primary mastoiditis, as it has been designated in the literature, is misleading in such cases since the infection must be primarily in the mastoid cells, and not secondary to an inflammation of the middle ear that has cleared up. It is possible to conceive of a blood-borne infection, after a severe local injury, as in osteomyelitis of other bones, although there is no more reason to expect such an infection in the mastoid than in other cavities, for example, the accessory sinuses.

In 1915, Dabney[1] reviewed the literature on this subject. He classified the condition as idiopathic mastoid abscess. He says:

> I wish the title to be understood as meaning an abscess in the mastoid process of the temporal bone without any immediately preceding or accompanying inflammatory involvement of the tympanum. It will be observed that the definition has been made particularly restrictive, in that it specifies merely inflammatory involvement, not abscess of the middle ear, as there are many cases in which it would be difficult to demonstrate an actual abscess and yet the mastoid disease would be plainly an extension of the tympanic inflammation.

Dabney reported twenty-four cases, to which he added two of his own. He argues that the infection may pass directly through the middle ear without instituting inflammation, and cites as an example tuberculous lymph glands in the neck, which had been infected

* From the Section on Otolaryngology and Rhinology, Mayo Clinic.
* Read before the Section on Laryngology, Otology and Rhinology, at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Dabney, Virginius: Idiopathic Mastoid Abscess, J. A. M. A. 65: 501-504 (Aug. 7) 1915.

from the tonsils, although no evidence of infection remained in these tissues.

It is generally agreed that the infection in mastoiditis comes from the nasopharynx by way of the eustachian tube. The involvement of the middle ear may be slight. Access to the mastoid cells is gained through the aditus ad antrum and, if this passage is small, it is soon sealed off, leaving no means of drainage for the infected cells, whereas, if the infection is in the middle ear there may be sufficient drainage through the eustachian tube. It is worthy of note that infection may exist in the middle ear without causing pain, discomfort, fulness, tinnitus or impaired hearing.

Mastoiditis, without apparent involvement of the middle ear, should not be confused with latent suppurative otitis media. In these cases there is deafness and sometimes pain, but no spontaneous discharge of pus. The tympanic membrane is without luster, full, and sometimes markedly bulging, and paracentesis is always followed by the discharge of pus. Mastoid involvement, and other complications, may or may not be present, whereas, in the cases of mastoiditis without apparent involvement of the middle ear, paracentesis is never followed by the discharge of pus.

A careful review of the literature has revealed twenty-six cases reported in English and American literature since Dabney's report in 1915. The descriptions of some of the cases are exceedingly meager. In many instances it is not stated whether or not paracentesis was performed, and no definite operative findings are given. It is quite probable that some of these cases are latent suppurative otitis media, and not mastoiditis without involvement of the middle ear.

Welton,[2] in 1915, reported a case in which there was considerable pain in the middle ear, but all landmarks were present. Broder,[3] in 1915, reported a case of an infant, aged 3 months, with a subperiosteal abscess. Paracentesis had been performed and no pus obtained. The child had sustained an injury to the mastoid bone one week previously. Broder believed the condition to be osteomyelitis following the injury. Broder reported another case of a boy, aged 7 years, with a subperiosteal abscess. The appearance of the drum was normal, but there was slight deafness. Operation revealed extensive necrosis. Bonner and Dutrow,[4] in 1915, reported one case in which there was definite involvement of the drum, which, I believe, excludes the case from being classified as mastoiditis without involvement of the middle ear.

Tomlin,[5] in 1916, reported a case in which the patient had been an invalid for ten years. Because of slight pain back of the ear, the mastoid was opened, and chronic suppurative granulomatous infiltration and inflammation, with thin, dark, straw colored fluid were found. The patient recovered, and gained 20 pounds (9 kg.) in a short time.

Sonnenschein,[6] in 1917, reported a case of a man, aged 34, who had complained of a cold in the head with pain around and back of his ear. There was no deafness and no change in landmarks. Two paracenteses were negative. The patient had had a rise in temperature and leukocytosis. One month after the first examination, swelling appeared over the mastoid. Operation revealed extensive destruction of cells. Long,[7] in 1917, reported a case of a girl, aged 12 years, suffering from severe chills, fever, prostration, and pain in the left ear. Two weeks previously she had had a severe cold in the head; the membrane was red and injected; incision did not disclose pus. At operation, a badly necrosed mastoid with sinus phlebitis was found.

Dulaney,[8] in 1918, reported three cases, only one of which could be classified as mastoiditis without involvement of the middle ear.

Knight,[9] in 1919, reported a case of a young girl who had been sick in bed for two weeks with influenza. Three months later, swelling appeared over the mastoid. Operation revealed marked destruction of the cells. Miller,[10] in 1919, reported two cases: one following an attack of measles, during which the child complained of a mild earache, and one following rhinitis. Probably neither of these cases is idiopathic. West,[11] in 1919, reported a case of subperiosteal abscess without involvement of the middle ear. He did not give the findings relative to the middle ear. There had been a daily chill and rise of temperature. The sinus and dura had been exposed during the operation. The case, however, proved to be one of malaria and not sinus thrombosis. Kerrison,[12] in 1919, reported a case of a boy, aged 4 months, without involvement of the middle ear. The child had been fretful previous to the appearance of the subperiosteal abscess. Friesner,[13] in 1919, reported seven cases of mastoiditis with perisinuous abscess in which the middle ear had not discharged. These cases were all observed during the months of January and February. The appearance of the membrane, and whether or not a paracentesis had been performed, were not recorded.

Glogau,[14] in 1921, reported a case with perisinuous and extradural abscess, with operation and recovery. He believes that primary mastoiditis is a distinct clinical entity, and that the infectious material passes through the middle ear without finding favorable conditions for growth. The aditus, being poorly supplied with blood vessels, allows the infection to reach the antrum, and swelling closes off the opening from the middle ear. It is hardly possible, however, that the infection would cause so much reaction in the aditus ad antrum and not cause reaction in the middle ear. Zamora,[15] in 1921, reported three cases, in one of which there had been severe earache six months previously, and catheterization gave the impression of fluid in the middle ear. The condition of the drum, and whether or not paracentesis had been done, were not mentioned. Mollison,[16] in 1921, reported two cases. One followed an attack of influenza. No information was given with regard to the appearance of the drum, or of a paracen-

2. Welton, C. B.: Mastoiditis and Mastoid Abscess Without Suppuration from the Middle Ear and Without Any Apparent Middle Ear Inflammation, J. Ophth. & Oto-Laryngol. **9**: 86-91, 1915.
3. Broder, C. B.: Primary Mastoiditis: Report of Two Cases. M. Rec. **88**: 482-483, 1915.
4. Bonner, H., and Dutrow, H. V.: Report of a Case of Primary Mastoiditis, Laryngoscope **25**: 244-245, 1915.
5. Tomlin, W. S.: Report of a Case of Suppurative Mastoiditis Without Tympanitis, Indianapolis M. J. **30**: 95-97, 1916.
6. Sonnenschein, Robert: Primary Mastoiditis, with Report of a Case, Illinois M. J. **32**: 167-169 (Sept.) 1917.
7. Long, C. H.: Acute Suppurating Mastoiditis Without Tympanitis; Perisinus Abscess, Phlebitis, Streptococcemia, Operation, Recovery, Ann. Otol., Rhinol. & Laryngol. **26**: 432-435 (June) 1917.
8. Dulaney, O.: Some Clinical Observations on Primary Infection of the Mastoid, with Report of Cases, J. Tennessee State M. A. **11**: 264-269, 1918-1919.
9. Knight, F. H.: Case of Perisinus Abscess Without Involvement of the Middle Ear, Laryngoscope **29**: 433-438, 1919.
10. Miller, C. M.: Mastoid Abscess Without Suppuration in Tympanic Cavity: Report of Two Cases, South. M. J. **12**: 105-106 (Feb.) 1919.
11. West, L. N.: Mastoiditis Without Involvement of Middle Ear: Complicated by Malaria, South. M. J. **12**: 339 (June) 1919.
12. Kerrison, P. D.: Mastoiditis Abscess Without Aural Discharge, Ann. Otol., Rhinol. & Laryngol. **28**: 949-951, 1919.
13. Friesner, I., quoted by Knight (Footnote 9).
14. Glogau, O.: Primary Mastoiditis with Perisinus and Extradural Abscess; Operation; Recovery, Laryngoscope **31**: 318-320 (May) 1921.
15. Zamora, A. M.: Mastoiditis and Complications Without Otorrhoea, and Some Observations upon the Resolution of Mastoid Infections, Guy's Hosp. Rep. **71**: 216-221 (April) 1921.
16. Mollison, W. M.: Two Cases of Lateral Sinus Thrombosis Without Otorrhoea, Proc. Roy. Soc. Med., Sect. Otol. **14**: 42-44, 1921.

tesis. This case may have been latent otitis media. In the second case the patient had had earache ten days previously. Likewise, nothing was said of the appearance of the drum. Both of these patients later had sinus thrombosis, and both recovered. Dawson,[17] in discussing this paper, said that he had had cases in which the middle ear cleared up absolutely, probably as a result of the drainage through the eustachian tube; the mastoid condition, however, went on to abscess. Scott [17] said that he had reported two cases of extradural abscess eleven years previously, in which the hearing was perfect and the membrana tympani normal. Taylor,[18] in 1921, reviewed a case of atypical mastoiditis following a staphylococcemia. This was clearly a mastoiditis of blood-borne infection. This, we must admit, is a rare condition. Ballance,[17] in May, 1921, reported a case of acute osteomyelitis of the mastoid which had nothing to do with the primary disease. He could see no reason why osteomyelitis should not take place in the temporal bone as well as in the other bones of the body. He reported a very interesting case. A boy had died of septicemia three weeks after an operation for harelip. The wound, which had already healed perfectly, began to break down. There was no rise in temperature, and there were many petechial spots over the body. Necropsy revealed extensive destruction of the petrous bone and mastoid cells, with suppuration in the sinuses. The ears had been examined repeatedly.

REPORT OF CASES OBSERVED IN THE MAYO CLINIC

CASE 1.—*History.*—R. S., a man, aged 20, came to the clinic, Sept. 20, 1922, because of painful swelling of the right mastoid and upper cervical region. For seven years the patient had had recurring attacks of furunculosis in both external canals, worse in the right. The furuncles ruptured spontaneously, the discharge lasting from two to seven days. The last attack had occurred five weeks before, with spontaneous rupture in eight days. Swelling over the mastoid had been present for six days. The patient had had night sweats for five weeks.

Examination.—The hearing was normal. Findings in the nose, nasopharynx, throat, larynx and both tympanic membranes were negative. There was slight swelling and tenderness in the region of the isthmus and right external canal, and a large tender swelling below the tip of the right mastoid and extending down the sternocleidomastoid muscle. Roentgenograms revealed destruction of cells. The leukocytes numbered 14,600. A tentative diagnosis was made of mastoiditis with Bezold abscess.

Operation.—The usual mastoid incision was made. Bleeding of the cortex and perforation in the posterior tip were found. All cells were removed. The aditus ad antrum was very small. The abscess cavity was drained. Bacteriologic examination revealed staphylococcus. The tympanic membrane was incised, but pus was not obtained. The patient was dismissed two weeks after the operation, with the wound healed.

Comment.—It is likely that the last attack was otitis media and not furunculosis, and it is barely possible that the mastoiditis was primary, the furunculosis having been the source of infection.

CASE 2.—*History.*—F. M., a boy, aged 14 years, was brought to the clinic, Jan. 31, 1919, because of swelling behind the right ear of three days' duration. He had had chorea until the age of 12, and had never been well. He had had influenza two months before, was in bed two weeks, and was confined to the house four weeks. Early in the attack there had been slight pain in the right ear for one hour.

Examination.—The hearing was normal. There was slight redness and swelling of the external canal and the tip of the mastoid, with tenderness on pressure. The tympanic membrane was not seen. By catheterization of the eustachian tube, the middle ear was shown to be clear. The roentgen ray revealed extensive destruction of the mastoid cells.

Operation.—Marked edema of the subcutaneous tissue, and perforation of the cortex of the mastoid over the antrum, were found. There was marked destruction of cells, and a perisinuous abscess. The antrum was small and located with difficulty. The tympanic membrane was incised, but pus was not obtained.

Comment.—This patient, no doubt, had had otitis media during the attack of influenza; the infection spread to the mastoid, and the inflammation, coincident with the infection, sealed off the aditus ad antrum. Streptococcus was revealed on culture. The mastoid cavity was dry, and the wound healed in ten days. At no time was there discharge from the middle ear.

CASE 3.—*History.*—A. T., a man, aged 41, came to the clinic, Aug. 5, 1922, with pain, redness and swelling over the left mastoid. About four months before he had had influenza, and was in bed for three weeks. He had had severe pain in the left ear, followed by a bloody discharge mixed with cerumen. (From the patient's description, the condition may have been myringitis bullosa.) At the end of two weeks there was slight tenderness over the mastoid, but this disappeared in a few days. The patient had remained well until two weeks before, when he developed an acute cold. One week later the tissue over the left mastoid became painful and swollen.

Examination.—The hearing was normal. Aside from septic tonsils, no abnormality was noted in the nose, throat, nasopharynx, larynx and tympanic membranes. The posterior superior canal wall drooped slightly. A large fluctuating mass was present over the left mastoid region. Roentgenograms revealed destruction of the mastoid cells.

Operation.—A large subperiosteal abscess, and perforation of the cortex on the posterior aspect of the tip were found. All cells were broken down and filled with pus and granulation tissue. An effort was made to clear these out. Paracentesis was performed without finding pus. The wound healed and the patient was dismissed in fifteen days.

Comment.—From the operative findings it would appear that the mastoid infection, which was of low virulence, and aggravated by the severe cold, was simultaneous with the pain in the middle ear.

SUMMARY

It will be recalled that in the second and third cases there was a history of an antecedent pain in the ear which disappeared without treatment in a very short time; in fact, in Case 2, it was said to have been an hour. The symptom which called attention to the mastoid was the swelling over the mastoid process. The indolent type of infection, and the slow breaking down of the septums of the cells into a large cavity, followed by the formation of the subperiosteal abscess, could explain the absence of pain as a prominent symptom. The anatomic conformation of the mastoid process may have been a factor, because the antrum and aditus were found to be very small. It seems evident that these cases could not be grouped in those of blood-borne infection.

In all cases the middle ear structures and the tympanic membrane were negative to physical examination. In the second case there was noticed a marked fulness of the superior canal wall externally to the isthmus. One usually expects to encounter drooping beyond the isthmus.

While the study of these three cases of mastoiditis without involvement of the middle ear does not permit definite conclusions, it indicates the existence of an antecedent otitis media without symptoms.

17. Quoted by Mollison (Footnote 16).
18. Taylor, H. M.: An Atypical Mastoiditis Following a Staphyloccemia, South. M. J. 14: 167-170 (Feb.) 1921.

ABSTRACT OF DISCUSSION

DR. WILLIAM ELLERY BRIGGS, Sacramento: In 1897 I reported a case (*Occidental Medical Times* **11**:184, 1897) very similar to some of the cases that Dr. Hempstead has reported. At that time I had not studied the literature on the subject, and I did not know whether or not other similar cases had been reported. It seemed to me then that mastoid infection was always subsequent to middle ear suppuration. But this patient had no middle ear suppuration and very little evidence of trouble in the middle ear. There was some difficulty in hearing, a little fulness of the ears, which was treated by local methods. The patient was sent home, several hundred miles away, apparently nearly well. Later, he returned with severe pain in the mastoid region. Ice compresses were applied, but the pain continued. Definite swelling of the posterior wall of the meatus was found, and a mastoid operation was done. Considerable pus was found in the deep cells of the apex, but at no time was there any evidence of purulent infection in the middle ear. I believed at that time that the infection had entered the cells through the middle ear, and I believe that most of these infections enter the same way, notwithstanding the fact that we have very little evidence of infection in the middle ear. I think that infection can be conveyed through the middle ear without causing very marked symptoms. I am convinced that nearly all mastoid suppurations enter the cells through the middle ear. I am also quite certain that such infection can, and undoubtedly does on rare occasions, enter the cells through the blood. The instances of such source of infection are more difficult to trace and less certain as to origin.

DR. FRANCIS I. ROGERS, Long Beach, Calif.: I was not aware that mastoid inflammation without a preceding well defined middle ear abscess so rarely occurs as Dr. Hempstead has indicated. I saw a woman, aged 40, mother of seven children, who two months previously had had influenza. She was not then under my care, but both the patient and her physician reported an uneventful recovery in the usual period of three or four weeks, without appearance of complications. About ten days later, a swelling appeared over one mastoid. Preceding this there had been for a week occasional pain in the mastoid region, but no earache. There had been no fulness in the ear. When I saw her there was no discharge, and she said that there had been none, and there was no redness or swelling of the tympanum, and the tympanum was not open. She came to operation for simple mastoid within two days after I first saw her, and a typical broken down mastoid was present. Her recovery was uneventful following the operation. At no time was her eustachian tube obstructed, nor was the middle ear more than moderately congested. My theory was and is that such infections come directly from the nose through the eustachian tube and middle ear, becoming implanted in the mastoid cells primarily.

DR. THOMAS E. CARMODY, Denver: I have seen three cases in the last year and a half that resemble Dr. Hempstead's case. I question whether any of these cases are primary mastoiditis. Two of my cases I was certain were not. The first case was in a man, aged about 40, who had a simple swelling of the canal. The membrane was normal, and the first intimation we had that there was anything wrong was the swelling over the mastoid. I felt that I had overlooked something. The roentgenogram showed that the mastoid had broken down, and on opening it I found the sinus exposed, but nothing further. There was nothing in the middle ear, but I believe there was something in the middle ear below. The other case occurred in a child, aged 3½ years, that had influenza and a discharging ear six weeks before. The history was that swelling had begun two hours before I was called. The mastoid was very much broken down and the membranes in the posterior fossa exposed; the sinus was also exposed. The third case was in a child, aged 8, that had had a mastoid operation performed a year before on the opposite side. He was brought in with a swelling over the mastoid. There was congestion of the membrane, but no pus was found These cases possibly were due to a hematogenous infection. In the last two cases there was no question as to infection in the middle ear.

DR. LEE COHEN, Baltimore: Last May I operated on a man, aged 51, who had had his initial earache six months before. That earache lasted only about three quarters of an hour. His family physician gave him a mild anodyne, and from that time on he had no further symptoms, except a feeling of fulness at times. His hearing was very slightly impaired and he was able to look after his work until he came to me. At that time he had been feeling bad for a week or two; he had more or less malaise, and did not feel like working. A thorough examination of the ear was made. The functional tests were normal. The drum appeared to be normal, but there was very slight tenderness over the mastoid. Roentgen-ray examination showed a complete disintegration of all the mastoid cells. A paracentesis was immediately made, but no pus or other secretion was discernible. The following day a mastoid operation was performed and a pus-filled mastoid with all cells completely disintegrated, was found. The antrum was easily found, showing that the process had been going on for a long time. *Streptococcus hemolyticus* was found. This condition certainly originated when he had the earache six months before, and I do not believe we have any mastoid infection that does not originate from the middle ear infection primarily.

DR. H. M. TAYLOR, Jacksonville, Fla.: The literature on primary mastoiditis shows that very little attention has been given to the bacteriology of the blood. Recently, I reviewed the literature of forty cases of primary mastoiditis. Seven of these were reported to have been hematogenous in origin, and yet in not one of these seven cases was a report made as to the bacteriology of the blood stream. Three years ago I reported a case of primary mastoiditis following a staphylococcemia. A woman consulted me on account of a furuncle over the left eyebrow which showed a staphylococcus infection. A week later she came in complaining of a deep-seated pain over the right mastoid. The fundus presented a normal drum membrane and no scar of a previous perforation. Hearing was not impaired. The eustachian tube was catheterized, and no fluid could be detected in the middle ear or in the eustachian tube. This pain persisted for eight days. A roentgenologic study was made and a cloudy mastoid was reported. A blood culture showed a staphylococcemia. The mastoid was opened, and an abscess was found in the tip cells which showed a staphylococcus infection. In this case we found the primary infection, and the same organism in the blood stream and in the mastoid abscess. Until we have studied the bacteriology of the blood stream in these cases, the diagnosis of primary mastoiditis does not rest on a sound basis.

DR. HAROLD M. HAYS, New York: In all of these case reports there was evidence of some mastoid involvement. But what about the case in which there are not mastoid symptoms at all? In three years I have had three such cases, one of which was interesting. A man had had a mild earache for four weeks. Then it cleared up, with a narrowing of the canal. After examining him a number of times and watching him for three or four weeks, during which time the middle ear appeared to be normal, I told him to have a roentgenogram made. It showed complete destruction of the mastoid. Operation was performed and an abscess found. Since that time I have had two other cases presenting no symptoms of mastoiditis whatever. The only indication that there might have been mastoid involvement was the narrowing of the ear canal. This point should be taken into consideration, and when there is a narrowing of the ear canal not sensitive to pressure, a roentgenogram should be made.

DR. CULLEN F. WELTY, San Francisco: I have had several cases in which the only diagnostic symptom was narrowing of the posterior wall. I believe that this particular symptom is more reliable than any other symptom. The last case was interesting because of the unusual course pursued. Ten weeks ago this patient, on blowing his nose, suffered intense pain in his ear, which subsided gradually after three weeks. He had no pain in the mastoid. There was no discharge from the ear. At intervals of several days, he had pain in the temporal region that compelled him to take morphin. He complained of some pain under the tip of the mastoid, but not enough to speak of. This fact was elicited on close questioning. He never had a discharge from the ear. This continued

for ten weeks, when I first saw him. There was then bulging of the posterior, inferior wall of the canal of the ear; a suggestion of redness of the membrane; no temperature elevation; no leukocytosis; some slight tenderness on rather firm pressure or percussion over the whole side of the head and under the tip of the mastoid more so than over the mastoid. The roentgenogram showed that the mastoid had been infected. The outlines of the individual cells were clearly marked. It was my notion that there was a large, confined abscess; in fact, one could think of nothing else from the symptoms. The patient was operated on, and I found a rather small, pneumatic mastoid. The individual cells of the mastoid were intact; the mucous membrane of each cell was so swollen that it filled the cell. I finally reached hard bone everywhere, with the exception of deep below the sinus. On removing that last bit of cancellous bone, I encountered the abscess, which was large and extended deep toward the jugular bulb. The sinus wall was covered with necrotic granulations. The sinus was uncovered until it was healthy. The man made a quick recovery.

Dr. Harold Bailey, Springfield, Mo.: Until recently I felt somewhat skeptical as to the possibility of a mastoid suppuration without visible change in the drum head. We now know that this does occur, though rarely. I have seen two cases within the last three years, one in a man, aged 60, and the other in a child, aged 2 years. The second case was most striking. The child was brought in with a history of pain, swelling and tenderness over the left mastoid, and a temperature of 102 F. The ear drum showed nothing abnormal. There was no apparent thickening, no bulging, no redness or congestion of any kind, and the light reflex appeared to be unchanged. I made a diagnosis of subperiosteal abscess and advised an operation, which was declined. I saw this baby every day for a week, and examined the drum each time without detecting any change. I again urged an operation, which was done that morning, revealing a collection of pus beneath the periosteum, a small opening through the cortex, and the mastoid cells filled with pus. To me this case was unique in that a middle ear infection in a baby, aged 2 years, could go on to mastoid suppuration and cortex perforation without any change whatever apparent in the drum.

Dr. Charles W. Richardson, Washington, D. C.: Primarily, I do not believe there is such a thing as an infection of any organ or tissue without some means of invasion of bacteria. I do not believe that any of these cases reported are primary infections of the mastoid without involvement of the middle ear. Certainly, two cases are not. I believe that all these cases could be designated as late development of mastoiditis without visible infection of the middle ear.

Dr. Anna M. Flynn, San Francisco: In San Francisco, we have had a number of such cases among Chinese due to the parents or barbers infecting their ears.

Dr. George F. Keiper, Lafayette, Ind.: I wish to call attention to a condition in which the aditus ad antrum is sealed off by the infection in the middle ear before the mastoid itself can be infected. I have seen three such cases. Each patient suffered tortures. The mastoid in each case was exquisitely tender to touch and pressure, with all the usual middle ear disturbances. What happens is this: The air in the cells thus sealed off from the middle ear is robbed of its oxygen by the circulating blood therein. A partial vacuum is thus produced. The outside air presses on the mastoid, 15 pounds to the square inch. The pressure of the air on the inside may be only half that, destroying the balance formerly existing. I shall never forget my first case. We had not arrived at the days of roentgen-ray diagnosis. I opened the mastoid; very much to my chagrin, no pus was found. I thought that I had made a mistake in diagnosis. The family physician thought so too. But later on Sluder taught us that there was such an affection as vacuum headache, caused by occlusion of the frontal nasal duct through adhesive inflammation, to be relieved only by forcible opening of that duct. Then it dawned on me that we had had a similar process which sealed off the aditus ad antrum. Since then I have seen two other cases. The roentgenograms showed doubtful cloudiness. I explained to each that no pus would be found but that the whole trouble was due in each instance to absorption of some of the air contained in the mastoid cells. No relief was to be expected unless air was let into the cells by a mastoid operation. All the patients recovered promptly and with no return of trouble because the wound was immediately sewed up tight with a blood clot therein. I suggest a new name for the condition—"vacuum mastoiditis."

Dr. Frank E. Detting, Los Angeles: A case that came under my observation was at first entered as a mental case, with speech disturbance as the chief symptom. The aphasic symptom gradually progressed, with no definite etiologic factor. The history from the family was negative as to ear trouble, and inspection of the ear showed a normal tympanic membrane, no sagging of the posterior canal wall, and no external mastoid symptoms. The roentgen-ray examination in this case was unusually valuable, showing a very definite blurring of all cells. With the roentgenogram as our only definite indication for operation, the mastoid process was opened, and we found pus and much necrosis of the parts. The dura of the middle fossa was covered with thick granulation tissue, and one small area of dura looked suspicious of sloughing. With that local condition, the history of aphasia and the encouragement of a neurologist, we explored the temporosphenoidal area of the brain and discovered a large abscess.

Dr. Bert E. Hempstead, Rochester, Minn.: I should like to make the point that in all our cases at some time there had been middle ear involvement. In the paper I say "without apparent involvement." Aside from those cases that had external manifestations, the roentgen ray is about the only aid we have. We must also consider that, with pain over the mastoid, the findings of the Sluder syndrome must be ruled out.

HYPODERMIC GENERAL ANESTHESIA*

EUGENE R. LEWIS, M.D.
LOS ANGELES

This constitutes a report of my individual experience covering more than fifteen years' use of scopolamin and morphin in conjunction with local anesthetics in nose, throat and ear surgery. After a summer semester spent at the University of Freiburg in 1905, during which my attention had been attracted by the "twilight sleep" in vogue in the obstetric pavilion, I conceived the idea that a modification of this hypodermic narcosis might be advantageous to ear, nose and throat surgery. Many years later I learned that the same idea had occurred to Dr. Myron Metzenbaum, and that in 1900 he had begun the application of this to surgery in this field. To Dr. Metzenbaum belongs the credit of introducing the use of this anesthesia, at least to laryngologic surgery, and as far as I know, his work may antedate that of the obstetricians. I have been unable to find the exact date of the beginning of "twilight sleep." [1] Dr. L. M. Hurd of New York also used scopolamin and morphin very early, his development of this as an adjunct to ear, nose and throat surgery dating from 1912.

My own experience with the use of scopolamin and morphin led me through a short period of tentative, I might say almost apprehensive, trial in selected cases in which general anesthesia was definitely contraindicated. The first use I made of it was in a woman, aged 22, suffering from active pulmonary tuberculosis, a double mitral lesion, and acute general arthritis. Her physician desired the removal of frankly pathologic tonsils, acute inflammation of which had preceded the outbreak of the

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1. Schneiderlin, in 1900, first reported the use of scopolamin and morphin to induce surgical anesthesia. Steinbuchel applied this to obstetrics in 1903. Gauss of Krönig clinic at Freiburg reported 1,000 cases in 1907.

totally incapacitating arthritis. I used 1/100 grain (0.00065 gm.) of scopolamin and 1/4 grain (0.0162 gm.) of morphin at one injection, followed in thirty minutes by peritonsillar injections of 0.1 per cent. cocain in epinephrin, 1 : 15,000. The complete success of this attempt led me to use the same procedure in operating on a chronic mastoiditis in a woman, aged 35, who had active pulmonary tuberculosis and an old pyelonephritis. These two cases, in very bad surgical risks, were complete successes in every way, and encouraged me to extend the use of these new found friendly drugs to many other bad risk cases, including several chronic suppurative spheno-ethmoid cases of asthma of long standing, suppurative antral and frontal cases, and modified radical mastoid cases.

During the last fifteen years, I have used scopolamin and morphin anesthesia in operating on patients suffering from active pulmonary tuberculosis, renal tuberculosis, lymphatic tuberculosis, bone tuberculosis, pyelonephritis, nephritis, diabetes, anaphylactic asthma, toxicosis, hyperthyroidism, hypertension, hypothyroidism, carcinoma, endocarditis and myocarditis. I have never had a death following its use, nor have I had occasion for anxiety in connection with its use. For fear of misunderstanding I will state specifically that it is my universal practice to subject every patient to a thorough preoperative general physical examination, the results of which determine my decision for or against operation. I have proceeded to operate in many poor surgical risk cases under this narcosis in which I would have hesitated to operate under general inhalation anesthesia.

My unbroken series of successes in "bad risk" cases led me to apply this hypodermic anesthesia to "good risk" patients. For the last fourteen years I have used scopolamin and morphin injection as the anesthetic method of choice in ear, nose and throat surgery, except in patients below the age of 12 years. In certain cases I have used it below this age limit; the youngest patient was a boy, aged 7 years, on whom I performed a tonsil-adenoid operation with completely satisfactory anesthesia. I have used this injection on many persons over the age of 70, and on eleven over the age of 80, my oldest being a woman of 86, weighing 120 pounds (54 kg.) on whom I performed tonsillectomy.

Before proceeding further, I believe it essential to mention certain items which require specific attention and successful handling in order that the outcome of any anesthetic procedure may be all that might be desired by operator and patient. The first item in every case is a mental condition of apprehension. This brings about a successively increased nervous tension which lowers the threshold of all sensitivities and creates a state of general hyperesthesia. This constitutes a most unwelcome beginning, a state tending to tremor, sweat, pallor, palpitation, increased reflexes and faintness. These are, of course, psychogenic, but the untoward effects of this condition are not mitigated by realizing that it is only "fear reaction." Furthermore, it includes certain symptoms which may well be looked on by the operator with alarm during the later stages of the procedure. Pallor, tachycardia and faintness may be due to acute drug intoxication of dangerous degree, indistinguishable from the same symptoms of psychogenic rather than toxic origin.

The next item is the state of the reflexes, which are greatly increased. This condition of increase constitutes a far greater obstacle to the facile performance of operative procedure in the nose and throat than in the ear-mastoid regions. These reflexes are, of course, initiated in the operative area; their exaggeration depends on the psychic condition of apprehension already mentioned; their motor expressions include not only coughing, gagging, sneezing and other similar involuntary acts, but also excessive flow of saliva and mucus incidental to the manipulation of the throat and nose. This outflow of excessive secretion has a two-fold undesirable result: first, it washes away any local anesthetic from its site of topical application; second, it necessitates acts of disposal—either ejection or swallowing—of the excessive quantity of fluid secretion. Thus the reflexes are responsible for a series of interruptions in the production of local anesthesia.

The third item that requires special attention in producing satisfactory anesthesia is the production of complete local anesthesia in the actual operative field. It matters not whether by nerve blocking or by completely desensitizing the operative field and neighborhood, it is desirable to check the emission of sensory impulses for at least two reasons: first, because they constitute the first leg of a reflex through a lower circuit; second, because their arrival in the higher centers results in a certain degree of shock and neuropsychic trauma, despite obtunded consciousness.

The acute apprehension and its collateral effects may be handled satisfactorily by a certain dose of morphin and scopolamin. In certain operative procedures on the upper respiratory tract there is a definite advantage to the operator without counterbalancing disadvantage to the patient in retaining a certain awareness and cooperability on the part of the patient. This is particularly true of laryngeal and tracheal procedures and of certain intranasal procedures, notably submucous resections, of either the septal or lateral wall. For such cases I use hypodermic injections of 1/8 to 1/6 grain (0.0081 to 0.0108 gm.) of morphin, with 1/100 grain (0.00065 gm.) of scopolamin, which usually proves very satisfactory. There is another class of operative procedures which offers no advantage to the operator or the patient in retaining this cooperative state of the patient; in such cases I have used as a routine from 1/4 to 1/3 grain (0.0162 to 0.0216 gm.) of morphin with 1/50 grain (0.0013 gm.) of scopolamin at one injection with the intention of producing an adequate degree of general narcosis. This class of cases includes such procedures as tonsillectomy, opening peritonsillar abscesses, tympanomastoid operations, radical mastoidectomy, simple opening of the mastoid, and certain extensive operations on nasal sinuses. Since 1912, I have used 1/4 grain (0.0162 gm.) of morphin with 1/50 grain (0.0013 gm.) of scopolamin at one dose hypodermically in average run patients between the ages of 14 and 60 years. My experience has taught me that young children require morphin in relatively larger doses than adults, and that older adults (over 55 to 60 years) require relatively less morphin than those between the ages of 20 and 60, contrary to textbook teachings.

I aim to use sufficient scopolamin and morphin at one injection to produce not only complete absence of apprehension but also dryness of the mucous membranes, complete general relaxation, sleep, and profound obtunding of the sensorium. This condition supervenes usually from forty to sixty minutes after the injection, but occasionally as much as ninety minutes may elapse before the required stage is reached. There is no necessity for speed, as the narcosis may be counted on to endure for two or three hours. The synergistic actions of morphin and scopolamin are too well known to war-

rant specific mention. Suffice it to say that, in adequate dosage, the sensorium is profoundly obtunded, and particularly is the memory closed to the reception of registrations; the latter is strikingly apparent in the large number of patients who ask, hours after the completion of an operation, "How soon am I to be operated on?"

From forty to sixty minutes after the hypodermic injection of morphin and scopolamin, the patient's condition is suitable for the second preoperative step. Sleepiness has supervened; the mucous membranes are dry; apprehension has disappeared. There is no difficulty in proceeding with necessary local anesthesia, which is produced with a minimum of topical applications and local injections. The operative work itself may be done with the patient in the sitting position, semirecumbent or recumbent; I have not encountered any evidence contraindicating the use of the position of choice. The narcosis endures from two to three hours, varying with the dosage and the individual patient.

I have encountered certain disquieting symptoms in relatively rare instances, tremor, tachycardia and palpitation. I have never seen a case exhibiting these symptoms to a degree which interrupted the prosecution of operative work. I have never seen these symptoms last longer than a few minutes, or be of sufficient degree to cause me to be apprehensive. In very rare instances, excitement and delirium of mild degree are encountered. My nurses have volunteered the information that they have observed delirious effects more frequently in patients receiving repeated fractional doses, and that is my own impression. In addition to occasional delirium, the nurses have remarked the following untoward symptoms in rare instances: 1. Trembling—usually limited to a short period before the narcosis. 2. Rapid pulse, as high as from 120 to 130, limited to the early stage of narcosis, except in certain cases in which narcosis was less than desired. Rapid pulse has not been observed postoperatively. 3. Occasional cyanosis, of such mild degree as to be questionable. This condition I have not observed. A few people experience nausea after opium or its alkaloids. While I have witnessed in very rare instances a late postoperative nausea following the use of scopolamin and morphin injections, I have seen it so rarely that it is justifiable to state that one encounters practically no unpleasant aftereffects.

I value this method of anesthesia because of its safety, its ease of administration, its applicability to cases in which contraindications exist as to the use of ether, chloroform or nitrous oxid, its drying effects on mucous membranes, its adequacy for any operative procedure, and its freedom from unpleasant aftereffects.

I desire to state very specifically that, while I regard this form of narcosis as safe in experienced hands, I advise against its indiscriminate use and urge the selection of small doses by the beginner until he has acquired thorough familiarity with the effects of these drugs.

1920 Orange Street.

ABSTRACT OF DISCUSSION

Dr. Neil C. Trew, Los Angeles: The report of any series of cases in which an unusual method has been employed is always of great interest. We are all apt to follow generally accepted methods, even when other methods have been proved to be better and safer. Does hypodermic general anesthesia constitute a safer and better method than ether vapor? We may consider an anesthetic under three heads: the convenience of the surgeon; the comfort and the safety of the patient. As to the convenience of the surgeon, there can be little argument. The time necessary to produce satisfactory anesthesia varies so much—from half an hour to three hours—that it constitutes a decided inconvenience, and of itself is enough to rule out the method for most busy operators. As to the comfort of the patient: This method is entirely satisfactory in the vast majority of cases. The patient does not dread the operation. He suffers no pain during the operation, and remains in comfortable oblivion for a number of hours afterward. He is free from postoperative vomiting. Coming now to the most important consideration of all, the safety of the patient, I have been unable to find a single record of death attributed to scopolamin and morphin. It has been used extensively as a premedicant before general anesthesia, and also in the so-called twilight sleep, but no death is recorded to its discredit. The infant mortality is raised in confinement work, but no deaths of the mother are recorded. Occasionally delirium has developed, but has always been recovered from sooner or later. Any danger, then, comes from the local anesthetic, which, we all know, is not without danger. A commission was appointed last year to investigate deaths from this cause, but its findings are not yet available. Last year forty-seven deaths were reported by a committee investigating them. Unfortunately, Dr. Lewis does not mention the number of cases in which he has used this method, and before any final decision we must have a large series of cases to consider; but at present it would seem that we have in the method an anesthetic as safe for the patient as local anesthesia, satisfactory as to the comfort of the patient, but inconvenient for the surgeon on account of the uncertain time element.

Dr. I. D. Kelley, Jr., St. Louis: I wish to corroborate the statements made by Dr. Lewis. In our service at the Washington University Dispensary and the Barnes Hospital for the last few years we have been using scopolamin and morphin anesthesia in selected cases. We use it in the form of twilight sleep. Dr. Schwartz, chief of the obstetric department, uses twilight sleep as a routine and with such satisfactory results that we began using it in our nose and throat operations in selected cases. We have found it a most satisfactory anesthetic in sphenoidal work. When we induce twilight sleep, very little nerve blocking is necessary, and we get complete and satisfactory anesthesia. Its popularity as an anesthetic has grown year by year. We have found no complications in its use, and use it frequently in mastoid work when there is contraindication to general anesthesia. In bad nephritic and heart cases, if we induce twilight sleep, starting the patient with a very little gas anesthetic, we are able to complete the operation in a most satisfactory manner. I have had experience with this type of anesthesia in cases of acute psychosis when it was necessary to remove infected tonsils or pus foci about the nose and throat, and found it decidedly satisfactory. We feel that those who adopt this method will use it more frequently until, as Dr. Lewis says, it will supplant many other types of anesthesia. I believe that, to get proper operative results, we must have proper relaxation and proper anesthesia. In one or two cases I recall some difficulty. In one case the patient, instead of developing twilight sleep, developed symptoms of acute mania; but that is quite the exception. In all cases in which the patient is at all afraid of the operation, in which there is a nervous or mental reaction, twilight sleep is the ideal anesthesia. I have not employed this method in children, because I have always felt—probably as the result of an untoward result a few years ago—that a narcotic is undesirable in such cases and have feared to risk it. But in young adults and in older persons it is eminently satisfactory.

Dr. H. R. Lucas, Portland, Ore.: The time element is important, in doing, for instance, a mastoid on a patient with diabetes. If we are doing a series of tonsillectomies, after twenty or twenty-five minutes the patient becomes too much relaxed and is hard to manage in the sitting position. This is my particular point. If the injection is given more than forty minutes before tonsillectomy, one may suffer nausea.

DR. C. A. BROADDUS, Salt Lake City: In 1914, in all the popular magazines, there appeared articles on twilight sleep, telling the laity to ask the physician for it because they were entitled to have it during obstetric work. I tried to look up the subject, but found most of the men I wrote to discouraged me in the use of scopolamin, and most of the proprietary houses sent the drug out without instructions. One house did give instructions, and I began to use it in obstetric cases, and very satisfactorily. Several years ago I tried to do a submucous resection on a young man and had a great deal of trouble with him. He would roll his head from side to side, and it was impossible to anesthetize the septum locally. I insisted on trying again, and two or three days later prepared him for operation as I had prepared patients for obstetric work, and it worked so well that from that time on I used it as a routine. I have used it in all of my local tonsillectomies since. I have not used the dosage that Dr. Lewis does. I have a tablet containing ⅛ grain of morphin and 2/100 grain of scopolamin; for nasal work I use ¼ grain of morphin and 1/100 grain of scopolamin. I found that if I had the full dosage, patients did not sit up very well, and I like to do a tonsillectomy with the patient in a sitting position. I have done some operations with the patient in a simireclining position and have had good results by using ⅛ grain of morphin and 2/100 grain of scopolamin as the initial dose, and then every twenty minutes giving 1/16 grain of morphin and 1/400 grain of scopolamin and repeating that until the patient is asleep. That can be ordered beforehand on the chart in the hospital, and no time is lost in preparing. I find the advantages to lie in a reduction, or entire absence, of preoperative apprehension; a drying of the mucous membranes, which is of great importance in operating on the tonsils and nose, and the inability of the patients to remember. Even though they complain of pain at the time, if you question them afterward they do not remember anything about it, and that leaves a splendid impression with the patient.

DR. R. E. HOUSE, Ferris, Texas: Twenty-five years' experience with one drug will provide any one with a vast reservoir of direct and collateral information. Scopolamin is a very unusual drug and one with far-reaching possibilities, and there is no death on record from its use that we have been able to find. In the City Hospital at Dallas, Texas, in 1897 and 1898 Dr. Florence Rosser and I made every type of experiment with scopolamin. A 50-pound pig was given 1 grain of scopolamin, with no fatal results. Every man has his own technic, every man believes his is the best, and in that way the progress in the use of scopolamin has proceeded. The technic that is followed in obstetrics, the technic that is followed in surgery or in other fields in which this drug is used is different, but I wish to assure you that the nervous phenomena that you see manifested in some patients is no reason for alarm. Rather it indicates that more of the drug is needed, and I wish to assure you that there is no barrier against the use of scopolamin that is either formidable or unsurmountable. All that is required for success is caution, patience and individual achievement.

DR. H. T. BAILEY, Phoenix, Ariz.: I use this preparation in nose and throat surgery. I have only one point to make. The patient should be placed on an adjustable chair. Occasionally, after one has given the hypodermic and more often after using the procain or cocain which follows the hypodermic, the patient will have some symptoms of cyanosis, or pale face with perspiration, etc. At this moment, or just preceding it, if the chair is tipped so that the patient's head is as low as his feet or lower, the circulation will be restored, pallor or cyanosis leaves, and the chair can be raised and the operation proceeded with without fear or any more trouble.

DR. HAROLD M. HAYS, New York: I think the Committee on Local Anesthesia has definitely proved that we have less trouble with local anesthesia if morphin is given beforehand. It does not seem to me that Dr. Lewis should have entitled his paper "Hypodermic General Anesthesia." It is not general anesthesia, it is general analgesia, and there is quite a difference. In New York it was proved that we could get what is called "synergistic" analgesia with a combination of morphin and magnesium sulphate. This work was done by one of the prominent anesthetists of New York, and since then we have used this method. One-fourth grain of morphin is dissolved in 2 c.c. of a 25 per cent. solution of pure water and magnesium sulphate. Injection is made deep into the buttocks, and the patient allowed to wait one hour before operation. Sometimes the analgesia lasts from eight to sixteen hours. A year ago I had my own tonsils removed under local anesthesia by this method, and I was in a semiconscious condition for ten hours afterward.

DR. DAVID R. HIGBEE, San Diego, Calif.: More than two years ago I learned from Dr. Lewis this method of preparation for tonsillectomy. Since then I have used it in all cases. It has been so exceedingly satisfactory that I am glad to support the statements of Dr. Lewis. Dr. Lewis has done the operation on me and it was both analgesic and anesthetic. It is a method that one can use in a large clinic also when time is an element to be taken into consideration. With a nurse to give the hypodermic injections and prepare the patient, I have done as many as eleven in a part of one morning, the time probably averaging between fifteen and eighteen minutes. One feature worth mentioning is in regard to the time the patient is ready. When the drugs have disoriented him sufficiently to make him unsteady on his feet and not capable of executing the finger to nose test with precision and alacrity, the operation may be begun.

DR. CULLEN F. WELTY, San Francisco: I have never used scopolamin. Dr. House speaks of it with such confidence that it half inspires me to do something similar. I have never seen a patient die on the table from local or general anesthesia, and it seems to me that it would be fearful, and when one injects a heavy dose of anything there is always that fear. I once removed the tonsils of a child, 7 years old, under local anesthesia. The child was so seriously ill, I thought he would die anyway, so I took the chance. I was prepared to do anything, but got through without trouble.

DR. W. S. TOMLIN, Indianapolis: My early experience with scopolamin was not very satisfactory, and therefore I have in later years been somewhat afraid of it. That was in connection with neuropsychiatric work, and therefore should not be taken as a criterion of the advantages or disadvantages in the use of scopolamin. I encountered a great many cases in which scopolamin had exactly the opposite effect, and in a few cases in which we used it for so-called twilight sleep the percentage of cases of excitement was too high. Perhaps I did not use enough, but I used it according to directions. I would suggest another means of obtaining the same result by the use of codein and atropin. Codein must be used in a dose from six to eight times greater than that of morphin—from 1½ to 2 grains. In adults I use 2½ grains of codein to 1/150 grain of atropin. This can be used in cases of the depressive type. Morphin does not act well in the depressive type of case. Another experience that I have found of value is that in using codein there is not the after nausea that occurs so frequently with morphin, whether it is combined with scopolamin or not. Also the presence of a constipated condition which sometimes follows large doses of morphin is avoided by the use of codein.

DR. JOHN A. DONOVAN, Butte, Mont.: I have used scopolamin for twenty-five years as a cycloplegic. The first patient developed mild acute mania, and during that twenty-five years I have seen three cases of acute mania with delirium and hallucinations, but I am still using it. I do not use it as often in hypodermics as I did. In some cases it is of importance. Dr. Lewis spoke of local anesthesia. I have been succeeding nicely without hypodermics, simply getting psychologic control of the patients by suggestion, etc., without the hallucinations or after-vomiting which follow hypo-

dermic injections in many cases. In many cases a hypodermic is necessary to allay excessive fear. As a truth teller, that's a joke. In two or three cases I have had the opposite effect—deirium and hallucinations so that the patient would not allow operation at all. Two days is the longest I have known these hallucinations to last. Its particular objectionable feature in tonsil operations is that the patient will not spit out the oozing blood from the throat.

Dr. Burt R. Shurly, Detroit: After returning from the Mayo Clinic five years ago and witnessing there what appeared to be the most satisfactory effects from the use of scopolamin, I became enthusiastic and adopted that method of anesthesia in my own work, with great satisfaction. I had a few cases of delirium and some minor unpleasant results, but suddenly one of these patients who had been given the usual dose of scopolamin and a local anesthetic of 0.5 per cent. procain developed terrific convulsions, one after another, and it was only after the most strenuous efforts that she recovered from the resulting paralysis. This alarmed us, because we had given her four drugs—morphin, hyoscin, scopolamin and procain—and we were unable to determine which was the cause of the trouble. So I abandoned this method. Dr. Levy has had a fatal case from the use of scopolamin. This was in the removal of an epiglottis, and no cocain was used at all in that operation. The patient had a moderately advanced pulmonary tuberculosis. In twenty-eight years' experience I had one fatality with the use of 0.5 per cent. procain. Inside of three minutes the patient developed convulsions, and in spite of all we did he died. We carried out a very careful examination of everything that could possibly be brought out to show what had been the cause of the trouble, but we finally had to put it down to an idioscyncrasy.

Dr. Robert W. Miller, Los Angeles: A number of years ago I tried scopolamin in a few cases. I saw two cases in which there was considerable postoperative disturbance, hallucinations and great restlessness for two or three days. I have seen it in comparatively few cases since its early introduction. We have been told that the therapeutic effect of atropin, hyoscin and scopolamin are alike. I have not been inclined to think so. I think there is considerable resemblance in the action of these agents, but it seems that scopolamin is perhaps the most potent and exercises a more prolonged effect than the others. Perhaps it is fairly safe to say that they are all respiratory stimulants, and if we bear that in mind it will be more reassuring as to the danger in their use. So far as I know, scopolamin may not be a respiratory stimulant. I heartily approve of the use of codein as a substitute for morphin in younger patients. In regard to emergency cases, when we use cocain, and numbness of the extremities, etc., results, let us be sure that we have ether at hand so that the patient may have the immediate benefit of a few inhalations of ether, the physiologic antidote for cocain. We should always be prepared for these emergencies.

Dr. Geoffery Williams, Takoma, Md.: I have had opportunity to observe the action of combined morphin and scopolamin anesthesia in more than 2,500 cases. We use it in all our major surgery and we have never seen any trouble, except in some cases a tendency to depression and restlessness afterward; but that is easily cleared up. Many operations for severe toxic goiter we do under scopolamin and morphin anesthesia. We give ¼ grain of morphin and 1/100 grain of scopolamin. We have no trouble in giving the anesthetic, and the results are beautiful. In nasal and tonsil cases we have never yet had a patient complain during the operation. They do not appear to know anything about it. I would say, however, that we use a local anesthetic besides. With the us of morphin and scopolamin combined, there is no tendency to excitement, whereas scopolamin alone does excite. Also, one can do more work by using this preparation than by using a local anesthetic only. In many cases we have done a submucous resection, ethmoidal exenteration on both sides and a tonsillectomy at the same sitting without any trouble whatever.

Dr. Robert Levy, Denver: My use of morphin and scopolamin analgesia began in 1908 following a visit to Freiberg. I saw Block do mastoidectomies under morphin and scopolamin. I confined my work entirely to laryngologic cases and particularly laryngologic operations done under suspension. Many of the patients were tuberculous. The particular case that I mentioned to Dr. Shurly was that of a young man with moderately advanced tuberculosis, not very active, with fairly extensive tuberculosis of the epiglottis. He was given 1/100 grain of scopolamin and ¼ grain of morphin, two hours prior to operation. This dose was repeated an hour later, half the quantity, or one hour prior to operation. The operation was performed under suspension and without any great delay; but before it was completed the patient suddenly stopped breathing, and there was no response to any attempt we made to rescuscitate him.

Dr. Arthur C. Jones, Boise, Idaho: I have been using scopolamin for five years without any trouble, but I saw a case recently that is worth reporting. In this case a general anesthetic was started, but the man had considerable saliva, and the physician asked whether he could be given a hypodermic. He was given one injection, and in fifteen minutes there was some difficulty in breathing, and in twenty minutes he was dead. I give the usual dose to a patient weighing more than 120 pounds, and the smaller dose to lighter weights. For children I do not use it.

Dr. William B. Chamberlain, Cleveland: In connection with scopolamin and morphin do you use procain and epinephrin for local infiltration?

Dr. Wendell C. Phillips, New York: The fact that should be brought out that, in the collective investigation of anesthesia fatalities made by Dr. Loeb of St. Louis, my recollection is that the proportion of fatalities is far higher for this than for local anesthesia.

Dr. Eugene R. Lewis, Los Angeles: Dr. Trew mentioned the inconvenience to the operator. That has been my experience, in that there is no definite time one can begin the operation. However, it has more frequently transpired that I have been through an operation ten or twelve minutes after I entered the door. The point of view of the patients is paramount. We should make any reasonable concession to their point of view, and this is very much in favor of "complete analgesia" as Dr. Hays calls it; they have no memory of discomfort. Regarding the danger of scopolamin: This has come up a great many times and, of course, Dr. Levy's case is one of a number of deaths following its use; but in a careful analysis of cases one is led to believe that there are so many other possible causes of death, and such a lack of definite testimony that death was caused from the drug, that a question is raised in our minds on this point. Take, for instance, the case of convulsions Dr. Shurly cited. Nowhere is there any reference of convulsions being characteristic of the effect of scopolamin. On the contrary, it is my belief and experience that with cocain and procain, convulsions are characteristic of poisoning by that group of alkaloids. Dr. Kelley asked about the safety in using it in children. I have used it as early as 7 years. I have used it in many cases below 10 years. The stimulating effect of any operative procedure is in itself a great safeguard to the patient who has been given morphin. He requires active stimulation, and the operative manipulation furnishes that stimulation. Dr. Broaddus spoke of the broken dosage as being satisfactory. There is nothing to show that this is not right if one wishes to give it this way. The use of codein and atropin will unquestionably give satisfactory results. There is no one royal road. Dr. House's experience is much larger than that of any of us. Dr. Hays spoke of "general analgesia." I believe his point is well taken. We can produce what is exactly as effective to the patient as what I spoke of as "general anesthesia." I have used this many times in cases of extensive mastoid operation when I had to use blows on eburnated bone that I felt would almost injure something by counterstroke, but without any difficulty on the part of the patient. I think it produces, in effect, a general anesthesia. Dr. Hays asked when the patients are ready. We have no rule, but I think as soon as we acquire familiarity with this we shall be able to judge from the general comportment of the patient whether we should wait a few minutes longer or proceed at once. Dr. Donovan spoke of delirium and mania. I

have seen such effects produced by scopolamin. But this is not dangerous, it is only annoying to the operator; it does not impair the desirable effect of the drug on the patient. They have no memory of any unpleasant association with the operation. Dr. Shurly spoke of unpleasant complications when he had used procain. The convulsions could be more properly attributed to procain than to anything else he used. I have been using this method since 1906, and I should say very conservatively that we have had between 1,500 and 2,000 cases.

POISONING BY FOOD PROBABLY DUE TO CONTAMINATION WITH CERTAIN BACTERIA

EPIDEMIOLOGIC ANALYSIS OF SEVEN HUNDRED AND FORTY-NINE REPORTED OUTBREAKS IN THE UNITED STATES

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Food poisoning, as it is understood today, is the result, directly or indirectly, of the contamination of food with certain bacterial organisms, and clinically it may be classified as an intoxication. However, it is recognized that, in the consumption of food contaminated with the paratyphoid group of bacteria, infections may occur. It is significant that none have been recorded in the data presented in this paper. The foregoing point of view regarding food poisoning is accepted or broadly interpreted throughout this paper, and no attempt will be made to discuss any other phase of food poisoning due to fungi, idiosyncrasies, the comparatively rare disease known as "milk sickness," the dietary deficiency diseases or the obvious danger from the animal parasitic diseases. When the term general food poisoning is used, there is meant poisonings by food probably contaminated with the paratyphoid group or other organisms, and these, on account of the number reported, are of importance to public health agencies. Likewise, this type of poisoning, along with the food intoxications caused by *B. botulinus,* represent those to which common usage has generally limited this far embracing term.

With the growth of scientific knowledge regarding the specific dangers of contaminated food, there has been a more intelligent appreciation on the part of laymen and of health officials of the comprehensive measures that have usually been adopted for control in the distribution, handling and processing of food whether it is canned or not. It is probably as old a condition as any of those diseases affecting the human being, and consequently has been known by a much varied terminology. Ptomain poisoning, ice cream poisoning, tinned food poisoning, sausage poisoning, cheese poisoning and meat poisoning, or any other particular kind of food suspected, have been given as the cause of different outbreaks, usually without epidemiologic or bacteriologic investigation. The foods that can be directly classified and identified with poisonings are mushrooms, milk and certain others.

This descriptive terminology undoubtedly has led to a complexity of diagnosis which has been further complicated by the recognition that certain preserved foods can contain a most virulent and thermolabile toxin, causing, as a result when ingested, the socalled *B. botulinus* intoxication. Whether all food poisonings of the type under discussion are intoxications is still not an absolutely proved clinical or epidemiologic fact, although it is fairly well established that experimentally the paratyphoid-enteritidis group of organisms may produce thermostabile toxins which, when injected, will prove fatal to certain laboratory animals or produce characteristic symptoms in them.

The recognition of this type of food poisoning, clinically, should present very little difficulty, whether the condition is due to food contaminated with the paratyphoid group or with the toxin of *B. botulinus,* as each causes totally dissimilar symptoms. Likewise, the laboratory procedures incident to the isolation of the paratyphoid group from, and the determination of the presence of, the toxin of *B. botulinus* in foods are technically well known. Therefore, if we recognize that there are two groups of food poisoning due to contamination with bacteria, easily differentiated clinically and from a laboratory standpoint, the investigative problem is comparatively simple. However, in the majority of the outbreaks recorded, the well known facts mentioned above are overlooked either because of the limited duration of the illness or because of incomplete epidemiologic, bacteriologic or toxicologic investigation.

SOURCE OF THE STATISTICS

This epidemiologic study of 749 outbreaks includes data gained from personal field investigations of reported outbreaks and from the records of various health departments, during 1922. The data previous to this and including the period 1910-1921 (599 outbreaks) were obtained from the records of the National Canners Association, which records were turned over for the purpose of epidemiologic study. The records of the National Canners Association represent almost entirely the work of Dr. Robert S. Page [1] of Bel Air, Md., of whose enthusiasm and early knowledge of the subject too much cannot be said.

The majority of the outbreaks here recorded and included in this study are alleged to have been due to preserved foods. The sources of these statistics are practically similar, as they include only those outbreaks reported either to health departments and to the National Canners Association, or obtained from the daily files of newspapers.

The history of the commercial preservation of food not only has its economic aspects but also represents scientifically controlled efforts for improvement. The investigations conducted by Dr. Page for the National Canners Association, as demonstrated by the records freely turned over for this study, indicate a fundamental desire to acquire accurate statistics as to the safety of preserved foods. There is ample evidence from our own investigations that there is an offhand tendency to blame preserved food for illnesses diagnosed as food poisoning without previous investigations or foundation in facts.

Since cases of food poisoning are rarely made legally reportable in the United States, these statistics representing the first compilation of its kind are by no means complete. From these statistics, however, certain conclusions can be drawn with some degree of certainty.

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1. Dr. Robert S. Page was born in Baltimore, Oct. 23, 1874, and died in Bel Air, Md., Dec. 22, 1920. Dr. Page obtained his scholastic and medical training from the schools of the city of Baltimore, the City College, Johns Hopkins University, and the University of Maryland. Dr. Page also took graduate work at the Johns Hopkins Medical School. His interest in food poisoning was stimulated by his connection with the National Canners Association.

MORTALITY STATISTICS OF FOOD POISONING IN THE UNITED STATES

A study of the mortality statistics regarding food poisoning reveals the interesting fact of a steady increase. The difficulties attendant on the classification as a cause of death indicate to the experienced investigator that these statistics, at their best, are inaccurate. It will be seen from the recorded data used in this study that physicians and others have made imperfect, inconclusive and incorrect returns as to the cause of death, as indicated by subsequent necropsies. Consequently, we have no comparable data as to the real incidence of food poisoning in the United States, and it is decidedly necessary that we approach any compilation with caution. Since 1910 and including 1920, there have been reported in the United States Census Bureau 7,316 deaths attributed to poisoning by food, as shown by Chart 1. The increase has been gradual but steady, and should be regarded with some degree of apprehension. For instance, in 1910 there were reported 157 deaths, while in 1920 there were 957, an increase of 800 deaths a year in the periods under consideration.

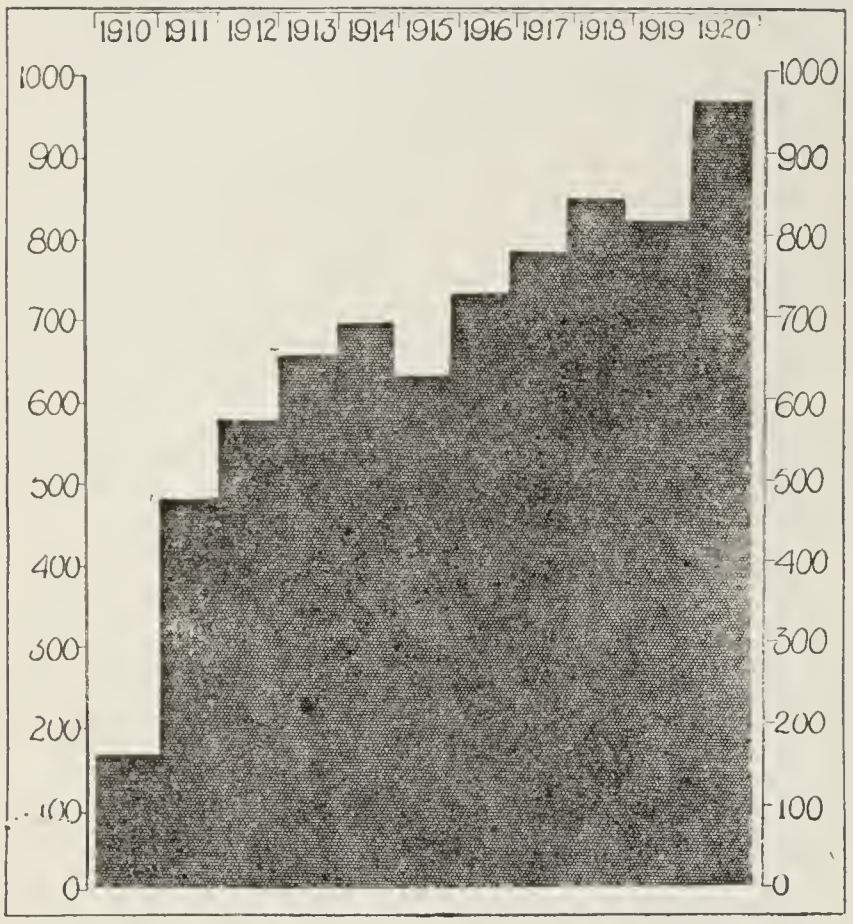


Chart 1.—Mortality from food poisoning, 1910 to 1920.

In our survey, which includes 749 outbreaks, involving 5,210 persons with 399 deaths between 1910 and 1922, inclusive, the percentage case mortality was 7.6, or approximately 7.5. If this percentage case mortality is accurate, then we have had approximately 12,500 cases of food poisoning in 1920, and approximately 98,000 cases for the period of 1910-1920, inclusive. However, it will be shown later that the percentage case mortality of our data can be materially reduced when we analyze the results of necropsies and separate the outbreaks due to botulinus intoxications.

For instance, in the records of 749 reported outbreaks under consideration, we have reports of forty-four outbreaks of botulism, with 172 persons made ill. Of this number, 140 died, a percentage case mortality of 80. If we separated this group of cases from those of general food poisoning, we should have of the latter in this series a percentage case mortality of 4.1 instead of 7.5.

In addition, there are records of forty necropsies at which the previous cause of death has been given usually as "ptomain poisoning," which diagnosis had to be subsequently changed. Likewise, there can be included data regarding eleven instances with nineteen deaths of metallic poisoning, due, as the evidence indicates, to murder, suicide or accidental causes. Eliminating these erroneously recorded deaths (fifty-nine) from the number previously given as having been due to food poisoning, we have a further reduction of the percentage case mortality from 4.1 to 3.1.

From experience in investigations completed during the past year, this case mortality rate in general food poisoning is obviously too high. This opinion is further substantiated by the results shown above of the comparatively few necropsies performed which indicate that food poisoning or "ptomain poisoning" is given not infrequently in error, as a cause of death.

Mayer [2] states that in Germany in forty-eight outbreaks attributed to *B. enteritidis* and in seventy-seven outbreaks attributed to *B. paratyphosus* B or *B. suipestifer*, there were approximately 4,000 cases with forty deaths, a percentage case mortality of 1. Savage [3] states that in 112 outbreaks in England, involving 6,190 cases with ninety-four deaths, the percentage case mortality was 1.5. A careful search of our records was made, and only those outbreaks were considered in which either the epidemiologic or the laboratory evidence was fairly conclusive that the paratyphoid group was the contaminating organism of the causative food poison. Of these, in the 749 outbreaks studied, there are fifty-four outbreaks involving 2,219 persons with eleven deaths, a percentage case mortality of less than 0.5.

Therefore, if one should determine the average case mortality of the German statistics, 1; British, 1.5, and

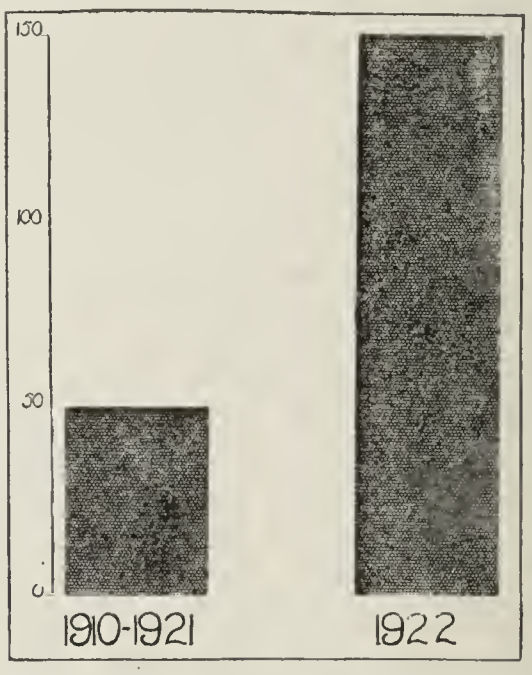


Chart 2.—Yearly accumulative average of outbreaks.

that of our own selected outbreaks, 0.5, we have a rate of 1, which probably is representative of general food poisoning. Contrasting this rate with that of the outbreaks in this series due to botulinus intoxications, 80, one can readily note that there is need for a statistical regrouping and classification, probably on this basis

2. Mayer: Deutsche. Vierteljahrsschrift für öffentliche Gesundheitspflege. **45**: 1913.
3. Savage: Food Poisoning and Infection, Cambridge University Press, 1920, p. 49.

alone, of the mortality of food poisoning, without taking into consideration the deaths caused by the ingestion of poisonous fungi, etc.

EPIDEMIOLOGIC ANALYSIS OF DATA

During the periods 1910-1921 inclusive (twelve years), 599 investigations were made, or that number of outbreaks of alleged food poisoning were reported, and are recorded in this study. The accumulative average each year of investigations or reported outbreaks for the periods mentioned is approximately 50.

During 1922 (Chart 2), 150 investigations were made, which number is just triple the accumulative yearly average for the periods stated.

It is appreciated that our knowledge of the extent of food poisoning is deficient, and that the reported outbreaks do not represent the actual number that have occurred. Nevertheless, the definite increase for 1922 could be regarded of some statistical importance if the underlying reasons were not made known. At the beginning of our study of the problem of general food poisoning, all health officials in the United States were circularized in an attempt to arouse their interest. Likewise, we have diligently and systematically followed up reports of outbreaks in the daily press.

Either one of the foregoing explanations would probably account for the apparent increase in outbreaks for 1922, yet it is not unlikely that this increase falls far short of the actual number that did occur.

SEASONABLE DISTRIBUTION

A study of Chart 3 indicates no striking seasonable prevalence. In fact, an average of seventy outbreaks were reported in the winter months, and sixty in the summer. It has been thought that the temperature of the summer months plays a definite rôle in food poisoning by increasing the number of the contaminating bacteria, yet it is probable that this occurs as frequently in the preparation and cooking of the food. The fact that in this study the majority of outbreaks are attributed to canned foods may account for the increased prevalence in winter. On the other hand, the data included in this chart would seem to indicate that the consumption of preserved food is not limited to any particular season in the United States.

To ascertain whether there was any definite concentration as to geographic areas, the divisions shown in Table 1 were arbitrarily selected. Only those states in which ten or more outbreaks had occurred were considered. A study of Table 1 apparently indicates that there is a concentration of outbreaks that is not altogether explained by density of population. In certain cities like New York, Brooklyn, Boston, Pittsburgh, Chicago and Baltimore, but particularly New York, Brooklyn and Boston, numerous outbreaks are reported which in turn affect the pro rata of the states in which they are situated. When, however, we take into consideration the population of the group of states mentioned, and of reported outbreaks accredited to each group, we have, approximately, a ratio of one outbreak reported to every hundred thousand inhabitants in the Eastern group; 1 to 130,000 in the Middle West group; 1 to 212,000 in the Southern group, and 1 to every 77,000 in the Western group.

Outbreaks have been reported from forty-seven states, and there is included in this study three outbreaks that have occurred in England, three in Canada, one in Hawaii and one on shipboard at sea. Comparatively, the ratio of outbreaks from the East to the Middle West is 1.4 to 1, and from the East to the South and West 3.4 and 3.6 to 1, respectively. It is exceedingly interesting to note that of the outbreaks occurring in California, approximately one third, and in Washington over one half, were botulism. Of the botulism outbreaks, thirty-eight occurred in Western states, and in one of these the food was preserved in the Middle West. Eleven outbreaks of botulism occurred in the East, South and Middle West, and in five of these the causative food was preserved in the West.

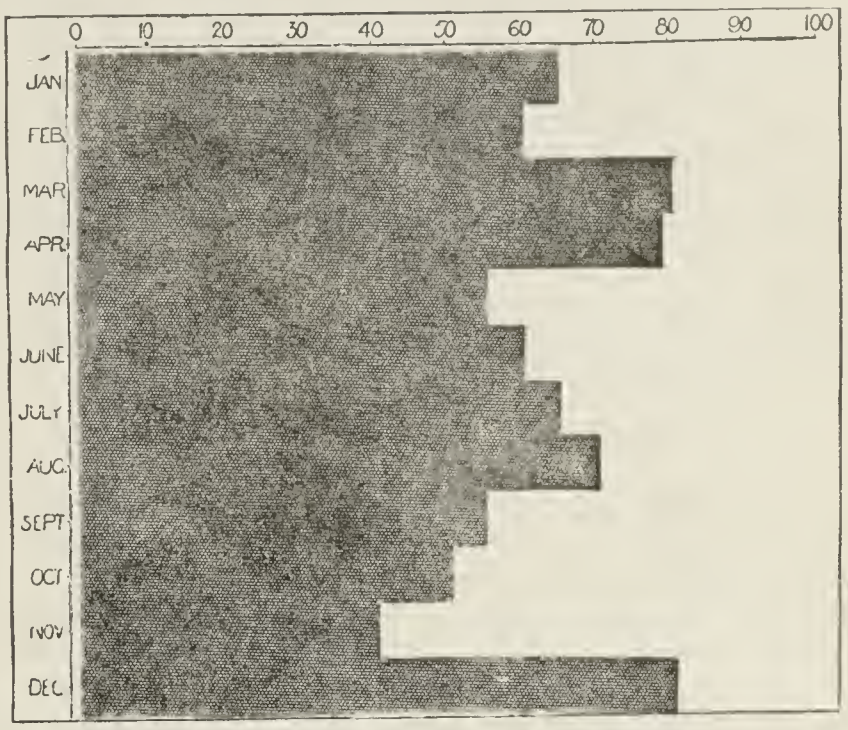


Chart 3.—Seasonal distribution by months of outbreaks, 1920 to 1922.

Table 1.—*Geographic Distribution of Outbreaks*

East		Middle West		South		West	
New York	139	Illinois	66	Maryland	17	California	41
Pennsylvania	59	Ohio	43	Missouri	17	(15 botulism)	
Massachusetts	44	Minnesota	22	Texas	14	Washington	22
New Jersey	35	Indiana	20	Alabama	11	(10 botulism)	
		Iowa	19	Kentucky	11	Colorado	13
		Wisconsin	15	Georgia	11		
		Michigan	13				
	277		198		81		76

ALLEGED CAUSATIVE FOODS

Of the alleged causative foods, 601 were commercially preserved and 131 prepared in the home, a ratio of about 5 to 1. Table 2 indicates briefly the various types of food involved; namely, meat products, fish, vegetables and fruit. It was found necessary to add soup to those commercially preserved, and milk was placed in both types of prepared food.

Table 2.—*Types of Food Involved*

	Meat	Fish	Vegetables	Fruit	Soup	Milk
Commercially preserved	38	209	237	38	53	29
Home prepared	45	5	48	9	..	20

Of the commercially prepared meat products, beef (18) heads the list; of fish, salmon (149) and sardines (35); of vegetables, tomatoes (54), corn (54), beans (49), string beans (30), pork and beans (19) and peas (45); of fruit, peaches (15) and olives (10). Of the home prepared meat products, beef (19), sausage (11) and pork (8); of fish, salmon (3); of vegetables,

string beans (15), corn (11) and asparagus (6); of fruit, apricots (4) and peaches (2).

It will be noted that there is a tendency to incriminate commercially canned foods. Such foods have the advantage over other types of food by being relatively free from human contact, usually prepared in sanitary plants and from fresh material. But most important, there is properly controlled sterilization based on scientifically acquired experimental data. Therefore, contamination by the paratyphoid group is unlikely in such foods, except in a "leaky" can and after opening.

When, however, one attempts to figure the ratio of pack to the number of outbreaks, one is confronted with some interesting data. For instance, we have 149 reported outbreaks from commercially canned salmon. The American salmon pack for the years 1910-1922 is estimated to be over three and one-half billion cans; therefore, if the reported outbreaks were proved, we should have one outbreak to every two and one-half million cans packed.

FAMILY GROUPS, ISOLATED CASES AND LARGE OUTBREAKS

In this study of 749 outbreaks, there are recorded 222 outbreaks, approximately 30 per cent., in family groups; 470 outbreaks, approximately 64 per cent., in isolated outbreaks of one or two cases, and 57 large outbreaks, approximately 7 per cent. Three of the latter involved over a thousand persons with no deaths, and two were personally investigated. In one, due to home-prepared cream sauce, *B. paratyphosus* A was isolated from both the sauce and the stools of the patients. In the other, due to a home-prepared ground beef sandwich, *B. paratyphosus* B was isolated from the food. The comparatively larger number of isolated outbreaks is an indication of how difficult of solution the situation regarding food poisoning is. It is unusual for these outbreaks to be reported early enough so that they may be investigated, epidemiologically and bacteriologically. Therefore, it is not unlikely that many foods are blamed for the illness when they are not at fault, and that the condition is improperly or hastily diagnosed.

AGE AND SEX DISTRIBUTION

In our assembled data, it was found impossible to make a special study of age and sex distribution. It could be stated that there were no indications of any specific sex or age incidence. We have records of eighty-seven cases of illness classified as food or ptomain poisoning among children. Of these, there were forty-three deaths, a percentage case mortality of about 50. With such a high case mortality rate, there is a reasonable assumption that they are due to causes other than food poisoning. This opinion seems to be fully borne out in a study of these selected cases, and will be discussed when the original diagnoses are considered.

PHYSICAL APPEARANCE OF THE ALLEGED CAUSATIVE FOOD

In the data we have assembled, there are three outbreaks which were personally investigated and in which there has been isolated, from either the food or the excreta of the persons made ill, *B. paratyphosus* A, *B. paratyphosus* B and *B. enteritidis,* respectively. In these outbreaks, the foods, cream sauce, meat sandwich and meat stew were stated to have been normal in odor, taste and texture. Of the 749 outbreaks in this study, in eighty-seven the food was regarded as spoiled or "off" in taste or odor. Of these, thirty-four were outbreaks of botulism. The description of the food was given as "spoiled" in fifty instances, "bad" in seven, "not good" in five, "sour" in five, and the remainder as "peculiar," "offensive," "putrid," "off" and "biting." The taste was regarded as metallic in two instances, and in two the odor of phenol (carbolic acid) and ink were definitely detected in the can. The latter were probably criminal "sabotage" cases, or due to some leakage of the coding ink into the can at the time the code number of the pack was applied, such inks having phenol as a preservative.

In six instances, the canned goods used were described as swells, and in one of these (St. Paul), a woman who became ill stated frankly that she was living well on discarded canned goods from the city "dump." In two, the canned goods, corn and peas, were said to have been left in the can for several hours. The latter alleged outbreaks were carefully gone into; in neither were the cases clinically regarded as food poisoning, and the epidemiologic evidence was far from being complete and definite. There is a reasonable doubt that most canned foods, when allowed to remain open in the can for several hours, will cause symptoms of food poisoning unless they are subsequently contaminated or previously toxic.

It was very interesting to note that in our data there were nineteen instances of canned food alleged to contain foreign articles. Of these, "glass" was said to have been present in four instances; "black specks or articles" in two; "worms" in two; "spiders" in two; "nails" in two, and of the remainder, in one instance each, "bugs," "metal," "rats," "tack," "mouse," "matches" and a "snake." A careful scrutiny of these indicates that many were probably wilful attempts to secure money.

CLINICAL ANALYSIS OF DATA

It has been stated before that in our data there are fifty-four outbreaks suspected as being due to food contaminated with the paratyphoid group. The majority of these are not supported by laboratory evidence. A careful search of our records shows that in 749 outbreaks, excluding those caused by the toxin of *B. botulinus,* only thirty-nine are supported by laboratory evidence. Of these, thirty are negative. This preponderance of negative results which were recorded mainly from the examinations of the suspected food is probably due to some epidemiologic error in the determination of the causative food. Unfortunately, the food in many outbreaks has been entirely consumed at the time of the suspected meal, and the delay in investigation may be such that examination of patients' excreta would be a doubtful procedure. Moreover, from our experience it could be stated that the limit of delay for investigation, at least in the examination of stools, should never be more than one week, and even then it is not likely that positive or supportive laboratory evidence will be secured, unless carriers are to be searched for or unless there is evidence of a true infection. In this regard, Krumwiede [4] states that in an examination of stools from patients suspected of paratyphoid, it was during the first week that the highest percentage of positive results was obtained. Experimentally, when laboratory animals such as rabbits are fed with cultures containing large numbers of bacteria of the paratyphoid group, it has been our observation

4. Krumwiede, C., Jr.: J. Infect. Dis. **21**: 141 (Aug.) 1917.

that symptoms of food poisoning are rarely produced, and that the organisms cannot be demonstrated in the feces after from twenty-four to forty-eight hours.

We have records of nine outbreaks in which the laboratory results have been apparently conclusive. Table 3 briefly indicates the results obtained from examination of the suspected foods. In addition, in the Rockford, Ill., outbreak, *B. paratyphosus* A was isolated from the stool of one of the patients; *B. paratyphosus* B was isolated from the stools of four patients

TABLE 3.—*Results Obtained from Examination of the Suspected Foods*

Place	Food	Organism Isolated	Investigator
Birmingham, Ala..	Home prepared meat sandwich	B. paratyphosus B	U. S. Public Health Service; Univ. of Chicago
Rockford, Ill.....	Home prepared cream sauce	B. paratyphosus A	U. S. Public Health Service; Univ. of Chicago
Hagerstown, Md...	Home prepared meat stew	B. enteritidis	U. S. Public Health Service; Md. State Board of Health; University of Chicago
New Haven, Conn.	Home prepared egg salad	B. paratyphosus B	C.-E. A. Winslow, Yale Univ. (personal communication)
New York.....	Home prepared cream pie	B. aerogenes capsulatus and B. coli	N. Y. City board of health
Oakland, Calif.....	Commercially prepared (canned) corn	B. paratyphosus B	Univ. of California; U. S. Public Health Service; U. S. Bureau of Chemistry, Western District
Penn Yann, N. Y...	Home prepared hamburger steak	B. paratyphosus B	New York State Dept. of Health; U. S. Public Health Service
Hagerstown, Md...	Home prepared hamburger steak	B. vulgaris (proteus)	U. S. Public Health Service; Md. State Board of Health; University of Chicago
Seattle.....	Commercially prepared ice cream	B. paratyphosus B	City and state board of health; University of Washington (personal communication)

ill in the Penn Yann, N. Y., outbreak. Likewise, in one of the outbreaks in this series occurring in England, on the battleship *London,* in September, 1911, in four cases, one of them fatal, alleged to have been due to commercially canned peas, *B. enteritidis* was isolated from the stomach and small intestine of the patient who died, but not from the peas. In no instance was the suspicious food in the outbreaks listed in this table abnormal in odor, taste or texture.

AGGLUTINATIONS

Owing to delay in investigation, the absence of the suspected food, or the unsatisfactory nature of the material available for laboratory examination, the actual bacterial cause of an outbreak of food poisoning may not be ascertained. Because of this, agglutinations of the blood serums of the persons made ill have been suggested by various investigators in this field. Only in five of the outbreaks included in our data has this laboratory procedure been used. The results are interesting but are far from being conclusive or helpful. The many contributory and dependent factors in this test, such as previous vaccination, with triple type vaccines, the negative bacteriologic findings of a specific organism in the suspected food, the comparatively short duration of the illness, the coagglutinins demonstrable among the paratyphoid group, and the absence of definite information as to such reaction in the normal individual make agglutinations a doubtful diagnostic procedure in food poisoning. In an outbreak of food poisoning, Bernstein and Fish [5] report that sixty persons were made ill, and four deaths resulted. The causative food was home-prepared pastry, *B. paratyphosus* B being isolated from this food. From the persons affected, ten dried specimens of blood were obtained, of which, when tested one month after the onset of symptoms, five were positive, three showed partial agglutination, and two were negative when run against the specific bacterial strain isolated from the pastry. The dilution of tests with the dried blood was not given. However, a sample of blood serum collected twenty-four days after the onset of symptoms from one patient who suffered severely agglutinated a strain of *B. paratyphosus* B completely in dilutions through 1:100 and partially agglutinated in 1:200 dilution. The blood serum likewise agglutinated *B. typhosus* and Specific Strain 4, isolated from the pastry in 1:200 dilution, and agglutinated *B. paratyphosus* A in 1:10 dilutions.

Again, Foard and Walker [6] report an outbreak of forty-four cases of food poisoning due to headcheese, *B. paratyphosus* B being isolated from the stools in three cases; from the blood cultures obtained, two were positive for *B. paratyphosus* B. Widal tests were made in twenty cases in 1:40 dilutions. Of these, nineteen were positive for *B. paratyphosus* B; nine for *B. typhosus,* and all were negative for *B. paratyphosus* A. Rosher and Fielden,[7] report that more than 1,000 normal serums were tested against organisms of the paratyphoid group, of which accurate information regarding previous antityphoid inoculation was secured for more than one third. Rosher found 29 per cent. in dilutions of 1:20 and higher agglutinated *B. typhosus;* 17 per cent., *B. paratyphosus* A; 23 per cent., *B. paratyphosus* B; 8 per cent., *B. paratyphosus* C; 16 per cent., *B. aertrycke,* and 11 per cent., *B. enteritidis* (Gaertner).

Rosenau and Weiss [8] report an outbreak of food poisoning that occurred in Washington, D. C., among students of Georgetown Medical School. The causative food proved to be bread pudding. Eighteen of the twenty-five students partaking of the meal were made ill, with typical symptoms of paratyphoid-enteritidis poisoning. The organism isolated from the bread

TABLE 4.—*Results of Agglutination Tests Made at Hagerstown, Md.*

Place	Date	Suspected Food	Specific Organism Isolated	Agglutinations in 1:40 Dil. 2 Wks. Later
Security, Md.	Nov. 14, 1921	Meat stew	B. enteritidis from meat from which stew was made	8 examined, 5 positive

pudding gave positive agglutination results in 1:1,000 dilution, with specific *B. enteritidis* serum. Ten days after the onset of symptoms, blood serum for agglutination tests was obtained from three students. The results of the agglutination tests showed specific reactions for each of the four strains isolated from the bread pudding, and also for a type of strain of *B. enteritidis.* No agglutination in a 1:50 dilution was obtained with *B. typhosus, B. paratyphosus* A or *B. coli.*

In our data, the following results of agglutinations are briefly shown in Table 4.

5. Bernstein, H. S., and Fish, E. S.: Food Poisoning, J. A. M. A. **66**: 167 (Jan. 15) 1916.

6. Foard, F. T., and Walker, T. H.: Pub. Health Rep. **36**: 2095 (Sept. 2) 1921.

7. Rosher, A. B., and Fielden, W. A.: Lancet **1**: 1088 (June 3) 1922.

8. Rosenau, M. J., and Weiss, Harry: Food Infections, J. A. M. A. **77**: 1948-1951 (Dec. 17) 1921.

The agglutination reactions of the blood serums of thirteen uninoculated persons who were ill in the three Rockford College outbreaks, at Rockford, Ill., are given briefly in Table 5, tested six weeks after the onset of the last outbreak.

TABLE 5.—*Agglutination Reactions Made During Outbreaks at Rockford, Ill.*

B. Typhosus			(From Milk) B. Paratyphosus A			(Stools) B. Paratyphosus A			B. Paratyphosus B		
1:40	1:80	1:160	1:40	1:80	1:160	1:40	1:80	1:160	1:40	1:80	1:160
4	2	—	9	9	3	10	8	2	4	3	—

Serums from eight other uninoculated students gave entirely negative agglutination results in a 1:40 dilution with the organisms specified in Table 5; one of these students had been ill in the first outbreak, one in the second, three in both first and second, and five in all three outbreaks. Twenty serums of previously uninoculated persons who were affected in the Birmingham, Ala., outbreak were tested for agglutinative power on four cultures, seven days after the onset.

Fresh specimens of serums from four persons showing the highest agglutination were obtained three months later, Jan. 3, 1923, and tested against all four cultures; none of them produced any agglutination in a 1:80 dilution with any culture, including the specific strain isolated.

In addition, there are two records of outbreaks in our series in which agglutinations were made: Rockford, Vt., in two cases in which the causative food was alleged to have been commercially canned tomatoes; the dilutions are not known but the test was stated to be positive when run against *B. typhosus* and *B. paratyphosus* A, and *B. paratyphosus* B; Paterson, N. J., in two cases in which the causative food was alleged to have been commercially canned crab meat; the agglutination tests were stated to have been negative when run against both *B. paratayphosus* A and B.

TABLE 6.—*Birmingham, Ala., Meat Sandwich Outbreak*

B. Typhosus			B. Paratyphosus A			B. Paratyphosus B			B. Paratyphosus B from Sandwich			
1:80	1:160	1:320	1:80	1:160	1:320	1:80	1:160	1:320	1:80		1:160		1:320	
—	—	—	—	—	—	—	—	—	+	—	+	—	+	—
Number of serums showing reaction									13	4	4	16	2	18

INCUBATION PERIOD

Epidemiologically, the incubation period offers the best information for the differentiation of the two types of food poisoning discussed in this paper. There are exceptions in both types, but it can be stated that for general purposes the incubation period of the cases of the type of general food poisoning is from about three to twelve hours, while that of botulinus intoxication is from twenty-four to forty-eight hours. There is always some period of incubation; therefore, when persons partaking of a meal complain of illness immediately or closely following it, a diagnosis of food poisoning should be made only after exhausting every other diagnostic possibility. Under such conditions it would not be unlikely that the food was consumed at a previous meal. Again, this variability of the incubation period and in some instances the remarkably early appearance of clinical symptoms may be explained by variation in numbers and virulence of the contaminating bacteria. Certainly, in most instances, in order to develop food poisoning, there must be ingested with the causative food a large number of bacteria, the number depending, of course, on the method of preparation of the food, the resulting incubation temperature, the length of time the food is exposed to such a temperature, and the original number of the bacterial inoculum. It is doubtful whether organisms of the paratyphoid group can produce thermostabile toxic substances unless the food has been exposed to an incubation temperature of at least 37 C. for several hours. In our data, there are thirty-eight outbreaks especially selected as being probably due to food contaminated with the paratyphoid group of organisms in which the incubation period can be studied. In seven of these, the laboratory data were apparently conclusive. Tables 7 and 8 give briefly the incubation periods noted in both types of food poisoning in our series.

TABLE 7.—*General Food Poisoning*

Incubation period in hours	2	3	4	5	6	8	10	12	24
Number of outbreaks noted	4	13	12	2	16	6	1	2	1

TABLE 8.—*Botulism*

Incubation period in hours	Before 24 Hrs.*	24	36	48
Number of outbreaks noted	4	12	2	3

* The exact time of onset was doubtful, but never less than twelve hours, and was accompanied by a history of the consumption of a large amount of the causative food.

INFECTIVITY RATE

The infectivity rate seems to be a variable factor, yet we have no conclusive evidence, as far as food contaminated with the paratyphoid group is concerned, except in the third Rockford outbreak (*B. paratyphosus* A); Birmingham (*B. paratyphosus* B), and Hagerstown (*B. enteritidis*). In these outbreaks, the infectivity rate varied from 75 to 100 per cent. In outbreaks due to foods contaminated with the toxin of *B. botulinus*, the infectivity rate is rarely less than 100 per cent. of those partaking of the causative meal. It is this high morbidity incidence which seems definitely manifest in all proved outbreaks in both types of food poisoning that generally offers, by elimination, an easy method for the determination of the food acting as a vehicle of transmission of the causative organisms or toxin, or both.

ORIGINAL DIAGNOSIS

In 404 outbreaks, approximately 54 per cent. of the 749 in our series, the diagnoses were given as "ptomain poisoning" by physicians. It is interesting to record that in 147 (approximately 20 per cent.) additional outbreaks, this was likewise the diagnosis by newspapers carrying the reports of the occurrences. Clinically, the responsibility of correct diagnosis in food poisoning rests on the physician and health officials. Our records indicate the universality of usage of the term "ptomain posoning" by both physicians and the laity. It will probably continue to be used, and whether cases are so diagnosed or not, it seems a diagnosis of convenience, and foods are blamed without proper epidemiologic, bacteriologic or toxicologic investigation. Moreover, we have carefully scrutinized the diagnoses and analyzed the outbreaks as far as the reports allowed this to be possible. The results are rather startling, and

were obtained by reconstructing the clinical histories in the outbreaks with the idea of determining the true diagnosis either from symptoms or from subsequent necropsies and laboratory investigations. Accordingly, in 212 outbreaks, approximately 28 per cent., the assembled data indicated conditions other than food poisoning. There were indications of appendicitis, tuberculosis, meningitis, various infectious diseases and pregnancy. It is true that many of the reconstructed histories with the change of diagnoses are not absolutely proved. Nevertheless, the same could be said about the diagnosis of "ptomain poisoning." The results of necropsies, which will be noted later, and the absence of supportive laboratory data in many hundreds of outbreaks is more than presumptive evidence that the original diagnoses of "ptomain posoning" were neither accurate nor correct. In addition, thirteen outbreaks of so-called "ptomain" poisoning were proved by investigations to be "fake" stories. Three others were "jokes," and in another three outbreaks the illness was evidently due to idiosyncrasies of the persons affected for the food ingested.

RESULTS OF NECROPSIES

Several references have been made to the result of the necropsies performed in our series and their effect on the original diagnoses. In all, forty necropsies, approximately 16 per cent., were performed in 259 deaths reported as having been due to "ptomain poisoning." It is extraordinarily interesting and important to note that in every instance the original diagnosis was changed to conditions which in some were clinically totally dissimilar. For instance, the final anatomic and pathologic diagnoses were: meningitis, five; nephritis, four; intestinal obstruction, four; lobar pneumonia, three; pregnancy, three; wood alcohol, three, and appendicitis, three; and one each, duodenal ulcer, typhoid fever, endocarditis, diphtheria, epilepsy, carbon monoxid poisoning, septicemia, embolism, syphilis, hemiplegia, bacillary dysentery, malaria, status lymphaticus and cardiac disease.

In addition, there are in our series eleven outbreaks, with nineteen deaths, in which the evidence is fairly complete that they were either murders, suicides or accidents. The cause of death was some poisonous metallic substance with which the food was impregnated.

COMMENT

From the literature and our observations, food poisoning is not an infrequent occurrence in the United States, but few investigations, at least, of those caused by contamination with certain bacteria have been successfully completed. Jordan [9] writes:

> Probably several thousand outbreaks of food poisoning in families and larger groups, affecting at least 15,000 to 20,000 persons, occur in the United States in the course of the year. Proper investigation of the origin of an outbreak is so rarely carried out that the articles of food ordinarily accused are selected rather as the result of popular prejudice and tradition than of careful inquiry.

The recent medical literature applies to few outbreaks of poisoning by food due to bacterial contamination that have occurred in the United States. Among them are to be mentioned the selected reports by Bernstein and Fish: [10] causative food, homemade pies (organism isolated from the pie); Krumwiede, Provost and Cooper: [11] causative food, tapioca pudding (organism isolated from the tapioca pudding) and from the liver of a patient who died; Foard and Walker: [6] causative food, headcheese (organism isolated from headcheese and three fecal samples); Rosenau and Weiss: [8] causative food, bread pudding (organism isolated from the bread pudding).

The relation of botulism to the problem is fully covered in Public Health Bulletin 127, and needs no comment here except to mention that since this report was submitted (November, 1921), thirty additional outbreaks have occurred.

Poisonings by metallic substances have been mentioned, but it is interesting to state that, in this study, poisoning from tin has not been reported. Only one outbreak has been reported as being due to poisonous fungi (mushroom), at Olean, N. Y., and one to animal parasitic disease (trichinosis), at Boston.

It is deemed important to point out briefly in Table 9 the different investigative procedures that are suggested in outbreaks, and the clinical symptoms in both types of food poisoning due to bacterial contamination and understerilization of preserved foods.

TABLE 9.—*Comparative Procedures*

General Food Poisoning	Botulism
Incubation Period	
Usually 3 to 8 hrs., rarely over 12	Usually 24 to 48 hours
Treatment	
Supportive and eliminative	Botulinus antitoxin, specific type; absolute quiet; eliminative
Investigative Procedure	
1. Use incubation period for basis of determining the causative meal	1. Use incubation period for basis of determining the causative meal
2. Always suspect freshly cooked or warmed over foods. Preserved foods are rarely at fault. Foods are apparently O.K. as to taste, appearance, odor and texture.	2. Always suspect preserved foods; likewise, meat products such as sausages. Spoilage of foods is noted in many instances
3. Bacteriologic examination of excreta of patients and the suspected food for the paratyphoid group and other organisms	3. Test of suspected food for toxin by animal inoculation; mice, guinea-pigs or rabbits. Test for type with specific antitoxin. Culture of suspected food for the presence of spores, particularly if food has been previously boiled
4. Bacteriologic and epidemiologic search for human carriers and possible contamination from animal sources	4. Search for domestic animals, such as chickens with symptoms of limberneck, for corroborative field and laboratory evidence
5. Complications: appendicitis, cholecystitis, persistent elevation of temperature (paratyphoid infection)	5. Complications: bronchopneumonia
	6. Human outbreaks are usually due to Type A toxin
Symptomatology	
Sudden onset; nausea, vomiting, abdominal pain, prostration, diarrhea and rise of temperature	Delayed onset; marked muscular weakness; gastro-intestinal symptoms, rare; disturbances of vision with diplopia and blepharoptosis; loss of ability to swallow and talk; constipation; rapid pulse and subnormal temperature; rarely any pain; death from respiratory failure
Mortality, 0 to 1 per cent.	Mortality over 60 per cent.
Case infectivity rate high	Case infectivity rate usually 100 per cent.

CONCLUSIONS

The data collected and studied in this paper indicate that the diagnosis of "ptomain poisoning" should be promptly discarded by the medical profession because it is too inconclusive a term.

A clinical diagnosis of food poisoning, especially when it is suspected that the food is contaminated with

9. Jordan, E. O.: Food Poisoning. University of Chicago Press, 1917.
10. Bernstein, H. S., and Fish, E. S.: Food Poisoning by Bacillus Paratyphosus B, J. A. M. A. **66**: 167 (Jan. 15) 1916.
11. Krumwiede, C.; Provost, D. J., and Cooper, G. M.: J. M. Res. **43**: 53 (Jan.-March) 1922.

certain bacteria or their toxins, should be supported by epidemiologic, bacteriologic and toxicologic investigation. Our experience in the past year has amply demonstrated the possibility of obtaining epidemiologic surveys in outbreaks, supplemented by laboratory evidence, despite the delay incidental to the necessary travel.

The question of the actual biologic cause or the mechanism for the production of the symptoms in outbreaks of food poisoning of the type under discussion in this paper, whether they can be considered as being due to a toxin or to a bacteria or both, is experimentally and epidemiologically yet unanswered. Nor is it finally settled that only the organisms of the paratyphoid group can produce the classical, clinical picture of food poisoning or intoxication of this type. However, it will be shown in another paper how difficult it is to obtain a filterable poison from cultures of the paratyphoid group even under special conditions. Furthermore, when such poisons are produced, the time of production, in the same culture medium and with identical cultures, is extremely variable. That such toxic filtrates, when obtained from the cultures of the paratyphoid group, are thermostabile seems not questionable, but it is doubtful whether they are resistant to heat for more than ten minutes at 212 F.

The short incubation period noted in the cases in the proved outbreaks of this series, the comparatively early and complete recovery of the majority of the persons ill, the low mortality rate and the absence of continued temperatures or other evidence of infection, even when food undoubtedly containing living pathogenic organisms of a type which ordinarily should produce in time such a temperature is ingested, make the problem most interesting for future study.

Epidemiologically, the isolation from the causative food or the excreta of persons ill in outbreaks of either *B. paratyphosus* A or B is most likely due to the contamination of the food by a human carrier intimately connected with the preparation of the meal or the particular food. It is possible, however, that such contamination may be due to the usual sources of pollution of water and milk supplies. The isolation of *B. enteritidis*, *B. pullorum*, some strains of *B. paratyphosus* B, and possibly other bacteria, indicate contamination from animal sources other than human, and is primarily a sanitary problem of abattoirs and meat shops.

Scandinavian Radiology Congress.—*Hospitalstidende* comments on Scandinavian progress in therapeutic radiology, as evidenced at the recent gathering at Stockholm. Runström's roentgenograms showed the possibility of detecting fracture of a metatarsal bone by the subperiosteal hemorrhage even when the fracture line cannot be seen. Panner's revealed that in many of the cases of so-called arthritis of the shoulder there was an unsuspected fracture of the neck of the humerus. Baastrup presented evidence that acute atrophy of bone resulting from inactivity is practically the same process as after fracture or other lesion. Berven of Stockholm has worked ont a simple method for applying roentgen-ray treatment to chronically inflamed tonsils, and reported that he had been successful with it in numbers of patients. Microscopes and specimens were handed around to demonstrate the cure of the tonsillitis. Reyn's success with carbon arc light and roentgen rays in the treatment of tuberculous glands at the Finsen Institute, and Sonne's rapid cure of rats with rickets under quartz lamp exposures attracted attention, as also Krebs' studies of germinating seeds under roentgen rays, showing the great difference according to whether the rays were filtered or not, and the kind of filter. The fourth congress will be held at Helsingfors in 1925, with Wetterstrannd presiding.

A STUDY OF THE ACTION OF CALCIUM IN EXPERIMENTAL COCAIN POISONING *

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Some time ago, Dr. Emil Mayer, chairman of the Committee for the Study of Toxic Effects of Local Anesthetics, called my attention to a paper by Karl Mayer [1] and one by Hofvendahl,[2] with a request that a report on their results be prepared for the committee. Shortly after my report was submitted to Dr. Mayer, the chairman of the committee, a paper was published by Frank, Strauss and Smiley [3] in which they stated that they were unable to observe any antagonistic action of calcium toward cocain, such as Karl Mayer had reported. They offered no explanation of the discrepancy between their results and those of Mayer, and it seems desirable, therefore, to publish the result of my investigation and to explain the discrepancy mentioned.

Karl Mayer's work is fundamentally faulty, so far as one can judge from his paper, in that he did not determine the fatal dose of cocain for the animals that he used under the conditions of his experiments, but accepted statements contained in the literature on this point. He states that, according to the literature, the fatal subcutaneous dose of cocain hydrochlorid for the guinea-pig is beween 40 and 60 mg. per kilogram of weight, and that doses of 70 mg. per kilogram were survived by guinea-pigs that also received calcium chlorid. He deduces from this that calcium chlorid exerts a protective action against cocain. Mayer was led to employ calcium salts in this way by the observation of Meltzer and Auer [4] that calcium salts stimulate the respiration and antagonize the action of otherwise fatal doses of magnesium salts. Mayer also states that the heart of the frog severely poisoned by cocain can be restored to normal by the administration of calcium salts.

Reference to the accompanying table shows that doses of 70 and 80 mg. of cocain hydrochlorid per kilogram of weight are not fatal to guinea-pigs when they are injected subcutaneously, though one animal that received the larger dose died after twelve hours while exposed accidentally to severe cold, and that calcium salts exert no protective action against doses slightly larger than these.

In order to determine whether calcium salts have any antagonistic action toward cocain under conditions in which the effects vary less than they do when the poison is injected subcutaneously, cats were used, and the cocain and the calcium chlorid were injected intravenously.

Eggleston and Hatcher [5] found the average fatal intravenous dose of cocain hydrochlorid in 5 per cent. solution for the cat to be about 15 mg. per kilogram,

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* From the Department of Pharmacology of Cornell University Medical College.

* This investigation was conducted under the auspices of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association.

1. Mayer, Karl: Zur Bekaempfung der Cocainvergiftung, Ztschr. f. Ohrenh. **82**: 42, 1922.
2. Hofvendahl: Die Bekaempfung der Cocainvergiftung im Tierversuch, Biochem. Ztschr. **117**: 55, 1921.
3. Frank, Ira; Strauss, J. F., and Smiley, W. A.: A Study of the Action of Calcium in Experimental Cocain Poisoning, J. A. M. A. **80**: 1908 (June 30) 1923.
4. Meltzer and Auer: The Antagonistic Action of Calcium upon the Inhibitory Effect of Magnesium, Am. J. Phys. **21**: 400, 1908.
5. Eggleston, Cary: and Hatcher, R. A.: A Further Contribution to the Pharmacology of the Local Anesthetics, J. Pharmacol. & Exper. Therap. **13**: 433 (Aug.) 1919.

this dose being survived in some experiments. I found that a dose of 20 mg. per kilogram caused death. Cocain hydrochlorid and calcium chlorid were then administered together to four cats in intravenous doses of 20 mg. of cocain hydrochlorid per kilogram, with varying amounts of calcium chlorid. All four cats died in the usual manner following such doses of cocain alone.

In order to determine whether calcium salts exert any antagonistic action to that of cocain on the heart, experiments were also performed on frogs, in which the beat of the heart is, in a measure, independent of respiration. Eight frogs received cocain hydrochlorid in doses varying from 0.15 to 0.70 mg. per gram of weight, injected into the anterior lymph sac. The results of these experiments show that doses of 0.15 mg. cause slight intoxication and interference with spontaneous movement to some degree, but they do not affect the reflexes, or the action of the heart perceptibly,

Effects of Cocain Hydrochlorid With and Without Calcium Chlorid in Frogs, Guinea-Pigs and Cats

Experiment	Doses, Mg. per Kilogram: Cocain	Doses, Mg. per Kilogram: Calcium Chlorid	Results After One Hour
	FROGS (INJECTED INTO LYMPH SAC)		
1	150	000	Heart beats normally
2	170	000	Heart beats normally
3	200	000	Systolic tendency of the heart
4	250	000	Heart beats feebly
5	300	000	Heart in partial diastole
6	400	000	Heart in partial diastole
7	500	000	Heart in partial diastole
8	700	000	Heart in partial diastole
1	150	600	Heart beats feebly
2	170	680	Slight systolic tendency of heart
3	200	800	Heart beats slowly and feebly
4	250	1,000	Heart stopped in diastole
5	300	1,200	Heart beats slowly and feebly
6	500	2,000	Heart stopped in diastole
	GUINEA-PIGS (INJECTED SUBCUTANEOUSLY)		
1	70	000	Survived
2	80	000	Survived (died during exposure)
3	100	300	Died
4	100	400	Died
	CATS (INJECTED INTRAVENOUSLY)		
1	20	000	Died
2	20	150	Died
3	20	200	Died
4	20	250	Died
5	20	350	Died

at once. Doses of from 0.3 to 0.7 mg. cause total paralysis and a diastolic tendency of the heart with a slow rate. It seems probable that a delay in absorption prevents markedly greater effects from the larger doses, such as one would expect.

Cocain hydrochlorid was then administered in the same way (except that it was dissolved in a 4 per cent. solution of calcium chlorid) in doses of from 0.15 to 0.5 mg. per gram of weight. The results of the experiments show that calcium chlorid exerts no antagonistic action toward that of cocain on the frog's heart, but, on the contrary, the combination is more toxic than is an equal amount of cocain alone, presumably because of the more rapid absorption of the hypertonic solution.

From the results of these experiments, as well as those of Karl Mayer himself, it would appear that there is no evidence that calcium salts exert any antagonistic action to that of cocain.

Mayer also stated that when one eighth or one fourth of the fatal dose of cocain was injected into a frog, with a "small" dose of morphin, which would have otherwise been harmless, the animal died. On these observations he bases a warning against the use of morphin in cocain poisoning. While I have no desire to discuss the use of morphin in cocain poisoning, I do wish to point out that the dose of morphin which Karl Mayer[6] termed "small" is actually toxic for the frog, and relatively to its size it is thousands of times larger than the therapeutic dose for man. The dose of morphin which Mayer used was 0.15 gm. (2½ grains) for a frog. There is no reason to suppose that the results which he obtained with morphin and cocain on frogs has any bearing whatsoever on the therapeutic use of morphin and cocain.

OBESITY AND HYPERTENSION

A. H. TERRY, JR., M.D.
NEW YORK

In September, 1919, one room for women patients at the Presbyterian Hospital Dispensary was devoted to the care and study of cases diagnosed as obesity. While the result of treatment was not startling, the incidence of hypertension and the influence of diet are here noted.

The method employed was a reducing diet calculated to contain sufficient protein and yet to be nonsustaining in calories for the average working woman to maintain her body weight. This relatively high protein diet contained a total of about 1,700 calories, with about 87 gm. of protein. Whenever fewer calories were found necessary to bring about reduction, first the butter (200 calories), then the bread (300 calories), and then the starchy vegetable was removed. Such a diet was found to be far from ideal and not very exact, but nevertheless workable for the patient as well as for the physician.

REDUCING DIET

Breakfast:
- One orange or apple.
- One teaspoonful sugar (rounded).
- Coffee with 4 tablespoonfuls of milk.
- Two eggs, or a piece of lean meat 5 by 3 by ½ inch.

Lunch:
- One cup of beef tea or clear soup.
- Tea with 2 tablespoonfuls of milk.
- One level teaspoonful of sugar.
- Two slices of bread, 4 by 4 by ½ inch.
- Spinach, celery or other green vegetable (1 saucerful).
- Lean meat 5 by 3 by ½ inch.

Dinner:
- One cup of beef tea or clear soup.
- Tea with 2 tablespoonfuls of milk.
- One level teaspoonful of sugar.
- One slice of bread.
- Butter, one-half pat, ½ by ½ by ¼ inch.
- Meat, 5 by 3 by ½ inch.
- One potato or two tablespoonfuls of any starchy vegetable without grease.

There were sixty-three cases observed, but not all the patients returned for further examination; so figures are given for the patients who came only once and also for those who were reexamined. Some of the patients were intelligent, but many were rated at from 40 to 60 per cent. The rate of intelligence usually determined the strictness with which the diet was followed. The average period of observation was one year.

GROUP FINDINGS

From pages of tabulation it was noted that the average age was 45, height 63 inches, and bust 46 inches.

6. Mayer, Karl: Zur Therapie der Cocainvergiftung, Schweiz. med. Wchnschr. **52**: 767, 1922.

The last measurement was found to be somewhat elastic and unreliable.

The first item of interest was the matter of weight, which was found to average 199½ pounds (90.6 kg.) for all cases on admission. Of the fifty-six patients who were reweighed, the average was 202 pounds (91 kg.) on admission and 190 pounds (86.2 kg.) when last seen—a loss of 12 pounds (5.4 kg.). This seems only a fair loss, but of course many would only partially diet; so, while the faithful did not suffer from the abundance of the unfaithful, the average loss was not striking.

The total weight of all fifty-six patients returning was, on admission, 11,307 pounds; after dieting, 10,640 pounds, making a grand loss of 667 pounds, or one-third ton, and a possible saving of more than that in food.

Although patients were not referred to the obesity clinic because of their blood pressure, it was found that thirty-seven of the sixty-three patients, or 58 per cent., had hypertension. The familiar diagnosis in the majority of cases became obesity and hypertension. The average systolic blood pressure in all cases first seen was 173; diastolic, 96. The average in the twenty-four cases that were followed with later readings was: systolic, 196 diastolic, 103. After more or less reducing, their average was: systolic, 170; diastolic, 95. The systolic blood pressure seemed the labile factor, while the denominator remained relatively fixed.

Albumin was present in fourteen cases, absent in twenty-nine and not noted in twenty. When present, it never was more than a trace or a faint trace.

The average blood urea in the fifteen patients suspected of being nephritic was only 34 mg. per hundred cubic centimeters, and the highest only 56.

Glycosuria was found in only one case, and this cleared promptly on the reducing diet.

The Wassermann reaction was positive in one patient, negative in thirty-seven, and twenty-five were not tested.

INDIVIDUAL FINDINGS

The greatest individual loss in blood pressure was 275 systolic, and 150 diastolic, falling to 205 systolic, and 125 diastolic, in three months, the patient losing 13 pounds (5.9 kg.) in weight and feeling relieved of the dyspnea because of which she came to the clinic.

The greatest individual loss in weight was 60 pounds (27.2 kg.) in fourteen months, the blood pressure falling from 190 systolic, and 90 diastolic, to systolic, 148, and diastolic, 95.

The tendency of moderate increase in tension to become immoderate was seen in one case which had been observed three years previously, and in which the blood pressure was noted at 165 systolic, and 115 diastolic. When first seen in the obesity clinic, it had risen to 205 systolic, and 120 diastolic; the weight was 182 pounds (82.6 kg.). After diet, when 7 pounds (3.2 kg.) was lost, the blood pressure became 175 systolic, and 125 diastolic.

One patient with aneurysm of the innominate artery had an initial weight of 195 pounds (88.5 kg.), with a blood pressure of 250 systolic, and 95 diastolic. On diet, her weight fell to 175 pounds (79.4 kg.), and the blood pressure to 195 systolic, and 100 diastolic. Five months later, she gained four pounds (1.8 kg.), and the blood pressure became 215 systolic, and 80 diastolic.

The familial tendency to fat was noted in a patient, aged 18, who weighed 166½ pounds (75.5 kg.), and had blood pressure of 170 systolic, and 120 diastolic. On losing three pounds (1.4 kg.), the blood pressure fell to 135 systolic, and 85 diastolic. Her mother, in the same clinic, weighed 286 pounds (130 kg.), but had a blood pressure of only 150 systolic, and 85 diastolic.

There was only one patient found to have lowered metabolism, but only a few suspected cases were tested. In this case, thyroid was given with benefit, but in no other was it employed.

Another patient had gained 100 pounds (45.4 kg.) in the past five years, yet she lost 15 pounds (6.8 kg.) on diet in the year observed.

CONCLUSIONS

The majority of fat women who seek medical attention have hypertension. This hypertension is usually without findings suggestive of nephritis, diabetes or syphilis.

On a high protein, low calory diet there is a lowering of weight together with a lowering of blood pressure, and this frequently relieves the chief complaint.

131 East Sixtieth Street.

Clinical Notes, Suggestions, and New Instruments

SPONTANEOUS CURE OF A CASE OF EPIDEMIC (LETHARGIC) ENCEPHALITIS FOLLOWING AN ATTACK OF PNEUMONIA

Joshua H. Leiner, M.D., New York

E. S., a boy, aged 8 years, who had had an attack of encephalitis in September, 1919, a month later manifested symptoms of reversal of sleep, change in character, and other disturbances. He was then taken to the mountains to recuperate, where he spent a year without any benefit; in fact, he became worse.

Jan. 12, 1922, one and a half years later, he exhibited, as sequelae of his encephalitis, paroxysmal attacks involving the respiratory mechanism, and complete change in behavior. These respiratory attacks began one year after the acute attack of encephalitis. In the main, they resembled those in cases described by Parker,[1] and, in part, those by Haas, Sicard, Aronson and others.

The patient was admitted to Lebanon Hospital one week later. The attacks were characterized by rapid and deep respiration five or six times, and then holding of the breath, as if the child had a spasm in his throat. His face then became congested, followed by cyanosis; the eyes bulged and there was a sardonic facial expression. At the same time, he would push out the abdomen. Often during the height of the attack, he would suddenly drop to the floor. He would then get up, take a deep full breath and go about his play. In place of such an attack he would sometimes suddenly begin to rush around the room, the body tilted to the left, stop abruptly and stare around the room. These attacks lasted about one minute. Their frequency varied from five to fifteen minutes. While under observation in the wards, he kept the staff, nurses and children under constant tension. No one knew what he would do next. He vaulted into the beds of the other children, tweaked their noses, pulled their ears and took possession of and destroyed other children's toys or crackers.

Neurologically, he showed pupillary inequality, the right greater than the left, slight ataxia, and adiadokokinesis of the left upper extremity. Otherwise, his somatic nervous system was normal. Mentally he measured up to his chronologic age.

1. Parker, H. L.: Disturbance of the Respiratory Rhythm in Children: A Sequela of Epidemic Encephalitis, Arch. Neurol. & Psychiat. 8: 630 (Dec.) 1922.

Three weeks after his discharge from the hospital, I was asked to see him by his family physician, Dr. Kahrs. He showed high fever, the neck was rigid, and a bilateral Kernig sign was present. Tapping was followed by marked relief. He then developed a frank lobar pneumonia. A few scattered respiratory attacks occurred during his convalescence, and then they ceased entirely.

March 25, when I saw him again, he no longer had any attacks, and he has had none for nearly the past year and a half. His conduct is excellent. He walked into my office, and deported himself in a well behaved manner. To those who knew this lad during his illness, the present striking contrast is most dramatic.

COMMENT

This case of epidemic encephalitis is not reported solely because of its unusual termination, although I believe this alone would make it worthy of record, but because it sets us to reasoning along the lines of pathology and therapeutics in this disease.

The question arises as to how much of the clinical symptoms were due to a fixed pathologic condition, and how much was due to the rôle of edema and consequent physiologic block. The child began to show improvement a year and a half after his acute illness. In attempting to explain his recovery, the rôle of edema as a factor must unquestionably be taken into consideration.

It is a matter of record that cases of multiple sclerosis showing clinically apparently advanced pathologic changes of the central nervous system have shown at necropsy very little to account for the nervous symptoms displayed during life. Then, again, the remissions in this disease, as well as in general paralysis, are probably due to the phenomena described above.

Again, this lad recovered following an acute infectious disease. Cases of recovery from a long standing illness following an acute illness are a matter of record. Wagner-Jauregg used this principle in treating general paralysis with malarial virus.

The slow, insidious and progressive nature of epidemic encephalitis, a type which is the most prevalent, stamps it manifestly as a subacute degenerative disease. If, therefore, we can induce a frank reaction in the organism, arousing the defense mechanisms of the body, we can reenact the processes that took place in this patient.

I have used since, as a therapeutic measure, a nonspecific protein in the form of sodium nucleinate in more than twenty-four cases with gratifying results.

355 East One Hundred and Forty-Ninth Street.

A SIMPLE METHOD FOR MEASURING THE QUANTITY OF ALBUMIN IN THE CEREBROSPINAL FLUID BY THE SICARD-CANTELOUBE RACHIDIAN ALBUMINOMETER *

JOSEPH C. REGAN, M.D., NEW YORK

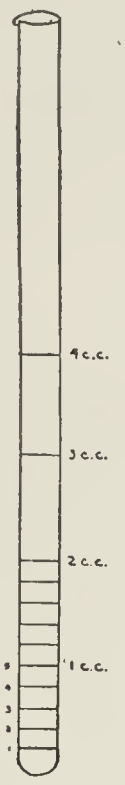
The determination of the quantity of albumin in the cerebrospinal fluid may often afford information of distinct value in separating normal from pathologic fluids.

Several methods have been proposed for the purpose. Bybee and Lorenz have employed the Brandenburger method for urinalysis, while Mestrezat has made use of a colorimetric method. Nissl has utilized the precipitation of the albumin by Esbach's reagent, measuring the precipitate by centrifugating. An opalescent reaction has been described, in which to a known quantity of cerebrospinal fluid nitric acid is added drop by drop. This mixture is carefully shaken until opalescence remains constant. The degree of opalescence is then compared to a standard previously graded, and indicating that a certain degree of opalescence corresponds to a definite amount of albumin per liter.

None of these methods are as simple, we believe, as that proposed by Sicard and Canteloube,[1] and it is with the purpose of presenting their excellent method that this paper is written. Little attention seems to have been drawn to the simplicity and practical value of the ingenious quantitative determination which they have ingeniously devised, and it seems not to have come at all into use in this country.

DESCRIPTION OF SICARD AND CANTELOUBE'S METHOD

A long glass tube of thick caliber, measuring 19 cm. in length and 7 mm. in interior diameter, is employed. It is graduated in its lower two thirds into four equal parts, each being 1 c.c. The last two of these divisions are graduated into five equal subdivisions. Exactly 4 c.c. of spinal fluid is poured into the tube, filling it as far as the 4 c.c. mark. The tube is then heated over the flame of an alcohol lamp to from 60 to 80 C. As soon as it is removed from the flame, 12 drops of 33⅓ per cent. trichloracetic acid is added. The tube is placed in the upright position and allowed to remain quiet for five minutes. A cork is inserted into the tube at the end of this time, and it is inverted two or three times. It is now allowed to remain quiet in a strictly vertical position for from five to twenty-four hours, at the end of which time the reaction is complete.



Sicard and Canteloube rachidian albuminometer.

The quantity of albumin is read as follows: A precipitate reaching to the first subdivision of the lower 1 c.c. equals 0.22 gm. per liter; to the second, 0.40 gm.; to the third, 0.56 gm.; to the fourth, 0.71 gm., and to the fifth, 0.85 gm. per liter.

When the trichloracetic acid is added to the heated fluid, a flocculent precipitate usually forms, and is the more intense, the greater the amount of albumin present. Usually within one hour there has been a sufficient sedimentation to make a rough estimation of what the ultimate reading will be.

The amount of albumin in the spinal fluid normally does not exceed 0.30 gm. per liter.

At the Kingston Avenue Hospital, we have been employing the method of Sicard and Canteloube, and have had special tubes made with the necessary markings on them, as in the accompanying illustrations. The method has been simple and easily carried out, and the results are of definite value as an additional check on the cytologic and rough qualitative globulin and albumin reactions in the differentiation of normal and pathologic fluids.

* From the Kingston Avenue Hospital, Department of Health, New York City; Dr. Frank J. Monaghan, commissioner of health.

1. Sicard and Canteloube: Rachialbuminimetrie, Presse méd. **242**: 388 (Aug. 31) 1916.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

ETHYL SALICYLATE (See New and Nonofficial Remedies, 1923, p. 272).

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Congenital Propensities to Crime.—The problem of the born criminal, however, is not answered and ended by a survey merely of hereditary conditions. What is inherited is necessarily inborn; but what is inborn has not necessarily been inherited. It is quite conceivable that a child may be afflicted with congenital propensities, without those propensities having first emerged in the previous history of his family.—Cyril Burt: *Brit. J. Med. Psychol.* **3**:16, 1923.

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SATURDAY, OCTOBER 13, 1923

INDEXES OF NUTRITION

An intelligent reader of the popular magazines of the day, or an observer of the trend of current activities in the field of social welfare, cannot fail to note the lively interest that is being devoted to the problems of nutrition in childhood. The enthusiasm for the subject should be counted as fortunate. The World War, in particular, directed attention most forcibly to the importance of physical fitness for our national life. A recent writer [1] has described, as the "dramatic sequence of events" attending army recruiting, the rejection of great numbers of young men because of physical defects, the raising to maximum physical well-being of the men in training through the carefully regulated routine of the camp, and now the third stage of the object lesson, the waning of that standard of well-being among the men mustered out as they go back to the daily occupations and ill-regulated regimen of American private life. The same writer has stressed the inadequacy of such limited lines of attack as military training and athletic programs, on the one hand, and the traditional activities of medical and welfare agencies, on the other.

If, as many believe, the problem of malnutrition among school children plays an important part in this general health problem, and if improper nourishment is largely responsible for ills and weaknesses in later life, the interest that the existing conditions among the children of the nation has awakened is well justified. Malnutrition is no longer considered to be exclusively an outcome of poverty or bad environment. It may be found among the well-to-do as well as the poor. There are convincing indications that the fundamental causes of malnutrition are more often concerned with the status of the individual than with group conditions, social strata, or racial factors. This means, therefore, that the efforts for improvement must often be concentrated on individuals rather than on classes. Norms or standards of what is an adequate physical condition of children at different ages must be established so that deviations can be recognized and deficiencies remedied as far as possible. The essentials of health and proper development should then be attainable in the home of almost every family.

Proposals for such standards have, indeed, not been lacking. Striking deviations are always easily recognized; but the borderline cases are not so readily designated. The varied indexes of nutrition heretofore proposed have been quite unlike. Some have taken age as the basis on which to compute normal weight; some have attempted to establish norms of height for age; others have dealt with weight for height; still others with the relation of trunk length—the sitting height—to body weight. The enthusiasts who have supported one or another of these "systems" of evaluating physical fitness as evidenced by growth have been quick to apply them with mathematical rigor to the individual child. Whenever the latter gave measurements that fell below the particular average adopted by the examiner, the adolescent was promptly consigned to the category of "unfit" or "below par." One group of investigators among school children has frankly admitted, in a recent report [1] on standards of growth, that the ability to evaluate results from their successive programs of experiment has been rendered problematic by the existing limitations of knowledge as to standards and laws of growth, and that a considerable amount of research must be completed in this field before the evaluation of returns from the health program can be placed on a scientific basis. Seasonal variations and possible climatic factors affecting them may demand recognition. The effect of racial stocks may require more detailed consideration.

The timeliness of more adequate investigations and search for practical, dependable indexes of physical fitness is indicated in a recent report from the U. S. Public Health Service.[2] The members engaged in the study have put some of the "standards" to a direct test in a group consisting of more than 500 children who, on medical examination, have been found free from defect and in satisfactory physical condition. Three standards of weight were applied to them. It was found that, according to the Wood standard (height-weight-age tables), 20 per cent. of these children were more than 10 per cent. underweight; according to Dreyer's standard (stem length and chest circumference tables), 13 per cent. of the children were more than 10 per cent. underweight; and according to Pirquet's pelidisi method, 17 per cent. had pelidisis of 94 or less and were underweight according to this standard. Out of 506 children, about 200 were classed as underweight by one or more of the three standards used; of these, all three standards agreed on fifteen cases as being underweight.

Shall we conclude that so many children selected as the best specimens of health that could be found in representative school districts are in truth underweight?

1. Hunt, Jean Lee; Johnson, B. J., and Lincoln, Edith M.: Health Education and the Nutrition Class, New York, E. P. Dutton & Co., 1921.

2. Clark, Taliaferro; Sydenstricker, Edgar, and Collins, S. D.: Indices of Nutrition, Pub. Health Rep. **38**: 1239 (June 8) 1923.

Such a decision, involving one fifth of the school population there, seems somewhat appalling. It is probably fairer to infer that, instead of applying such standards too rigorously, we should await more information, as one report insists, to place both corrective work for malnutrition and general procedures in health education on a more secure scientific basis. However, a mediocre average—the mere attainment of a uniform "standard" of excellence—should not be the goal of American public health effort. As the same report points out, the susceptibility of the average family and racial standards to improvement is a fact that has yet to become a part of national and individual thinking. Even a few years, however, may bring radical changes in our conceptions as to the possibilities of such improvement.

MECHANISM OF THE VESICANT ACTION OF MUSTARD GAS

Extraordinarily efficient and impressive as a weapon in war, mustard gas, or dichlorethylsulphid, remains an object of scientific study in peace. Mustard gas and other more recent compounds may become important weapons in some future conflict; hence the importance of keeping informed of recent developments along this line.

Pharmacologically, the chief item of interest in mustard gas is the nature of its vesicant action. Without a knowledge of this, an adequate protection against burns produced by it, and rational treatment of these burns, become mere empiricism. The unsettled state of our knowledge regarding the mechanism of the vesicant action was pointed out in these columns some time ago.[1] Certain American investigators (Marshall and others [2]) had contended that the fundamental mechanism is in the nature of an intracellular acidosis due to the liberation of hydrochloric acid in virtue of the lipoid solubility of the compound, and ready decomposition in water. This explanation was unacceptable to German war gas investigators,[3] who regarded the blistering action as due to the entire mustard gas molecule, in which the active sulphur might be a factor. In this they appear to be sustained by the recent work of Peters and Walker [4] of the Biochemical Department of Cambridge University.

The English investigators tested the acid theory by noting the vesicant properties of chemically analogous and lipoid-soluble substances that split off acid either at the same rate as mustard gas or faster, and of analogous substances that split off acid much more slowly than mustard gas, and should be either nonvesicant or much less vesicant. Of a series of six compounds that were used in the tests, only two were found to be vesicants, and these represented the extremes of the rate of acid production. The two blistering compounds were mustard gas (dichlorethylsulphid), whose rate of acid liberation was 100, and dichlorodiethyl sulphone, whose rate was 1, or one-one hundredth that of mustard gas. The remaining four compounds were nonvesicant; but the rate of acid liberation of one (dichlorodimethyl sulphid) was 500, of another (tetrachlorodiethyl sulphid), 4, and of still another (hexachlorodiethyl sulphid), 1. The trichlorodiethyl sulphid did not liberate acid and was nonvesicant. The results of Peters and Walker indicate the danger of too free generalization from inadequate data. If acid liberation caused vesication, the dichlorodimethyl sulphid, which liberated acid at the highest rate, should be a very powerful blisterer; but this was not the case. A 1 per cent. concentration of sodium chlorid, which exists in living cells, was found to slow markedly the acid liberation from the dichlorodiethyl sulphone. Hence, in the cell the sulphone would not split off acid at all, and yet this compound was definitely vesicant. From these evidences, which show that vesicant action and rate of acid liberation do not run parallel, Peters and Walker were forced to conclude that the theory of intracellular acidosis is untenable and must be dismissed.

In lieu of the acid theory, the English investigators suggest that the chlorin-containing compound itself in the nonhydrolyzed condition is responsible for the vesicant action. From the facts that both mustard gas and mustard oil contain sulphur and act as vesicants, they suggest that it is the unhydrolyzed molecule that is the vesicant agent, and that the presence of a reactive sulphur atom has an important bearing on the vesicant power of these substances.

It is obvious that the matter of solving the mechanism of vesicant action by mustard gas and related compounds is one of considerable difficulty. The burden increases as we reflect on the inadequacy of our knowledge of the physiology and pathology of the skin and accessory structures. For instance, the existence of a causal relation between the inhibition of vasodilator axon reflexes (by cocain and nerve degeneration) and the inflammatory action of mustard oil on conjunctiva and skin, demonstrated by Spiess [5] and Bruce,[6] had been accepted for some time as definitely established; but, according to the recent studies of Hirschfelder,[7] this alleged relation appears to have been based on a misinterpretation. At any rate, attempts at correlation of chemical constitution and vesicant action are premature, especially when the diversity of vesicant and skin-burning substances, unrelated chemically, is borne in mind.

1. Unsettled Status of Intracellular Acidosis in Mustard Gas Poisoning, editorial, J. A. M. A. **78**: 1129 (April 15) 1922.
2. Marshall, E. K., Jr.: Mustard Gas, J. A. M. A. **73**: 684 (Aug. 30) 1919. Marshall, E. K., and Williams: Toxicity of Skin Irritant Effect of Certain Derivatives of Dichloroethylsulphide, J. Pharmacol. & Exper. Therap. **16**: 259 (Nov.) 1920. Lynch, V.; Smith, H. W., and Marshall, E. K.: Mustard Gas, II, Variations in Susceptibility of Skin to Dichloroethyl Sulphide, J. Pharmacol. & Exper. Therap. **12**: 291, 1918.
3. Magnus et al: Ztschr. f. d. ges. exper. Med. **13**: 579, 1921.
4. Peters, R. A., and Walker, E.: Rate of Liberation of Acid by BB'Dichlorodiethyl Sulphide and Its Analogues in Its Relation to the "Acid" Theory of Skin Vesication, Biochem. J. **17**: 260, 1923.
5. Spiess, G.: Die Bedeutung der Anesthesia in der Entzündungstherapie, München. med. Wchnschr. **53**: 345, 1906.
6. Bruce, A. N.: Ueber die Beziehung der sensiblen Nervenendigungen zum Entzündungsvorgang, Arch. f. exper. Path. u. Pharmakol. **63**: 424, 1910.
7. Hirschfelder, A. D.: The Effect of Local Anesthetics upon the Conjunctivitis Caused by Mustard Oil, Proc. Soc. Exper. Biol. & Med. **20**: 508, 1923.

SOME BIOCHEMICAL PROBLEMS RAISED BY THE DISCOVERY OF INSULIN

The most immediately observable change following the administration of insulin is a reduction in the glucose concentration of the blood. Hypoglycemia ensues unless the dosage is most carefully regulated. The undue reduction of the sugar content of the blood is itself a symptom of menacing character which, in turn, can be combated by the administration of readily assimilable carbohydrate. It requires little insight into the scientific problems involved to appreciate that the cause of the disappearance of blood sugar after insulin administration urgently demands an explanation. The biochemists and physiologists have been quick to perceive this, and many laboratories are already attempting to solve the questions presented.

Several possibilities at once suggest themselves. The hypoglycemia following insulin administration might be due to increased destruction of the sugar in the blood stream itself. If this were the case it would harmonize with the observations, recently discussed in THE JOURNAL,[1] indicating that glycolysis is much more active in normal blood than in that of persons suffering from fairly severe diabetes. The experiments of Eadie, Macleod and Noble[2] at Toronto force us, however, to seek a different explanation. The addition of insulin to the defibrinated blood of the rabbit and dog does not affect the rate of glycolysis in vitro. This was true not only of normal blood, but also of blood removed from these animals after the injection of insulin, both when the blood was removed within a few minutes after the insulin had been injected and when it was removed after the hypoglycemia had become pronounced. Furthermore, the Toronto physiologists were unable to demonstrate that insulin affects the rate of glycolysis in mixtures of blood or saline solution, and chopped muscle or muscle juice, or even suspensions of leukocytes. They conclude, therefore, that when insulin is injected into an animal it must pass from the blood through the capillaries into the tissue cells and cause in them a rapid disappearance of glucose—a vacuum for this substance, as it were—with the result that glucose also is removed from the blood at a rate that is greater than can be made good by a new production of glucose from the glycogen reserves.

Glycolysis involves the destruction of sugar. It is conceivable, however, that the latter disappears from the circulation not through a process of destruction but by storage through conversion to a more complex compound no longer giving the reactions of glucose. The sugar would then not be burned and leave the body as carbon dioxid and water, but might be deposited as glycogen in one or more of the storage organs for this substance. The recent experiments by Dudley and Marrian[3] at the National Institute for Medical Research in England negative this explanation also. Not only is sugar not stored in this manner, but the livers of normal animals that have received sufficient insulin to bring them to the verge of hypoglycemic convulsions contain very little glycogen. It appears, in fact, that as soon as the blood sugar falls to a certain level, the liver mobilizes its glycogen and pours glucose into the blood stream, in an effort to maintain an adequate concentration of sugar there. The glycogen of the skeletal muscle behaves similarly. There is no evidence of a conversion of carbohydrate into fat in normal animals under the influence of insulin. How, then, do the tissue cells cause glucose to disappear under the influence of insulin?

1. Glycolysis in Diabetes, editorial, J. A. M. A. **81**: 835 (Sept. 8) 1923.
2. Eadie, G. S.; Macleod, J. J. R., and Noble, E. C.: Insulin and Glycolysis, Am. J. Physiol. **65**: 462 (Aug.) 1923.

Current Comment

OIL POLLUTION OF WATERS AND PUBLIC HEALTH

Pollution by oil on the coast waters, with consequent injury to riparian property, can be virtually prevented, according to the preliminary report of a special committee that has been working on the problem for the Bureau of Mines. The remedies suggested by the committee include the installation of devices on ships to prevent egress of oil waste, the provision of barges or other receptacles in harbors to take on necessary refuse, and the control of waste from stream-side industrial plants. The study of the origin of oil in coastal waters showed the principal sources to be: (1) oil swept in from outside the three-mile limit; (2) oil-contaminated waters and oily material from oil-burning ships; oil refuse from ship repair yards; (3) oil waste and oil-water mixtures from refineries and oil fields; (4) tarry matter or heavy oil from gas plants; (5) oil waste from sewers, and (6) oil pollution from streams adjacent to and connected with coast and harbor waters. The report shows a definite relationship between oil pollution and public health. The menace to health of oil thrown into the water includes: "(1) the discouragement of healthful recreation, such as bathing, boating, fishing and hunting; (2) its effect in rendering clams, oysters and other sea food unfit to eat on account of the oil actually absorbed by this food; (3) the unsightly appearance which may result from the presence of oily refuse in any locality, accompanied by the tendency to lower hygienic standards of the community; (4) the possible preventing or retarding of the normal oxidation of sewage; (5) skin diseases or irritations which are believed to be the result of contact with oil and oily residues; (6) the odors that may be given off directly by oil and oily matter when deposited on the shores and banks of streams; obnoxious odors from accumulated fecal matter resulting from retarded oxidation of sewage." The report, which is signed by F. W. Lane of the Bureau of Mines (chairman); A. D.

3. Dudley, H. W., and Marrian, G. F.: The Effect of Insulin on the Glycogen in the Tissues of Normal Animals, Biochem. J. **17**: 435, 1923.

Bauer, oil expert of the bureau; H. F. Fisher, representing the American Petroleum Institute, and P. N. Harding, of the American Steamship Owners' Association, is a thoroughly worked out, authoritative document. No doubt it will stimulate action in various communities toward remedying the unhealthful conditions to which it calls attention.

THE SUPRARENAL CORTEX AND EPINEPHRIN

The suprarenal structures are essentially double organs. The medullary portions are of sympathetic nervous origin and are frequently defined as "chromaffin" tissue because they give histologic reactions with chromic acid in common with a variety of other structures, such as the sympathetic ganglions. It is from the medulla of the suprarenal that epinephrin has been isolated, so that attention has been centered largely on this part of the gland. The cortex is quite different in character; its functions have remained obscure, although some physiologists have asserted that it is essential for life. It has been argued that only animals with accessory suprarenals that contain cortical substance withstand ablation of the suprarenals proper, presumably because the rest of the chromaffin tissue in the body remains to compensate. Recently, however, there have been indications that the suprarenal cortex may produce epinephrin.[1] Hartman of Buffalo, in particular, has observed that any condition that calls forth a marked increase in the epinephrin output for a considerable period of time seems to affect the cortex. This might be due to an excessive activity of the cortex in producing epinephrin. The latter does not accumulate in the cortex; nevertheless it may be manufactured there and then transferred to the medulla, which is notably rich in the hormone. The crucial test—the chemical isolation of epinephrin from suprarenals deprived of their medullary tissue—has not yet been made. Meanwhile, the suprarenal cortex has assumed new possibilities of physiologic moment.

THE AFTERMATH OF ABRAMS' VISIT TO MEXICO

Albert Abrams' visit to Mexico, at the invitation of a Mexican politician and a potential candidate for the presidency, was recently referred to in these pages. While Abrams was in Mexico one of the best known physicians of that country, Dr. A. Brioso Vasconcelos, editor of the *Gaceta Médica de México* and a well-known sanitarian, challenged Abrams' claims. We now learn, according to the official organ of the Mexican Medical Association, that Dr. Vasconcelos' resignation as a member of the Superior Board of Health has been called for. Our Mexican contemporary says that while Dr. Vasconcelos does not suffer any personal loss on this account, as he is a successful practitioner, the national health department suffers a serious loss through the ousting of one of its most active and competent workers. The journal also emphasizes the viciousness of playing politics with the people's health, for Dr. Vasconcelos' enforced resignation is generally attributed to his criticism of Abrams. The Board of Officers of the Mexican Medical Association sent a protest to the authorities expressing disapproval of their confrère's dismissal. The medical profession of our sister republic is, moreover, strongly behind Dr. Vasconcelos and approves the attitude he took. The official organ of the profession of Mexico, in commenting on the matter says:

> When in all civilized countries sanitary authorities are engaged in fighting quackery, must it be said of Mexico that a competent physician was dismissed from his position because of his having dared to challenge a quack? We can hardly believe such a measure was approved by those who should control the Department's policies.

1. Hartman, F. A., and Hartman, W. E.: The Production of Epinephrin by the Adrenal Cortex, Am. J. Physiol. **65**: 623 (Aug.) 1923. Cramer: J. Physiol. **52**: 8, 13, 1918.

BIRDS OF A FEATHER—AND A MAN IS KNOWN BY THE COMPANY HE KEEPS

The city of Chicago has been singularly blessed during the last few months by the annual conventions of all the variegated assortment of peculiar practitioners. There have been conventions of naturopathy, of medico-physical research and of physical therapeusis, and the allied practitioners and what not are in the offing. Strangely, when one comes to consult the programs of these organizations one discovers, freely intermingled with those practitioners who diagnose and treat disease by colored lights, spinal adjustments, so-called autohemic therapy and the "electronic reactions" of Abrams, as well as by soul science, medico-radio-vibrations and zonotherapy, the names of a few physicians whose names heretofore have been associated only with decent medicine. When a program is predominantly devoted to the delusions of the enthusiast and the vagaries of the quack, physicians with reputations to lose might consider well whether or not they care to associate with such a group.

THE EYE AND THE AUTOMOBILE

THE JOURNAL has commented several times on the necessity of good eyesight for the drivers of motor vehicles, for there is no doubt that many accidents are definitely related to weakness or abnormality of vision. Another side of the relationship of the eye to the driving of motor vehicles is brought forth in a bulletin just issued by the National Committee for the Prevention of Blindness. This committee reports that, next to industrial accidents, motor vehicle accidents caused the greatest number of eye injuries during September, agricultural accidents ranking third and the accidental explosion of guns fourth. From August 1 until October 1, 590 serious eye accidents had been reported to the National Committee in the course of an investigation as to the number and causes of all accidents affecting the eye. In forty cases there was a total loss of both eyes and in 167 cases complete loss of one eye. Industrial accidents caused 198 injuries, automobile accidents, sixty-three, and agricultural accidents, forty-six. The relation of eye accidents to sport is indicated by the fact that during these two months eleven serious

injuries to the eye were caused by baseballs, six by golf-balls, five by bursting automobile tires and one by football. Wood alcohol, which has received great publicity as a cause of damage to the eye, caused six cases of blindness. It is, of course, understood that these statistics are not complete. They represent cases voluntarily reported to the National Committee by cooperating institutions and physicians. No doubt, a complete census of such accidents would confirm the relative importance of the various causes mentioned.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Mild Case of Plague.—The case of bubonic plague reported in THE JOURNAL, October 6, p. 1212, originated in Monterey County. The attack was mild, Dr. W. H. Kellogg of the state board of health announces, and the patient, an American, has fully recovered.

DISTRICT OF COLUMBIA

Donation to Medical Museum.—Dr. James Moores Ball, Jr., St. Louis, has presented his collection of ophthalmic specimens to the Army Medical Museum, Washington. The collection includes a large number of original drawings of external ocular diseases, photographs, pathologic preparations of eye diseases, microscopic sections, eye instruments, rare ophthalmic literature, copies of well known ophthalmic atlases and many portraits of past leaders in ophthalmology.

GEORGIA

Illegal Practitioner Fined.—According to reports, Frank M. Welch, Atlanta, recently sentenced in federal court to one year and a day in the federal penitentiary for sending non-mailable matter through the mails, was found guilty, September 27, of practicing medicine without a license. He was sentenced to pay a fine of $500 and to serve twelve months with the chain gang. Judge Humphries announced that if Welch paid the fine, the chain-gang sentence would be suspended.

ILLINOIS

Automobile Rivals Diphtheria.—As a cause of death in Illinois, the automobile now rivals diphtheria and greatly outranks a long list of other common diseases, according to the state health department. Of the communicable diseases, only pneumonia, tuberculosis and infantile diarrhea accounted for greater mortality than automobile accidents.

Personal.—Dr. Gertrude E. Moulton, Urbana, for the past four years physical adviser to women at the University of Illinois, has been appointed head of the department of physical education at Oberlin College. Dr. Maude L. Etheredge, head of the women's division of student health service, Cornell University, has been appointed to succeed Dr. Moulton at the University of Illinois.——Dr. William E. Rice, Tuscola, has gone to Raton, N. M., where he will have charge of the new tuberculosis sanatorium.

Chicago

Illegal Practitioners Fined.—James E. Brown and Mrs. Eva Dallas, according to reports, were each fined $100 and costs, October 5, when they pleaded guilty to practicing medicine without a license. The couple operated a "cancer cure" and, it was said, had charged patients from $55 to $300 for "treatment."

Founders' Day at Northwestern.—Northwestern University Medical School celebrated Founders' Day, October 2. Dr. Emilius C. Clark, emeritus professor of gynecology, Northwestern University Medical School, recently of Peking Union Medical College, gave an address on "My Impressions of China, Medical and Otherwise." The exercises marked the sixty-fourth anniversary of the institution. Dean Kendall spoke on the significance of Founders' Day.

Society News.—A meeting of the Chicago Pathological Society was held, October 8, under the presidency of Dr. Lydia M. DeWitt. Dr. H. Gideon Wells gave an address on "Leiomyoma of the Stomach with Fatal Outcome."——Prof. Hans Finsterer, Vienna, will be the guest of the Chicago Medical Society, October 17, at the first scientific meeting of the season. The next regular meeting of the Chicago Orthopedic Club will be held November 7. Moving pictures of orthopedic operations will be shown, and Dr. John Ridlon will preside.

Medical Regiment Organized.—Recruiting to full strength of the One Hundred and Eighth Medical Regiment of the Thirty-Third Division is progressing daily, it was announced, October 1, by Col. Harry D. Orr. Twenty-five officers and 200 men are needed before the regiment can be federalized. Training in medicine or pharmacy is not essential to become a member. The full regiment will consist of a field hospital, two ambulance companies, a sanitary company, headquarters section, medical supply section, medical laboratory section, dental section and veterinary company.

INDIANA

Study of Malnourished Children.—In a study of 6,150 children at Gary, the children's bureau of the U. S. Department of Labor, Washington, D. C., found undernourishment and physical defects in a large percentage of the children, it was announced, September 29. The Gary study is the first investigation by the bureau of the "neglected age of childhood"—between babyhood and school. Less than 10 per cent. of the children studied were receiving diets that appeared adequate to their needs; 29.2 per cent. had diets whose inadequacy was highly questionable, and 60.5 per cent. of the entire group had diets plainly incapable of supplying their bodily requirements. Only 18.9 per cent. of all the children were getting a pint of milk a day, and 57.6 per cent. had no milk at all. Two thirds of the group were found to drink coffee habitually, and 40 per cent. to have it more than once a day. Vegetables, fruits, cereals and eggs were likewise conspicuously lacking. Following a physical examination, 64.7 per cent. were found to have decayed teeth, while 14.9 per cent. had bone defects as the result of inefficient diet. Only 4.8 per cent. had no defects at all.

IOWA

Medical Meeting.—At the meeting of the Southwestern Iowa Medical Society in Leon, September 20, the following officers were elected: president, Dr. Fred A. Bowman, Leon; vice president, Dr. John C. Parsons, Creston, and secretary, Dr. Jesse S. Coontz, Garden Grove. Dr. Frank E. Sampson, Creston, field secretary of the state medical association, gave an address.

University News.—The department of theory and practice of medicine of the State University of Iowa Hospital, Iowa City, has just completed a course for physicians in dietetic regulation and insulin therapy. Twenty-three physicians from various parts of the state took the course. A second course will be given at a later date.——The social service department of the University Hospital has increased its staff by five workers.

LOUISIANA

Hospital News.—St. Luke's Hospital, New Orleans, purchased by Mrs. L. M. Soniat as a memorial to her husband, was formally turned over to the Sisters of Mercy, October 1. The institution will be readapted for the care and treatment of charity patients.

Dr. Callan Indicted.—Dr. John Callan, health officer of New Orleans, was indicted on two counts, September 28, by the Orleans Parish grand jury, as the result of his alleged failure to take immediate steps to have two persons suffering from leprosy isolated (THE JOURNAL, September 29, p. 1119).

MAINE

Medical Examiners Appointed.—Governor Baxter has appointed the following physicians as medical examiners: Royce B. Josselyn, Portland; Charles D. North, Rockland; Irving E. Mabry, Bridgton, and Horatio W. Frohock, Rockland.

Hospital News.—The residence of Dr. James H. Shannon, Saco, has been purchased under the will of Mrs. Lucia Kimball, Boston, as the site for a hospital, to be known as the Kimball Hospital, in memory of Dr. J. E. L. Kimball, for many years a practicing physician in Saco. The sum of $131,000 was left for this purpose.——Another story will be added to the main administration building of the Central Maine General Hospital, Lewiston, at an estimated cost of $25,000.

MARYLAND

Health Officers Appointed.—Dr. C. Hampson Jones, commissioner of health for Baltimore, has appointed the following health officers: Dr. Leon Ginsberg, for the public schools, and Dr. Joseph Sindler, to replace Dr. Augustine Palmisano, relieved from duty because of illness.

Medical Society Endorses Plan for Insane.—At a meeting, October 5, the Baltimore City Medical Society adopted resolutions urging a ten-year program of expansion of the state insane hospital system. This program will provide for 1,900 new beds in the various state hospitals, raising the capacity from 4,100 to 6,000, and will mean an expenditure of at least $2,000,000. A psychopathic reception ward will be established at the Spring Grove State Hospital, which would receive all of the new admissions from Baltimore and result in closing the department for the insane at Bay View.

Improvements at Penal Institutions.—Extensive improvements at the Maryland Penitentiary and the Maryland House of Correction have been considered by the board of welfare (THE JOURNAL, October 6, p. 1213). A medical program outlined several months ago by a committee of which Dr. Francis L. Dunham was chairman resulted in the appointment of Dr. Milton C. Lang as resident (intern) physician at the penitentiary and the resignation of Dr. William F. Schwartz, a part-time physician there. The institution now has a day and night resident physician, two trained nurses, and a social worker.

MASSACHUSETTS

The Cutter Lecture.—The first Cutter lecture of the season will be delivered at the Harvard Medical School, Boston, October 17, by Sir Arnold Theiler, director of veterinary education and research, Union of South Africa, and professor of animal pathology, University of South Africa. His subject will be "Phosphorus Deficiency in Animals: Its Effects and Prevention."

Changes in the Faculty of Harvard Medical School.—The administrative board for the Harvard Medical School, Boston, for the coming year will consist of President Abbott L. Lowell, Dean David L. Edsall, ex officio chairman, Profs. Algernon Coolidge, Hans Zinsser, New York, Harvey Cushing, Reid Hunt, Simeon Burt Wolbach, Walter B. Cannon, Charles M. Campbell and Francis W. Peabody, and Associate Profs. John L. Bremer, William Worth Hale and Kenneth D. Blackfan. Dr. Harris P. Mosher, formerly assistant professor of laryngology, has been promoted to a full professorship, and Dr. Stanley Cobb has been appointed professor of neuropathology. Dr. Andrew W. Sellards, assistant professor of tropical medicine, and Dr. Marshall Fabyan, assistant professor of comparative pathology, have been reappointed for a three-year term. In the Harvard School of Hygiene and Public Health, Dr. Cecil K. Drinker, formerly associate professor of physiology, has been appointed to a full professorship.

MICHIGAN

Upper Penninsula Medical Society.—At the annual meeting of this society at Iron Mountain, August 22-23, Dr. Joseph A. Crowell, Iron Mountain, was elected president, and Dr. Charles E. Ennis, Sault Ste. Marie, vice president. Drs. Benjamin F. Lounsbury, Chicago, Arthur M. Hume, Owosso, Beverly D. Harison, Detroit, and Guy L. Connor, Detroit, were among the visiting physicians who attended the meeting.

Medical Reporting Law Declared Invalid.—In the suit brought against Dr. Curtis T. Wolford, Grand Rapids, for failing to report to the state health department the name of a patient he had treated for venereal disease, Judge Leonard Verdier in the superior court, September 18, ruled that the law making health officers who fail to report cases of private diseases guilty of a misdemeanor, was unconstitutional, as the objective of the act was not fully expressed in the title. Dr. Richard M. Olin, Lansing, state health commissioner, announced, September 20, that he will take up, with the state health council, the question of seeking an amendment to the law or adoption of a new law to remedy the defects in the title of the present law. The subject was previously placed before the state medical society by Dr. Udo J. Wile, professor of dermatology, University of Michigan Medical School, Ann Arbor, who stated that he and his colleagues felt that it was impossible to expect members of the medical profession to obey the requirement of the health commissioner that they reveal names of their patients suffering from venereal disease. He stated that the state authorities had refused to agree to a change to the rule that would permit the cases to be reported by number instead of by name.

MISSOURI

Hospital News.—The residence recently purchased by Dr. Robert R. Ellis, Kirksville, at 819 East Illinois Street, will be equipped as a fifteen-bed hospital with roentgen-ray and operating rooms.——Dr. William D. Sample has purchased a residence on Merchant Street, Ste. Genevieve, which will be remodeled and used as a hospital.——The South Side Hospital, Carrollton, has been reopened. Dr. Robert M. Benson is in charge.

Insulin Courses at St. Louis.—The enrolments for courses in the dietetic and insulin treatment of diabetes, which are being given at the Barnes and St. Louis Children's hospitals. are filled for the periods beginning October 1 and October 15. There are vacancies in the course beginning October 29. Applications have been received not only from places in Missouri but from Kansas, Iowa, Texas, Oklahoma, Nebraska, Illinois and Minnesota. In view of the interest shown, it has been decided to give courses November 12-14, November 26-28, December 10-12 and December 27-29, inclusively. Physicians desiring to take these courses should write to the superintendent of Barnes Hospital, 600 S. Kingshighway, St. Louis.

NEBRASKA

Joint Medical Meeting.—A joint meeting of the Interstate Society of Radiology and Physiotherapy and the Missouri Valley Medical Society was held at Omaha, September 18-21. The name of the former society was officially changed to the American College of Radiology and Physiotherapy. Dr. Samuel B. Childs, Denver, was elected president, and Dr. Roy W. Fouts, Omaha, secretary-treasurer. Dr. Floyd H. Spencer, St. Joseph, Mo., presided over the sessions of the thirty-sixth annual meeting of the Missouri Valley Medical Society. Dr. William T. Wootton, Hot Springs, Ark., delivered the oration on medicine. Officers were elected as follows: president, Dr. Henry J. Lehnhoff, Lincoln; vice presidents, Drs. Palmer Findley, Omaha, and Joseph C. Waterman, Burke, S. D.; treasurer, Dr. Oliver C. Gebhart, St. Joseph, Mo., and secretary, Dr. Charles W. Fassett, Kansas City, Mo. Des Moines was selected for the next meeting.

NEW JERSEY

Memorials to Physicians.—The Kiwanis Club, Atlantic City, has presented the Atlantic County Hospital for Tuberculosis, Pleasantville, with a solarium for children, to be known as the Munro Memorial Solarium, in memory of Dr. Henry C. Munro, who died in September, 1922. At the time of his death, Dr. Munro was superintendent of the Atlantic County Hospital for the Insane, Northfield.——The board of trustees of the state medical society has ordered a tablet to the memory of the Rev. Robert McKean, M.D., the founder and first president of the Medical Society of New Jersey, to be erected in St. Peter's Episcopal Church, Perth Amboy, and to be unveiled at the two hundred and twenty-fifth anniversary celebration of the church, November 4. Dr. McKean was formerly rector of the church and a practitioner in Perth Amboy in 1766.

NEW YORK

Sale of Drugs Forbidden.—The department of health of New York City has adopted a section of the Sanitary Code that prohibits the sale at retail of veronal, veronal sodium, luminal, luminal sodium, sulphonal, trional, or tetronal except on the written prescription of a licensed physician. Since the adoption of this regulation few, if any, deaths have been traced to these drugs.

University of Buffalo.—Instruction in the sciences fundamental to dentistry will be given at the University of Buffalo hereafter in the departments of anatomy, biochemistry, pathology, pharmacology and physiology of the school of medicine. To care for this work in the department of anatomy, of which Prof. Wayne J. Atwell is head, the following additions have

been made to the staff: Dr. Rufus R. Humphrey, formerly of Cornell University, New York, associate; Walter F. Greene, Yale University, New Haven, Conn., associate, and Ernest B. Hanan, University of Missouri, St. Louis, instructor.

New York City

Academy of Medicine Increases Membership.—At the first stated meeting, October 4, an amendment to the constitution of the New York Academy of Medicine was adopted providing for an increase in the number of fellows residing in New York from 1,400 to 1,450, and of the number not residing in the city to 300.

Lepers at Clinics.—Eight lepers from Riverside Hospital, North Brother Island, were presented as typical cases of leprosy at the dermatologic clinics held at the New York Academy of Medicine, October 2. The eight, four Chinese, three Greeks and one Dutch Guianian, had been found in the city or trying to enter the country within the past two months. They are in isolation until they can be deported or transported to the government leprosarium at Carville, La.

The New York City Cancer Institute.—This institute, which has been established by Bird S. Coler, commissioner of public welfare, as a part of his department, for the benefit of the poor of New York City, is now in full operation. The clinic division of the institute is located on East Fifty-Ninth Street, where ambulatory patients can be seen from 2 to 4 p. m. daily. The hospital division of the institute is located on Welfare Island. Beginning with October, 1923, there will be held at the clinic building clinical conferences at which unusual cancer cases will be presented. If physicians who desire to take part in the conferences will send their names and addresses to the institute, they will receive notices of the meetings. The institute is equipped to care for 200 or more cancer patients at the same time. Dr. Isaac Levin, director of the institute, is being assisted by Dr. John D. Fitzgerald, Dr. Walter H. Conley and Dr. Charles B. Bacon.

OHIO

Society of Clinical and Laboratory Diagnosis.—At the recent meeting of the Ohio Society of Clinical and Laboratory Diagnosis in Columbus, the constitution and by-laws were adopted, and complete organization was accomplished. Dr. Thomas L. Ramsey, Toledo, was elected president, and Dr. James B. Rucker, Jr., Toledo, secretary-treasurer. The next meeting of the society will be held at the same time as the annual meeting of the state medical association in Cleveland in 1924.

Criminal Identification Law.—A law passed by the last session of the Ohio state legislature, fostered by Dr. Charles F. Clark, Columbus, and sponsored by the Columbus Academy of Medicine, has resulted in the establishment of the Central Bureau of Criminal Identification. The bill provides the administrative machinery necessary to gather, compile and tabulate records of criminals arrested within the state and elsewhere, through the cooperation with other Bertillon departments. Previously, various cities in the state had files of criminal records for their own use, but the usefulness of the files was limited to local fields. In the future, police officials of all cities and communities in Ohio will be required to take the finger prints and other records of all persons arrested on felony charges. These records are to be forwarded immediately to the central bureau.

Public Health News.—The fourth annual conference of Ohio health commissioners, to which all members of the Ohio medical profession are invited, will be held at Columbus, November 19-23. A full attendance of health commissioners is required by the director of health. A health exposition will be held in conjunction with the meeting. Topics for discussion will be: "The Campaign of Diphtheria Prevention," "The Value of the Periodic Health Examination," "Methods of Conducting and Evaluating County Health Work," and "The Fundamentals of Public Health Nursing." Among the speakers will be Dr. William H. Park, Dr. George E. Vincent and Dr. Haven Emerson of New York City; Dr. Leslie L. Lumsden, Washington, D. C., assistant surgeon general of the U. S. Public Health Service, and the state health commissioners of Indiana, Kentucky, West Virginia, Pennsylvania and Michigan.——At the thirty-third annual meeting of the Ohio Welfare Conference to be held at Lima, October 16-19, health and welfare problems of the state will be discussed. Judge C. W. Hoffman, Cincinnati, is president of the conference. Dr. Rosco G. Leland, Columbus, state department of health, will preside over the health section.

PENNSYLVANIA

State Medical Examiners Elected.—The newly appointed members of the Bureau of Medical Education and Licensure of Pennsylvania are: Dr. Adolph Koenig, Pittsburgh; Dr. William M. Hillegas, Philadelphia; Dr. Walter Estell Lee, Philadelphia; Dr. Irvin D. Metzger, Pittsburgh, and Dr. Mere V. Hazen, Harrisburg.

State Medical Election.—At the seventy-third annual meeting of the Medical Society of the State of Pennsylvania at Pittsburgh, October 1-4, the following officers were elected for the ensuing year: president, Dr. Howard C. Frontz Huntingdon; president-elect, Dr. John Norman Henry, Philadelphia; first vice president, Dr. Ernest W. Willetts, Pittsburgh; secretary, Dr. Walter F. Donaldson, Pittsburgh, and treasurer, Dr John B. Lowman, Johnstown. October 4, a public meeting was held at which Dr. Frederick C. Banting, Toronto, Canada; Dr. John R. Williams, Rochester, N. Y., and Dr. Louis H. Newburgh, Ann Arbor, Mich., gave addresses.

Philadelphia

Personal.—Mrs. Mary Irwin Jump, wife of Dr. Henry D. Jump, has been appointed assistant director of the department of public welfare, to succeed Dr. Blair Spencer, who was recently appointed director of public health.——Drs. Laura H. Carnell, dean of Temple University, and William H. Ziegler were appointed by the board of judges to the board of education, Philadelphia.

University of Pennsylvania Acquires Relics of Pasteur.—Parts of the original chemical apparatus used by the famous French scientist, Louis Pasteur, in his experiments, are now at the University of Pennsylvania. They were brought to this country by Dr. John Frazer, dean of the Towne Scientific School, who recently returned from France, where he spent a year as exchange professor from six American universities. Through him the apparatus will be divided among the universities associated with Pennsylvania in the exchange of professorships of applied science between American and French universities.

RHODE ISLAND

Hospital News.—Plans are being revised for the new service building of Memorial Hospital, Pawtucket.——The Homeopathic Hospital, Providence, has awarded a contract for the erection of a $600,000 building.

Director of State Institutions Appointed.—Louis H. Putnam, executive director of the board of children's guardians of the state of West Virginia, has been appointed director of state institutions of Rhode Island by the state public welfare commissioner, and will assume his duties in November. He succeeds Dr. Johnson, New York, who has been acting director of the institutions of Rhode Island since June 1.

SOUTH CAROLINA

Physicians Protest Against Chiropractor.—Protest on behalf of the Cherokee County Medical Society against the city of Gaffney granting a license to C. O. Sprinkle, a chiropractor of Winston-Salem, N. C., was registered, September 21, by Dr. Walter Boone, county health officer, president of the county society. He stated that should Sprinkle receive a city license and practice in Gaffney, a warrant for his arrest would be sought on a charge of practicing medicine without a license from the state board.

Rabies.—According to a report from the state department of health, an average of more than two persons a day are bitten by mad dogs in the state. A campaign is being conducted to secure a law at the next session of the state legislature compelling owners of dogs to have them vaccinated against rabies. The number of persons bitten by rabid dogs has increased from 176 in 1912 to 769 in 1922. A total of 3,088 persons have received the Pasteur treatment during the ten-year period, with fourteen deaths.

VERMONT

New Hospital for University.—Miss Laura Ainsworth of Williamstown, Mass., who donated funds for the erection of the Ainsworth Hospital at Norwich University Hospital, Northfield, has now offered to build an isolation hospital in connection with the institution. Construction work was started in September. Besides private rooms, the building will contain two large wards, nurses' dormitories, and quarters for physicians and attendants.

WASHINGTON

Hospital News.—The contract has been let for the erection of a $310,000 building in Olympia, to be known as St. Peter's Hospital, to be built by the Sisters of Charity of the House of Providence. The building will be five stories high and of steel and concrete construction.——Dr. Katherine M. Dullea, Portland, Ore., has purchased a twenty-seven room residence at Port Townsend, which will be converted into a sanatorium.

State Medical Meeting.—At the thirty-fourth annual meeting of the Washington State Medical Association in Spokane, September 20-22, the following officers were elected for the ensuing year: president, Dr. William F. West, Everett, to succeed Dr. John H. O'Shea, Spokane; vice presidents, Drs. John Reid, Morrison, Bellingham, and Frederick H. Brush, Yakima, and secretary-treasurer, Dr. Curtis H. Thomson, Seattle (reelected).

WEST VIRGINIA

Personal.—Dr. Olin H. Jennings, Williamson, has been appointed by Governor Morgan as a member of the West Virginia Health Council to succeed Dr. Benjamin F. Shuttleworth, Clarksburg, whose term has expired.

WISCONSIN

State Medical Meeting.—At the seventy-seventh annual meeting of the State Medical Society of Wisconsin at Milwaukee, October 3-5, the following officers were elected for the ensuing year: president, Dr. L. Rock Sleyster, Wauwatosa; vice presidents, Drs. Michael R. Wilkinson, Oconomowoc, John R. Minahan, Green Bay, and Carl M. Beebe, Sparta. Mr. J. G. Crownhart, Milwaukee, is secretary of the society. The next meeting will be held in Green Bay in 1924.

Personal.—Dr. Robin C. Buerki, Burns, Ore., has been appointed superintendent of the new state general hospital at Madison, it was announced by the board of regents, September 6.——Dr. Laurence H. Prince, for five years superintendent of the state school for dependent children at Sparta, is now a member of the medical staff at Waukesha Springs Sanatorium.——Dr. Adellon D. Andrus, Ashland, has been appointed county physician.——Dr. George H. Williamson, Neenah, was recently elected president of the National Fraternal Congress of America at the annual convention.——Dr. Porras, government physician on the Rosebud Indian Reservation, South Dakota, has been transferred to the Lower Brule Reservation, Wisconsin. Dr. Porras is a native Filipino.——Dr. Charles Reineck, Appleton, returned in September from a trip around the world.

CANADA

Lister Oration.—The Canadian Medical Association is arranging for a Lister oration to be given once every three years. The first of these will be given at the annual meeting of the association in Ottawa, in 1924, by Dr. John Stewart, Halifax. Dr. Stewart was one of Lister's house surgeons in Scotland.

Hospital News.—A new wing will be erected at St. Michael's Hospital, Toronto, on the Victoria Street property recently purchased by the authorities. The new structure will be five stories high, with a frontage of 200 feet.——The contract has been let for the erection of the new addition to the city Hospital, Hamilton, Ont. The institution will have a capacity of 400 patients.——A new pavilion is under construction at the Hamilton General Hospital which will contain the outpatient department, the operating rooms, laboratories, interns' quarters and semiprivate wards. This pavilion will increase the capacity of the hospital to 500 beds.——The new forty-bed addition to the Queen Alexandria Hospital, London, Ont., is nearly completed.——A new addition is being erected at the Free Hospital for Consumptives, Weston, Ont., at a cost of $80,000.——The first unit of the new buildings for the Orange Home, Indian Head, is being erected at a cost of $17,000. ——A new $100,000 addition will be erected at St. Martha's Hospital, Antigonish.——A new wing containing the outpatient department, semiprivate wards and other accommodations will be erected at the Western Hospital, Toronto, of which A. C. Gilbraith has recently been elected superintendent. ——The recent death of Mrs. Elizabeth Jordan, in California, disclosed that she had willed large sums of money in trust, the income of which is to be used for current expenses at the Jordan Memorial Sanatorium, River Glade, N. B. The institution now has a capacity for 500 patients.

GENERAL

National Campaign for Pure Milk.—The Conference of State and Provincial Health Authorities and the American Child Health Association, in conjunction with the Association of American Dairy Food and Drug officials, will institute a national pure milk campaign under the leadership of Herbert Hoover. Improvement of standards of health for children and safeguarding the nation's milk supply are the objectives.

Provisional Birth Figures for 1923.—The Department of Commerce announces that provisional birth figures for the first three months of 1923 indicate slightly lower birth rates than for the corresponding three months of 1922. For the states compared, the birth rate for the first three months was 22.4 in 1923 as against 23.6 in 1922. The highest birth rate for the three months is shown for North Carolina (27.6), and the lowest for Vermont (15.8).

American Neurologists Elect.—At the recent annual meeting of the American Neurological Association in Boston, the following officers were elected for the ensuing year: president, Dr. Charles K. Mills, Philadelphia, to succeed Dr. Harvey Cushing, Boston; vice presidents, Dr. Charles L. Dana, New York, and Dr. Morton Prince, Boston, and secretary-treasurer, Dr. Frederick Tilney, New York. A joint session was also held with the American Psychopathological Association. Philadelphia was selected for the 1924 meeting.

Provisional Mortality Figures for 1923.—The Department of Commerce announces that provisional figures for the first three months of 1923 show for the states compared the death rate for the three months was 15.3 in 1923 against 13.9 for the first three months of 1922. If the ratios of the crude rates to the adjusted rates for 1922 be applied to the 1923 quarterly rates, the poorest showing for the first quarter of 1923 appears for Maryland, with an adjusted rate of 18.8, and the best showing appears for Montana, with a rate of 10.1.

Society News.—The sixth annual meeting of the American Dietetic Association will be held in Indianapolis, October 15-17, under the presidency of Octavia Hall Smillie, Andalusia, Ala. Dean Charles P. Emerson, of the Indiana College of Medicine, Indianapolis, will be the guest of honor at the annual banquet. There will be sections on administration, dietotherapy, education and social service. Dr. Ruth Wheeler, University of Iowa Medical School, Iowa City, and Dr. Louis H. Burlingham, superintendent, Barnes Hospital, St. Louis, will be among the speakers.

Narcotic Forms Stolen.—Federal order forms for opium, heroin and morphin, on which an almost unlimited supply of narcotics might be secured, have been stolen from an unnamed government office or from the mails. All dealers of narcotics are warned by the collecter of internal revenue for the northern district of Illinois not to fill an order form on which one of the following serial numbers appears: U556915, Y696571, X393252 to X393260, X670707 to X670710, Y739051 to Y739060, Y964961 to Y964970, Y968541 to Y968550. They are also cautioned against filling any order forms on which alterations of the serial number have been made.

Conference on Industrial Accidents.—At the tenth annual meeting of the International Association of Industrial Accidents Boards and Commissions at St. Paul, recently, the medical aspects of the work of state compensation bodies were discussed. Dr. Frank E. Burch, St. Paul, spoke on "Hygiene of the Eye in Connection with Prevention of Ocular Injuries," and Dr. Arthur S. Hamilton, Minneapolis, read a paper on the "Differential Diagnosis Between Organic and Functional Nervous Conditions Following Injury." Both papers were followed by round table discussions under the chairmanship of Dr. Robert P. Bay, Baltimore, of the State Industrial Accident Commission of Maryland.

Committee of One Hundred Disbands.—The Committee of One Hundred on National Health, which was interested in national health education and the establishment of a health department in the federal government, has suspended work for some years. Prof. Irving Fisher of Yale University is president of the committee. Many of the members are interested in other organizations which aim ultimately to establish a national department of health. Under these circumstances, the executive committee voted that the organization should now be disbanded, and the small amount of funds remaining be turned over to the Eugenics Committee.

Public Health Conference.—The International Committee of Experts on Industrial Hygiene, appointed to assist the International Labor office of the League of Nations in dealing with questions affecting the health of workers, has concluded

a conference in Geneva, Switzerland. This committee, appointed in accordance with resolutions adopted by the International Labor Conference at Washington, D. C., in 1919, is composed of medical inspectors of factories and others having technical and scientific knowledge of industrial hygiene from more than twelve countries. Two subjects were discussed: (1) protection from anthrax of workers engaged in handling hides and skins, and (2) the compilation of a list of the principal industrial processes to be considered unhealthy.

LATIN AMERICA

Revaccination Made Obligatory in Uruguay.—The senate of Uruguay recently confirmed the obligatory revaccination bill, which requires obligatory revaccination every ten years. The bill is stated to be an extension of the obligatory vaccination law previously in force.

National Public Health Conference in Argentina.—An important gathering was held recently at Buenos Aires of delegates from the provinces to discuss ways and means for extending and improving the public health service throughout the country, with concerted action against epidemics and epizootics. The director of the public health service, Dr. Gregorio Aráoz Alfaro, presided. The various delegates from the provinces presented their views as to the most feasible organization for the purpose, and a committee was appointed, consisting of Drs. Rodríguez Jáureguy, Buenos Aires; Benigno Portela, Córdoba; Aldo Cantoni, San Juan; Roque Coulín, Santa Fe, and A. Schneidewind, Santiago del Estero, to study the various plans and decide on the one to be adopted.

FOREIGN

Necropsies Permitted in Italy.—A recently passed Italian law authorizes directors of university clinics and hospital chiefs to override opposition to a necropsy if it is considered necessary to science.

German Pediatricians Meet.—The annual meeting of the German Pediatric Society was held in Göttingen, September 21-22. A discussion was held on the endocrine glands, in which Drs. Schiff of Berlin, Birk of Tübingen, Thomas of Cologne, and Goett of Munich took part.

French Congress on Hygiene.—The subjects to be discussed at the Tenth French Congress on Hygiene, to convene at Paris, October 22, are "Hygiene in Transportation"; "Bacteria from the Point of View of Biologic Purification"; "Surveillance of Sources of Drinking Water" and the perennial garbage question.

Postponement of International Congress on Comparative Pathology.—Our European exchanges state that Prof. E. Perroncito of Turin, president of the much postponed international congress on comparative pathology, announces its further postponement until 1924. It had been finally scheduled to meet at Rome, Oct. 7, 1923, but the committee on organization has been unable to make full preparation for it.

Cancer Research in Italy.—The *Policlinico* relates that the Romagna district in Italy, near Bologna, has the reputation of the highest incidence of cancer, and the medical society of the province has organized a campaign against it. The inaugural meeting was held at Faenza, and among those participating was Sambon, of the British Empire Cancer Committee, who had come to the Romagna for epidemiologic study of cancer.

Graduate Study in Glasgow.—A central organization has been formed—the Glasgow Post-Graduate Medical Association—for the purpose of arranging, coordinating, and administering postgraduate medical teaching in Glasgow and the West of Scotland. General and special courses will be arranged, and a comprehensive permanent scheme has been adopted. It is anticipated that Glasgow will become one of the leading centers of graduate medical teaching in the near future.

Venereal Disease in London.—The public health report for 1922 states that the number of new cases of venereal disease dealt with at the hospitals in London in 1922 was 23,811, of which 6,809 were syphilis, 10,632 gonorrhea and 321 soft chancre. As compared with 1921, there is a decrease in every class—1,379 in syphilis, 77 in gonorrhea and 150 in soft chancres. The total attendance was 529,003, and examinations of pathologic specimens have largely increased, the number from treatment centers being 75,351, besides 18,507 from private practitioners. Failure to complete treatment is not so frequent as would appear, because the definition of cure is now much more strict than formerly.

Kitchener Memorial Medical School.—Construction work on the Kitchener Memorial Medical School for Sudanese students at Khartoum, North Africa, has been started. The immediate object is to give a four years' period of instruction to twelve selected students each year. The proposed curriculum allots two years to pure and applied science and two years to medicine, surgery, midwifery and hygiene, outpatient attendance being required for the last three years; a diploma will be conferred on successful candidates, practice being limited to the Sudan and based on certain specified conditions. The medical school will be an integral part of the Gordon Memorial College, Khartoum, where the Wellcome Tropical Research Laboratories are located. The sum of $200,000 is still needed for the endowment fund, only $100,000 having been contributed up to date.

West African Congress on Tropical Medicine.—The first congress of Tropical Medicine in West Africa was held, July 16-23, at Loanda, Portuguese West Africa. The object was to discuss means of solving medical and sanitary problems, particularly with regard to the native inhabitants of the colonies represented. The first session was devoted to sanitary organization, and the following five sessions to practical methods in prophylaxis and treatment of prevalent disease. The chief subjects discussed were lethargic (epidemic) encephalitis, malaria, tuberculosis, leprosy and schistosomiasis. Seventy-six delegates attended, representing Angola, Portugal, Belgian Congo, San Tomé, Cameroon, French West Africa, French Equatorial Africa, Portuguese India, Mozambique, Paris, the Union of South Africa, Nigeria and the London School of Tropical Medicine. Two prizes of 10,000 francs each were offered, one for a paper on the best practical methods of hospital treatment of the native; the other for the most outstanding work in the proceedings of the congress. The next congress will be held at Dakar, Senegal, French West Africa, in 1927.

Foreign Congresses.—The annual congress of the French Association of Pediatrists was held at Brussels under the presidency of Prof. V. Péchère, October 4-7. The following subjects were discussed: "Prolonged Pneumonia in Children," Dr. Charles Gardère, Lyons; "Diagnosis and Treatment of Intussusception," Dr. Raphael Massart, Paris, and "Medico-Pedagogic Treatment of Abnormal Children," Dr. Decroly, Brussels.——The twentieth congress of the Italian Society of Laryngology, Otology and Rhinology was held at Bologna, October 8-10, when discussions were held on "Otitic Pyemia," introduced by Professors Federici and Torrini.——The next International Congress of Thalassotherapy (the sea) will be held at Arcachon, France, in 1925, when the marine treatment of rickets will be discussed. The last congress was held at Venice, April, 1922.——The Australasian Medical Congress (the first to be held under the direction of the federal committee of the British Medical Association in Australia) will be held in Melbourne, November 12, under the presidency of Mr. G. A. Syme, F.R.C.S. Sir William Macewen, regius professor of surgery at the University of Glasgow and president of the British Medical Association, 1922-1923, will represent the parent association. An exposition of trade products, including medical and surgical instruments, books, drugs and foods, will be held in the new anatomy department of the University of Melbourne, which will be officially opened during the congress.

Deaths in Other Countries

Dr. **Gustavus Hartridge,** consulting surgeon, Royal Westminster Ophthalmic Hospital, and lecturer on ophthalmology at Westminster Hospital, London; author of many medical works including "Retinoscopy"; formerly secretary of the section of ophthalmology of the British Medical Association. ——Sir **Halliday Croom,** professor of midwifery, Edinburgh University, and ex-president of the Royal College of Surgeons, Edinburgh, and the British Gynecological Society; honorary fellow of the American Society of Gynecologists; died, September 27, aged 76.——Dr. **T. Lycklama,** formerly of Rotterdam, aged 86. He was one of the founders of the yearly directory of the profession published in the Netherlands.——Dr. **A. Jurasz,** professor of laryngology at the University of Lwow, Poland, formerly of Heidelberg, aged 75.——Dr. **Rodrigues Lima,** professor emeritus of pathology at the University of Rio de Janeiro, aged 68.——Dr. **X. Santero,** physician to the Spanish embassy at Buenos Aires, formerly professor of hygiene at Madrid.——Dr. **Delcroix De Coster,** president of the Belgian Urologic Society.——Dr. **G. Trautmann,** Munich, author of numerous works on otorhinolaryngology, aged 57.——Dr. **M. Heitler,** formerly professor of internal medicine at Vienna, noted for his literary writings, aged 76.

Government Services

Soldiers' Home Open to Women

The War Department announced, October 2, that former service women are to be admitted to soldiers' homes. The board of managers of the National Homes for Disabled Volunteer Soldiers has decided to provide separate facilities for women at selected points. Tuberculosis cases will be accommodated at the Milwaukee home, and other cases at Danville, Ill. According to the disability claims received at the U. S. Veterans' Bureau, it is estimated that about 450 women would be eligible for admission.

General Hospitals Authorized

Pursuant to instructions of the Secretary of War, the organization of General Hospital No. 75 (George Washington University Hospital Unit, Washington, D. C.), organized reserves, has been authorized.

Pursuant to instruction from the Secretary of War, the organization of General Hospital No. 73 (Franklin Square Hospital Unit, Baltimore) Organized Reserves, has been authorized.

Financing of New Hospital

Following a conference on ways and means of the U. S. Veterans' Bureau, Washington, D. C., recently, the director of the bureau announced that repeated complaints regarding the neglect of psychopathic ex-soldiers may bring about the construction of a new hospital at the Great Lakes Naval Training Station, to be used exclusively for such cases, provided sufficient funds are available. It is said that 591 ex-service psychopathic cases are being cared for in county and state institutions in Illinois alone, and that 150 are being cared for in private homes. The proposed hospital would care for all psychopathic cases in the eighth district of the U. S. Veterans' Bureau, comprising Illinois, Michigan and Wisconsin.

Major Reduced Twenty-Five Files

Major George W. Cook, M. C., U. S. Army, commanding officer of the hospital at Fort Eustis, Va., was found guilty by a court martial, at Washington, D. C., October 4, on two counts, of a charge resulting from the treatment of Private Guy Pendleton, who was injured in a motorcycle accident. The penalty imposed on Major Cook was a reprimand and a reduction of twenty-five files in the list of majors. Capt. Samuel C. Gwynn, retired, will also be court martialed in connection with this case.

Physical Defects in Army Officers

Statistics compiled in the office of the Surgeon General of the army show that, among 12,000 regular army officers examined this year by army medical boards, approximately 9,000 were found to have physical defects sufficiently important to justify notation on the reports. The abnormalities most frequently reported were of the nose, throat, teeth, gums and mouth; overweight, pes planus, arterial hypertension and defective vision. A large proportion of the defects were in their incipiency, but would, in many instances, if allowed to persist, impair health and efficiency. Physical examinations of army officers are made annually; and it is Surgeon General Ireland's plan to use the information thus collected—not to eliminate officers from the service—but to overcome the defects by corrective medical treatment and thus hold the officers in the service.

Veterans' Bureau Investigation

The special committee appointed by the Senate at the last session of Congress to investigate the Veterans' Bureau will hold its first public hearing at Washington, D. C., on October 22. Director General Hines, of the Veterans' Bureau, has been informed that he will be the first witness. It is understood that a large number of other witnesses will be called before the committee, although no names have been made public. The committee was appointed for the purpose of investigating charges of alleged extravagance, waste and maladministration. The committee consists of Senators Reed of Pennsylvania, Walsh of Massachusetts and Oddie of Nevada.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Sept. 21, 1923.

International Cooperation in Intellectual Work

The fifth commission of the League of Nations has adopted a resolution presented by M. Jacques Bardoux (France) recommending the transformation of the secretaryship of the commission on intellectual cooperation into an international bureau for the collection and distribution of information of interest to universities.

Red Cross Aid to the Earthquake Sufferers in Japan

The executive committee of the three constituent societies of the French Red Cross has appropriated 50,000 francs as emergency aid for the Japanese earthquake victims, and, in addition, has decided to open a general subscription in Paris and throughout the provinces. The funds thus collected will be distributed through the Japanese Red Cross.

Death of Victor Nodet

Dr. Victor Nodet of Bourg, formerly hospital intern of Lyons, has died at the age of 50. Nodet was born at Bourg, department of Ain, and succeeded his father, Dr. Amédée Nodet, in that city. With his professional qualities, he possessed a high artistic sense which secured his admission to several learned societies. He published a monograph on Brou church, which forms part of the collection "Grands édifices de la France"; also a study on "The Windows of Old Brou Church," in the work by L. Bégule on the "Vitraux de la région lyonnaise."

Death of Dr. Paul Hamonic

Dr. Paul Hamonic has died at the age of 65. About thirty years ago, he founded the *Revue d'andrologie et de gynécologie*. His collection of surgical instruments of earlier epochs, not only in his specialty, diseases of the genito-urinary organs, but also in other branches of surgery, presents considerable interest. This collection was shown at the exhibit that was organized at the Faculté de médecine of Paris, on the occasion of the holding of the Congress of the History of Medicine.

International Congress on Puerperal Fever

Among the numerous congresses held at Strasbourg on the occasion of the celebration of Pasteur's centenary, the congress on puerperal fever, organized under the presidency of Dr. Bar, formerly professor of clinical obstetrics in the Faculté de médecine of Paris, was particularly interesting from the practical standpoint. It furnished also an opportunity to survey the history of puerperal fever, and the president of the congress, who lived through the historic period of pasteurian research, gave some personal reminiscences.

History of Puerperal Fever

The paper by Professor Couvelaire of Paris was in homage to Pasteur, who demonstrated to the Academy of Medicine at the memorable session of March 18, 1879, and afterward to the Academy of Sciences at the session of May 3, 1880, that the germ theory was applicable to the etiology of puerperal fever. This conception served as the scientific basis for effective prophylaxis. While he paid this tribute to Pasteur, Couvelaire also endeavored to do justice to his precursors Simpson, Semmelweiss, Lister, Coze and Feltz, and to many others who, by patient clinical observation and experimental research, had surmised the truth. It is noteworthy that it was at Strasbourg that Coze and Feltz, in 1869, were the first to discover streptococci in the blood of a woman suffering

from puerperal fever, and Pasteur must certainly have known of their researches when he began the study of puerperal infection.

Professor Bar recalled that Tarnier at first did not believe in the germ theory; he ascribed the spread of disease to contagion through the air. But he was shaken in his opinion by Lucas-Championnière, after the latter had paid a visit to Lister. Tarnier then tried the antiseptic method and, inside of a month, he found that the morbidity from puerperal fever had decreased remarkably. It was Tarnier who urged Pasteur to begin his researches. Unfortunately, at the beginning of the antiseptic period, highly toxic substances were used, such as phenol (carbolic acid) and mercuric chlorid, sometimes with serious accidents.

The Prophylaxis of Puerperal Fever

Hauch of Copenhagen did not stop with the development of the well known principles of asepsis, but considered in his paper certain special topics. He advised, for instance, that the douche be substituted for the bath. He does not consider palpation as dangerous as it is represented, provided, of course, it is carried out with aseptic precautions and lesions of the mucous membrane are avoided.

Hauch holds that the use of gloves has not materially changed the incidence of puerperal fever; in fact, gloves may even become dangerous if, trusting in their (often imaginary) protection, an operator neglects to scrub his hands. Schikelé of Strasbourg expressed the belief that the use of gloves by midwives may give them a false sense of security and cause failure in disinfection. Bar, on the other hand, protested vigorously against this opinion. He has found that gloves give added security, although, of course, the hands must also be disinfected. Bar would, in fact, like to see the use of gloves made obligatory, and recommends that, in every commune, obstetric bags be placed at the disposal of midwives for use with the poor.

SERUMS AND VACCINES IN PUERPERAL FEVER

According to Hauch, knowledge of antistreptococcus serum is so uncertain that it cannot be used for prophylaxis. Also Daels of Ghent declared that antistreptococcus serum is of no value as a prophylactic agent.

Rossier of Lausanne stated that he had used large doses of antistreptococcus serum (100 c.c.) successfully as a curative agent in streptococcus infections, but that an early bacteriologic diagnosis was necessary.

Daels referred to his use of autogenous vaccines, which he prepares in twenty-four hours. To this Chomé of Paris made two objections: First, much more than twenty-four hours is required for the proper preparation of an autogenous vaccine; second, vaccines are effective only in localized and not in generalized infections. Daels admitted that the first injection, which he makes without any selection of micro-organisms, acts quite as much through protein shock as it does through vaccine properties.

Hamm of Strasbourg reported disastrous results from prophylactic injections of phenolized vaccine. These injections caused abscesses and accidents the gravity of which was all the greater owing to the fact that delivery followed soon after the inoculation; even death had resulted in certain cases. Bar remarked that these experiments, while the results were regrettable from the therapeutic standpoint, are of real experimental value. They demonstrate in a very positive manner the sensitization of the woman by childbirth. Chomé stated that he had injected streptococci into nongravid rabbits without accident; but injection of the same strain of streptococci into rabbits at the end of gestation causes death after birth of the litter. These observations show the susceptibility of the pregnant woman and the influence of the terrain on puerperal infection. The anergy toward the end of pregnancy is general, not only for puerperal but also for other infections.

SUPPURATIVE PELVIC PHLEBITIS

Drs. Lequeux and Chomé of Paris called attention to suppurative pelvic thrombophlebitis, which must be distinguished from ordinary thrombophlebitis. There is, indeed, a therapeutic reason for this differentiation, since surgical intervention (ligation of the veins) may check the infection. Suppurative thrombophlebitis is distinguished in many ways from generalized infection; contrary to the present conception, the micro-organisms remain localized, and the general condition of the patient remains good, without chills. The occurrence of rigors is an indication that the infective agent is entering the circulation. Blood cultures may happen to be positive, but they are usually negative. Thrombophlebitis causes septic emboli, almost exclusively in the lungs. Death ensues from asphyxia resulting from the extension of the lesions. In the subacute forms, diagnosis is impossible. In the acute forms there is a periphlebitic period in which the clinical picture is obscure. At the height of the disease, diagnosis is based on tardy and repeated chills and an irregular temperature curve. The general condition of the patient remains good for a long time. Lequeux and Chomé advise operative intervention, neither too soon nor too late—not before the twelfth day, but yet before the onset of severe chills. It is too late to operate when pulmonary lesions predominate. Entry is made by the abdominal route. The vessel affected is ligated at the level of involvement (upper portion of the broad ligament or, more rarely, the lower level of the hypogastric fold) on both sides. As far as possible, the ligature should be placed on healthy tissue; but, if that is not feasible, it may be placed in the middle of the thrombus.

PREMATURE RUPTURE OF THE MEMBRANES AND PUERPERAL INFECTION

Basing his opinion on statistics gathered in the obstetric service of Professor Schickelé, Dr. Kreiss of Strasbourg holds that premature rupture of the membranes at term is not as serious as is commonly supposed, and that its influence on postpartum infection is slight.

This conclusion was vigorously opposed by several members of the congress. Professor Rivière of Bordeaux stated that, while it was possible that such results might be secured in well organized obstetric services in which the patients are under continuous supervision, it was out of the question in ordinary practice. Professor Bué of Lille pointed out that the important thing from the point of view of infection is not the greater or less degree of prematurity in the rupture of the membranes but rather the duration of labor itself, for the rupture of the membranes is frequently a cause of dystocia, owing to anomalies in the dilatation of the cervix. Dr. Hamm expressed regret that Kreiss did not include in his statistics the effect of rupture of the membranes on the fate of the infant. Bar expressed himself in a similar manner, holding that obstetrics has now reached a stage when the condition of the mother should not be the sole consideration; in judging of the value of any obstetric method, operative or technical, equal concern must be given to the fate of the child.

INFLUENZA AND PUERPERAL INFECTION

Dr. Vaudescal of Paris discussed the harmful effect of labor, whether at term or premature, on the course of the pulmonary complications of influenza. Septicemia without uterine localization is apt to occur. Vaudescal observed 12 per cent. mortality from the pulmonary complications alone, and 40 per cent. mortality when they were associated with childbirth. From these facts he concludes that pregnancy should never be interrupted in a woman suffering from influenza with pulmonary complications.

LONDON

(From Our Regular Correspondent)

Sept. 24, 1923.

The Outbreak of Smallpox

Since September 7, twelve cases of smallpox have occurred in various parts of London. The disease is not of the mild type observed in the Gloucester epidemic, as two deaths have already taken place. All contacts are being carefully watched, and every precaution is being taken to prevent the spread of the outbreak. Free vaccination is being offered to and urged on the public, a very necessary procedure because of the great neglect of vaccination. Though so far controlled, the outbreak is giving much anxiety to the public health authorities.

The Nation's Health

The report for 1922 of Sir George Newman, chief medical officer to the ministry of health, just published, is in many ways encouraging. He lays emphasis on the decline of infant mortality and of the birth rate. The latter has been sharp and represents "a fall of 6.8 per thousand persons living on the annual rate for 1901-1910." The infant mortality, of course, bears some relation to the birth rate, but its shrinkage cannot be entirely accounted for in this way. It is due in some measure to the intensive campaign in infant welfare and management of recent years. As to the causes of death and invalidity, there is given an interesting contrast founded on the figures of the registrar-general and of the national health insurance work. Table 1 shows the relation in order of importance between the diseases that kill and those that cause invalidity.

TABLE 1.—*Causes of Death in England and Wales, 1922*

Cause of Death. Per Thousand Deaths		Invalidity (among 30,000 insured persons), per thousand of total cases of invalidity in that group	
1. Respiratory disease	181	1. Respiratory disease	227.8
2. Heart diseases	157	2. Digestive system diseases.	131.2
3. Nervous system diseases	101	3. Lumbago rheumatism	87.6
4. Cancer	96	4. Influenza	85.3
5. Tuberculosis (all forms)	88	5. Injuries and accidents	79.0
6. Digestive system diseases	52	6. Abscesses, boils, etc.	68.9

It is noteworthy that, except for the respiratory diseases, the killing diseases are not important contributors to invalidity. The one black spot is the cancer mortality. The death rate from this disease is now more than seven times what it was in 1838. The question as to how far this increase is apparently due to better diagnosis and increased longevity is carefully discussed. The conclusion is that a portion, at least, of the increase is real. From 1838 to 1842 there were 173 deaths per million from cancer in England and Wales; 1847-1850, 274; 1876-1880, 494; 1890, 676; 1900, 829; 1910, 967; 1920, 1,161. There are some peculiar features in the increase. One is that it is much greater in men, as Table 2 shows:

TABLE 2.—*Increase of Cancer*

Men Age group:	Figure of 1851-1860 increased in 1920	Women Age group:	Figure of 1851-1860 increased in 1920
45-55	4 times	45-55	2 times
55-65	5 times	55-65	2½ times
65-75	5½ times	65-75	3 times
75 upwards	6 times	75 upwards	4 times

Of the six chief killing diseases given above, cancer is the only one that is definitely and uniformly increasing. Tuberculosis is steadily declining. The smallpox situation causes a good deal of anxiety. With so much infection and so little vaccination, why have we escaped an epidemic? The answer given is: 1. The virulence of the infection has apparently been less than in former years. 2. Many men have been protected by vaccination or revaccination in the army during the war, and many women have been protected by infant vaccination in the years when the practice was widespread. 3. The administrative control of cases and contacts has been greatly improved. 4. In the presence of the disease, vaccination has been practiced with uniformly successful results. A notable decline in typhoid fever has taken place, as shown by Table 3.

TABLE 3.—*Number of Notifications of Typhoid Fever Received for the Years 1911-1912*

1911	13,852	1917	4,601
1912	8,386	1918	4,306
1913	8,263	1919	3,447
1914	8,778	1920	3,109
1915	6,364	1921	3,835
1916	5,564	1922	2,414

Cancer and Diet

In spite of many suggestions from men of the highest eminence, the question of the causation of cancer makes no progress. In a letter to the *Times*, Sir Frederick Treves refers to many beliefs associating the disease with some particular diet, which have disturbed many homes and led to an alteration of the menu. The thesis of Dr. Copeman associating the suggestion that a restricted consumption of animal fats may at least modify the progress of the disease (THE JOURNAL, October 6, p. 1218) he regards as of a very different character, which deserves to be investigated. In the meantime, Sir Frederick ventures to point out that the increase of cancer in recent years has exactly coincided with the introduction of preserved food, such as cold storage supplies, tinned foods, concentrated foods, extracts and foods treated with preservatives. The coincidence may be accidental, but he regards it as the most conspicuous feature in relation to the present subject. Replying to Sir Frederick Treves, another correspondent points out in the *Times* that the death rate from cancer in Australia, where no chilled meat is consumed, has risen progressively from 74 per hundred thousand of the population in 1915 to 87 in 1921.

Chemicals in Food

In a letter to the *Times*, an analyst, Mr. Otto Hehner, calls attention to the profound change in our food supply that has occurred in the last fifty years. Formerly, it came more or less directly from the farm to the kitchen. Now a large portion of it passes through factories in which it is prepared, preserved and "beautified." This change has been accompanied by the introduction of a large number of insidious poisons. Their quantity in each article of food is so minute that obvious injury is out of the question, but they may have a cumulative effect in the course of years. For ages, wine and beer barrels have been sulphured to repress fungoid growth, a stupid process, but excusable while scientific knowledge did not exist. Now sulphites are regularly mixed with beer and other beverages, and are used to keep meat free from taint. Dried fruits, apricots, some tinned fruits and raisins are bleached with sulphurous acid. Sulphur is frequently accompanied with more or less arsenic, opening up further possibilities. Butter, cream, margarin, bacon and the many preparations into which bacon enters (such as sausages and meat pastes) contain boric acid or borax. This is limited by law in butter to 0.5 and in cream to 0.4 per cent. Chinese eggs, imported in bulk, contain up to 2 per cent.

boric acid and go into cakes and pastries. Temperance beverages, such as ginger beer and lime juice, frequently contain salicylic or benzoic acid. Margarin has been known to contain sodium fluorid. Chilled meat has been imported fumed with formaldehyd. Flour is bleached with nitrous gases. Every article of food preserved in a tin dissolves some of the metal, the quantity depending on the acidity of the material, the time of contact and the quality of the tin plate. Condensed milk takes up a mere trace; acid fruits, tangible amounts. The majority of organic acids used in food preparations, such as tartaric acid, citric acid and potassium bitartrate, contain traces of lead. Preserved peas, beans and spinach contain copper in the form of sulphate for "beautifying" purposes, from 1 to 4 grains to the pound. Rice for "beautification" is covered with French chalk. Flour is "improved" by the addition of acid phosphates, likely to contain a trace of arsenic. Last, but not least, comes arsenic. We live in the age of coal. All coal is arsenical. Hence, arsenic is ubiquitous. Every particle of coal dust or ashes, every tin tack and every metal cooking vessel is slightly arsenical. Few manufactured food ingredients are entirely free from it. The glass of bottles contains it and transmits it to some of their contents, whence it enters food. Recognizing the omnipresence of arsenic, the royal commission on arsenic poisoning limited the permissible quantity to 1/100 grain per pound in solid, and 1/100 grain per gallon in liquid, foods. Clearly we are being bombarded with poisons in minute quantity at every meal. All these facts have been represented by public analysts in reports that have been published at frequent intervals during many years, but without effect on our legislators. Mr. Hehner thinks that no other national question cries so urgently for remedy.

Sex Reversal

In the zoological section of the recent meeting of the British Association for the Advancement of Science, Dr. F. A. E. Crew reported a curious case of sex reversal in a vertebrate animal. He had collected more than fifty examples in the old female domestic fowl of some evidence of sex reversal. In some of these birds, after irregular molting, the plumage became gradually like that of the cock. In one case, a hen, aged 3½ years, ceased to lay. Her head furnishings became like those of a cockerel, although the plumage generally remained that of a hen, and she tried to crow. After another slow molt, she became like a cock in appearance, crowed vigorously, challenged males and showed the sexual appetite of a cock. She was seriously affected with tuberculosis, and with difficulty was nursed through the winter. In the spring she was mated with a virgin hen, some of whose unfertilized eggs were incubated to show their nature. She fertilized the hen, and chickens were reared from their union. As the tuberculous infection increased, she was killed. Extensive tuberculosis was found in every organ. In particular, the ovaries were completely destroyed. Under these conditions, as is already known to occur in fowls, new sexual cells invade the destroyed ovarian tissue from the peritoneum. These, at first neutral from the sexual side, assumed the character of male tissue, and a pair of male gonads was developed. Examination in other instances convineed Dr. Crew that when sex is reversed in fowls, the process begins with the destruction of the ovary by disease, and then its replacement by a new proliferation of gonadal tissue which gradually differentiates into male tissue. He suggested that sex in the fowl was determined at the time of fertilization, but that the females were heterogamie or bisexual in chromatic constitution, and that when some agency disturbed the factor normally deciding the development of the female side, then the male elements had their opportunity.

PRAGUE

(From Our Regular Correspondent)

Sept. 11, 1923.

Medical Periodical Literature

Recently, a meeting of the editors of the medical journals published in the Czech language was held in Prague. On this occasion, important questions pertaining to Czech scientific periodical literature were discussed. At present there are ten periodical medical journals being published in the Czech language, comprising periodicals for general practitioners as well as for special branches of medicine. One of the questions discussed at the meeting was the lack of interest on the part of foreign medical journals in the scientific publications that appear in the Czech language. The only exception is to be found in the German journals, which scan the literature closely and publish frequent summaries and abstracts from the Czech publications. It is only through the German medical press that the Czech papers are abstracted by French and English reviews, and they are then considered as German papers. Thus, Mendel's and Purkinje's discoveries are usually thought of as coming from Germany and not from the territory which now forms the Czechoslovak republic and in which is located the oldest university in central Europe—Prague.

The meeting expressed the unanimous opinion that the Czechs themselves were responsible for this because the Western nations could not be expected to learn the Czech language. Many of the Czech journals publish summaries at the end of the articles either in French or in English, but this does not accomplish much because it does not pay to subscribe for a journal because of the summaries alone. The Czech Academy of Sciences and Arts in Prague is preparing an annual publication to appear every year in French and in English. This will contain the summaries of achievements in all branches of science, and will be sent free to the important centers of education and research in the world. Nevertheless, the meeting felt that this measure of the Czech Academy would not quite remedy the situation, as the size of the publication will naturally be limited if all branches of science are represented. It would be quite expensive and hardly possible for financial reasons to create a special medical journal printed in either French or English for the papers coming from the Czech universities. Therefore it was proposed that steps be taken to combine the nations in central Europe which are cooperating now in political as well as economic problems for the publication of one or more scientific medical periodicals in those languages.

The second important question brought before the meeting was that of reporting in the Czech medical papers the progress of medical sciences in foreign countries. At present each periodical has in front a section for original articles, followed by accounts of foreign medical literature. Because there is no contact between the reporting physicians, it happens frequently that there appear two accounts of one foreign paper in two different periodicals, while many important papers are overlooked and do not come to the notice of the Czech medical profession. Each university maintains for each branch of medicine a reporting club directed by the professor. In spite of this there is no contact between the three medical faculties, and duplications are frequent.

Annual Meeting of Czechoslovak Physicians

Recently the annual meeting of the Central Union of the Czechoslovak Physicians was held in Karlsbad. On this occasion the thirty-fifth anniversary of the Central Union was celebrated. While originally the union comprised only the physicians coming from the territory of Bohemia, it was enlarged to the whole territory of the so-called Czech provinces—Moravia and Silesia—in 1893, and finally in 1918

Slovak physicians were also admitted. The union is organized on the basis of counties, which are the smallest units. There are thirty-three counties at present, with approximately 3,000 members of 3,500 Czechoslovak practicing physicians in the republic. The counties hold regular county meetings where not only scientific but also professional matters are being discussed. The central organization in Prague has sections for army physicians, dental surgeons, specialists and a very active committee called the Young Generation of the Czechoslovak Physicians. This committee has shown a great deal of interest in social and preventive medicine through its conferences devoted to kindred questions. The organization maintains also an intelligence bureau, a bank and a section for sickness insurance. At the annual meeting, the work of the union was summarized, and it was found that most of the points that the creators of the union put into its program thirty-five years ago have been realized. It was noted with great satisfaction that Dr. V. Janovsky, who was one of the chief creators of the union, was present at the meeting. The honorary membership of the union was conferred on him, on the state secretary of the ministry of health, Dr. J. Semerád, and on Dr. V. Rubeška. The meeting was followed by a trip to neighboring Czechoslovak watering places, which at last have resumed their prewar splendor.

BUENOS AIRES

(From Our Regular Correspondent)

Aug. 30, 1923.

National Health Department

Prof. G. Araoz Alfaro has been appointed president of the national board of health, a position he had filled temporarily under the previous administration. He has been given full powers to reorganize his department, for the purpose of securing greater efficiency.

At a conference last week for coordinating the activities of all federal and provincial health authorities, which was also attended by representatives of various scientific institutions, several resolutions were approved in regard to the control of tuberculosis, leprosy, drug addiction, venereal diseases and malaria. The most significant result of the meeting was the preparation of a bill designed to insure coordination between the several health agencies in the country. The views are endorsed by the government, and the bill has already been introduced in congress; it places all government asylums and hospitals, as well as the public assistance, under the interior department. This may be considered a step toward the creation of a public health department.

Insulin

Ever since the first reports from Toronto, in 1922, tests of the action of pancreas extracts on blood sugar have been made at the Laboratory of Physiology. The Argentine Medical Association suggested this subject for discussion at its annual congress on internal medicine. Dr. A. Sordelli has prepared a semipure insulin and a purified insulin, which have been studied experimentally. To check exploitation, to determine standards and to educate physicians in the use of the new drug, the national health department appointed a committee consisting of Profs. A. Sordelli, biochemistry; B. A. Houssay, physiology; M. R. Castex and P. Escudero, clinical medicine, and A. Bachmann, director of the bacteriologic laboratory of the national health department.

University Conditions

Since the intervention of the national authorities, a period of order and progress has followed at the University of Cordoba. A similar change has taken place in the University del Litoral, especially in the medical school, which is ably supervised by the dean, Dr. R. Araya. This school has shown enormous expansion within a short time; the number of students is already too large, more than 300 having been enrolled in the freshman class. Recently, the directing board adopted a resolution to the effect that professors must reside at Rosario. A number of the members of the teaching staff lived in Buenos Aires and spent only a few hours at Rosario, 180 miles away. Some professors resigned, and others have practically left or given up their contracts. Dr. O. Pico has been engaged to head the laboratory of physiology, which was sadly neglected by the former incumbent.

At Buenos Aires, discipline and stability are not yet fully established. The majority of professors ask for full control of school affairs, with the complete exclusion of interference by the students, who are notoriously inexperienced and liable to political manipulation. However, the superior board is under heavy pressure from the students, who have even expressed a desire to increase their present elective powers. Should their requests be granted, the university will certainly be sadly hampered.

Prominent Visitors

Professor Lustig of Florence is now in Buenos Aires.——Dr. G. E. Lafora of Madrid has completed two series of lectures, one on neurology and psychiatry and the other on psychanalysis.——Prof. S. Recasens, dean of the Madrid Medical School, has come especially to invite Argentine physicians to attend the medical congress to be held at Seville in 1924. While here, he gave an interesting lecture on radiotherapy in gynecology.——Prof. H. Roger, dean of the Paris Medical School, will arrive today to give a series of lectures. ——Professor Weygandt, the Hamburg psychiatrist, is now in this city.

Deaths

Prof. J. Sisto, one of the most active pediatricians in this country and discoverer of Sisto's sign (continuous crying of infants with heredosyphilis), has died.——Dr. Francisco Soler of Parana, the oldest physician in this country, died recently.

Marriages

KENT WOOD JARVIS, Oswego, N. Y., to Miss Frances Bernadette Hannon of New York, October 2.

EUGENE CUSHMAN WYLIE, Boston, to Miss Norma Katherine McKelvie of Rochester, N. Y., October 1.

WILLIAM PATTON WOOD, Knoxville, Tenn., to Miss Mayme Parrott of Strawberry Plains, August 28.

ROBERT LINCOLN GOODALE, Boston, to Miss Susan Bainbridge Sturgis of Groton, Mass., September 29.

LINCOLN MOSES SAULPAUGH, New York, to Miss Ida L. Hunt of East Orange, N. J., July 5.

CLARENCE FRANK GUNSAULAS BROWN to Miss Marjorie Mitchell, both of Chicago, October 3.

JOHN J. GILBRIDE, Philadelphia, to Miss Claire H. Keane of Hartford, Conn., September 10.

JOHN JOSEPH DEACY, Lawrence, Mass., to Miss Margaret Breen of Methuen, September 18.

RUSSELL L. CECIL to Miss Eileen Gladstone Cumming, both of New York, September 26.

STUART WILSON EGERTON to Miss Katherine B. Lalor, both of Baltimore, September 25.

MUIR BRADBURN to Miss Helen Donald Watson, both of New Orleans, October 10.

W. B. LEWIS, Kamrar, Iowa, to DR. EFFIE FAYE CASHATT of Coon Rapids, July 15.

SAMUEL PLAHNER to Mrs. Naomi Wilson Manlove, both of Milwaukee, August 24.

GEORGE KESKEY, Kenosha, Wis., to Miss Stella Blackmore of Ely, Minn., July 31.

LAILA ANN COSTON to Mr. Lewis C. Conner, both of New York, September 27.

Deaths

Edward William Buckley ⊕ St. Paul; Medical Department of Columbia College, New York, 1888; past president of the Ramsey County Medical Society; made Chevalier of the Legion of Honor by the French government, during the World War; on the staff of St. Joseph's Hospital, where he died, September 26, aged 63, following a long illness.

John Charles Mackenzie, Cincinnati; Medical College of Ohio, Cincinnati, 1865; emeritus professor of clinical medicine; for many years secretary of the faculty of the University of Cincinnati College of Medicine and on the staff and at one time superintendent of the Cincinnati General Hospital; aged 81; died, September 19.

Oscar Teague, Pittsburgh; University of Berlin, Germany, 1903; member of the American Association of Pathologists and Bacteriologists, the New York Pathological Society, and the Society of American Bacteriologists; aged 48; was killed in an automobile accident, September 29, near Vineland, N. Y.

William Van Metre Taylor, McKeesport, Pa.; Jefferson Medical College of Philadelphia, 1873; member of the Medical Association of the State of Pennsylvania; formerly on the staff of the McKeesport Hospital, and member of the board of health; aged 74; died, September 23, of uremia.

James Robert Gillespie ⊕ Dayton, Tenn.; Vanderbilt University Medical Department, Nashville, 1890; Bellevue Medical College, New York, 1891; past president of the Rhea County Medical Society; at one time county physician; aged 55; died, August 26, following a long illness.

Thomas Z. Jones ⊕ Waterville, N. Y.; Bellevue Hospital Medical College, New York, 1883; past president of the Oneida County Medical Society; formerly on the staff of the Osawatomie (Kan.) State Hospital; aged 63; died suddenly, June 12, in Albany, of angina pectoris.

Charles Clark Fowler, Hendersonville, Tenn.; Vanderbilt University Medical Department, Nashville, 1915; member of the Tennessee State Medical Association, and president of the Sumner County Medical Society; aged 33; died, September 19, following an appendectomy.

Julius William Weinstein, New York; Columbia University College of Physicians and Surgeons, New York, 1900; formerly on the staffs of the Mount Sinai Hospital, New York, and the Zion Hospital, Brooklyn; aged 50; was found drowned in the Hudson River, September 10.

George Wendling Hay, Washington, Iowa; State University of Iowa College of Medicine, Iowa City, 1894; member of the Iowa State Medical Society; past president of the Washington County Medical Society; aged 61; died suddenly, September 29, of heart disease.

Charles H. Towlerton ⊕ Lyons, N. Y.; Medical Department of the University of the City of New York, 1889; formerly on the staff of the Bellevue Hospital, New York; proprietor of the Lyons Hospital; aged 58; died, September 14, of carcinoma of the throat.

Carl Von Neupert, Sr., Stevens Point, Wis.; University of Würzburg, Germany, 1865; member of the State Medical Society of Wisconsin; formerly city physician; veteran of the Franco-Prussian War; aged 83; died, September 23, of heart disease.

Patrick D. Riordan, New York; New York Homeopathic Medical College and Hospital, 1898; formerly on the staff of the Flower Hospital; for several years county coroner; aged 58; died, September 21, of heart disease.

Barnard Shipp Holt, Duncan, Miss.; University of Louisville (Ky.) Medical Department, 1910; member of the Mississippi State Medical Association; aged 36; was found dead in bed, September 7, of heart disease.

Joseph Franklin Daugherty, Walton, Ky.; Kentucky School of Medicine, Louisville, 1891; member of the Kentucky State Medical Association; aged 57; died recently, of chronic nephritis, at a hospital in Cincinnati.

Larry Richard Gale ⊕ Newport, Ohio; University of Cincinnati College of Medicine, 1915; served in the M. C., U. S. Army, during the World War; aged 32; died, September 23, of ulcerative endocarditis.

Charles Edward Lindeman ⊕ Pittsburgh; University of Pennsylvania School of Medicine, Philadelphia, 1899; served in the M. C., U. S. Army, during the World War; aged 53; died, September 17.

Henry Maurice Leach ⊕ Saginaw, Mich.; Bellevue Hospital Medical College, New York, 1879; aged 70; died, September 21, of septicemia, contracted while performing an operation.

Arthur E. Lawrence, Pomeroy, Ohio; Columbus Medical College, 1890; member of the Ohio State Medical Association; aged 55; died suddenly, September 17, while attending a patient.

Edgar Ames Stoneman, Springfield, Mass.; Starling Medical College, Columbus, Ohio, 1891; aged 55; died, September 18, at the Springfield Hospital, of heart disease, following an operation.

Friend L. Hall, Erie, Pa.; Medical Department of Western Reserve University, Cleveland, 1882; member of the Medical Society of the State of Pennsylvania; aged 68; died recently.

Simon DeJager, Paterson, N. J.; University of Leyden, Netherlands, 1879; member of the Medical Society of New Jersey; formerly city health officer; aged 67; died, August 29.

William L. Hudson, Luray, Va.; Louisville (Ky.) Medical College, 1874; member of the Medical Society of Virginia; aged 72; died suddenly, September 17, of cerebral hemorrhage.

Guido Ranniger, Oscuro, N. M.; Rush Medical College, Chicago, 1890; aged 69; died, August 17, at the Masonic Hospital, El Paso, following an operation on the gallbladder.

John Wesley Robinson, Guide Rock, Neb.; State University of Iowa College of Medicine, Iowa City, 1884; also a druggist; aged 71; died, September 18, of carcinoma of the face.

Rurie Oliver Lacey, Elizabethtown, Ill.; Eclectic Medical Institute, Cincinnati, 1887; member of the Illinois State Medical Society; aged 58; died, August 25, of carcinoma.

Hugh Marshall Barnes ⊕ Colony, Kan.; University Medical College of Kansas City, Mo., 1899; aged 46; died, August 30, at Rochester, Minn., of heart disease.

Ralph Crable Smith, Alpena, Mich.; Detroit College of Medicine and Surgery, 1904; formerly city health officer; aged 56; died, September 14, of carcinoma.

William Henry Harpe, Cussetta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1889; aged 65; died, September 10, of cerebral hemorrhage.

Elbridge H. Gerry, Shrewsbury, Pa.; University of Maryland School of Medicine, Baltimore, 1867; aged 86; died, September 14, of cerebral hemorrhage.

Howard M. Hamblin, Washington, D. C.; American Medical College, St. Louis, 1875; aged 76; was found dead, September 12, of accidental asphyxiation.

Samuel M. Worley, St. Augustine, Fla.; Chattanooga (Tenn.) Medical College, 1902; aged 45; died, September 12, in a sanatorium at Asheville, N. C.

Robert Patrick Fair ⊕ Boston; Medical School of Harvard University, 1900; formerly on the staff of the Carney Hospital; aged 53; died, September 15.

Sparrow A. Snow ⊕ North Branch, Mich.; University of Michigan Medical School, Ann Arbor, 1872; aged 75; died, September 15, of pneumonia.

William Alfred Barmore ⊕ San Francisco; Medical College of Ohio, Cincinnati, 1891; aged 53; died, September 26, of cerebral hemorrhage.

James R. Paine, Pembroke, Ky.; University of Nashville (Tenn.) Medical Department, 1872; aged 77; died, September 18, of heart disease.

John Ross Cogswell, Warner, N. H.; Dartmouth Medical School, Hanover, 1865; aged 83; died, September 17, of cerebral hemorrhage.

Joseph Francis Kozlowski ⊕ Chicago; Harvey Medical College, Chicago, 1901; aged 53; died suddenly, October 2, of myocarditis.

Addison K. Ross, Parkersburg, W. Va.; College of Physicians and Surgeons, Baltimore, 1885; aged 70; died, September 13.

James Ferrier, New York; Trinity Medical College, Toronto, Ont., Canada, 1881; aged 71; died, September 16.

Levi Joseph Jenkins, Whitney, Fla.; Tennessee Medical College, Knoxville, 1893; aged 59; died recently.

Correction.—The September number of the *California State Journal of Medicine* announced the death of Dr. John William Peck in Berkeley, and THE JOURNAL published an obituary notice, September 29. We have since learned it was Dr. Albert P. Peck of Berkeley who died, not Dr. John W. Peck.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

THE OPTICAL THEORIES OF W. H. BATES

"Throw Away Your Glasses" and Buy My Book

W. H. Bates, M.D., of New York City has been urging for some time that people with errors of refraction "throw away their glasses" and purchase his book "Perfect Sight Without Glasses," price $5.00. This book, we are told, "demonstrates that all persons wearing glasses are curable without them." Until recently, Dr. Bates' advertising efforts, while somewhat extensive, have not been of such a nature as to warrant much attention being paid to his activities in this line. However, a recent issue of a popular magazine of wide circulation contains an article by Dr. Bates promulgating his weird theories. Going to the public under such respectable auspices as this, the propaganda and preposterous theories of Dr. Bates assume an importance out of all proportion to their scientific value.

The sum and substance of the Bates' theory seem to be that any person suffering from errors of refraction may train his eyes to perfect vision by performing certain ocular exercises and exposing his eye to intense light. This hypothesis is not only unsupported by, but is very definitely opposed to, the accumulated evidence of the science of ophthalmology.

When a physician promulgates theories that are unsupported by scientific evidence and opposed to the accumulated knowledge of experts in its particular field, and especially when he commercializes such theories it is proper to inquire into his professional antecedents.

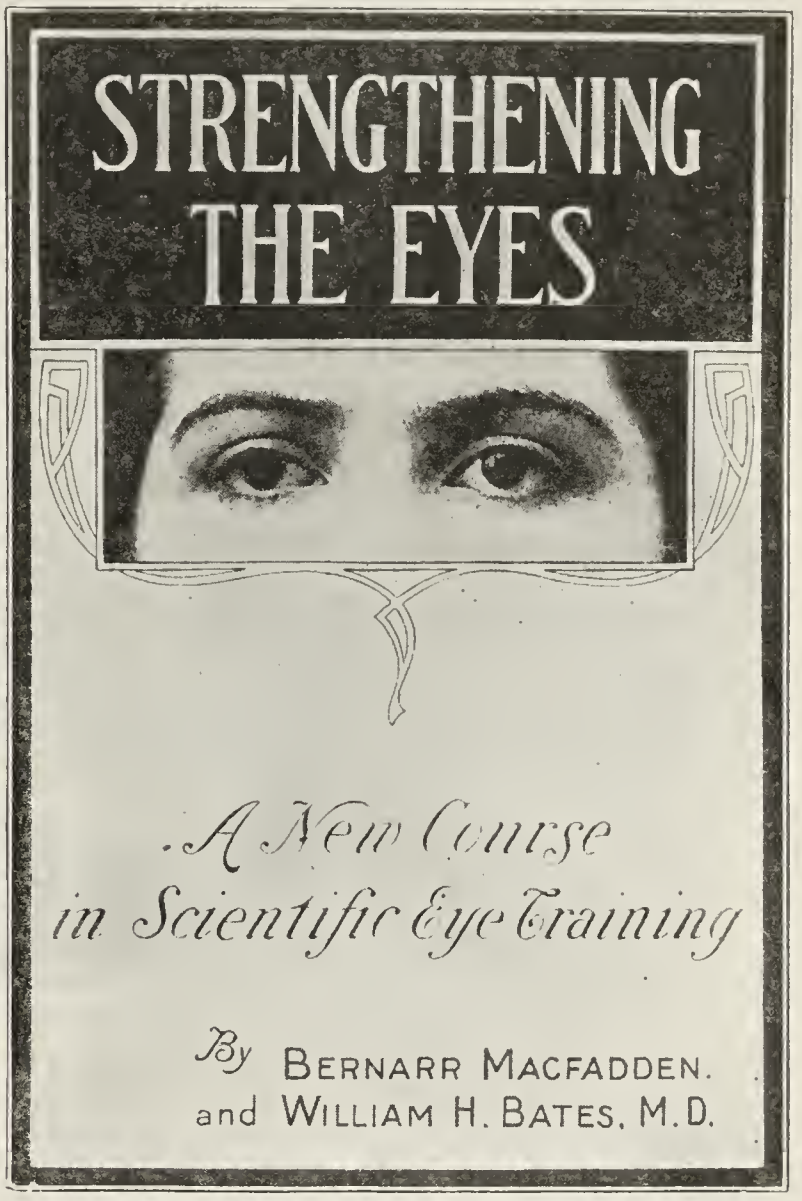
According to information on file, William Horatio Bates was born in Newark, N. J., in 1860; was graduated in 1885 by Columbia University, College of Physicians and Surgeons; was licensed in New York the same year and in North Dakota in 1903. Newspaper clippings record that in August, 1903, Dr. Bates mysteriously disappeared from New York City. Two months later he was discovered in London, England, "acting as an assistant in a hospital." He is alleged to have given two explanations of his disappearance. One was that he had been called to perform an operation on a sailor and that, while doing this, the ship in which the sick man lay sailed away. The other explanation was that he had left New York "while suffering from an acute case of aphasia" (amnesia?). Two days after being found in London he again disappeared and his name did not appear in the newspapers for nearly nine years. Then, in May, 1911, the New York papers reported that one of Dr. Bates' old friends had "found him quite accidentally in Grand Forks, N. D." and had persuaded him to return to New York. While the newspaper accounts give the impression that Dr. Bates' whereabouts from 1903 till 1911 were unknown, the medical directories show that Dr. Bates was in Grand Forks from 1904 to 1910 inclusive. He seems to have been a member of the local medical society during most of that time. Dr. Bates has been a member of the Medical Society of the County of New York for some years and, through this, has qualified as a Fellow of the American Medical Association.

Dr. Bates' bizarre claims and methods regarding refraction began to be brought to the attention of THE JOURNAL in 1913 when letters from laymen were received asking about his special "treatment for poor eyesight." In 1917 Bernarr Macfadden, the "physical culture" faddist, collaborated with Dr. Bates in turning out what was heralded as "A New Course of Eye Training." This was heavily advertised in *Physical Culture*, a sheet whose advertising pages have reeked with medical and quasi-medical freaks, fads or fakes. In addition, the public was circularized by *Physical Culture* urging it to purchase this "course." Later, for some reason, Dr. Bates' name was dropped from the advertising but Macfadden and *Physical Culture* continued to feature the course. The title was changed to "Strengthening the Eyes." This is described as "Prepared by Bernarr Macfadden in Collaboration with one of the World's Leading Eye Specialists."

In July, 1919, Bates began publishing *Better Eyesight*, "A Monthly Magazine Devoted to the Prevention and Cure of Imperfect Sight Without Glasses." This is essentially an advertising house-organ for Dr. Bates. It is not admitted to second-class rates. While the publication purports to be sold at 20 cents a copy or $2.00 a year, the thing is, apparently, sent out broadcast without charge.

Some of the material in *Better Eyesight* reads as though it were the product of a psychopathic ward. As an example of Dr. Bates' lucid style, we quote the following from the first issue:

"When he [the patient] comes to realize, through actual demonstration of the fact, that he does not see best where he is looking, and that when he looks a sufficient distance away from a point he can see it worse than when he looks directly at it, he becomes able, in some way, to reduce the distance to which he has to look in order to see worse, until he can look directly at the top of a small letter and see the bottom worse, or look at the bottom and see the top worse."



Cover of an advertising booklet widely circulated by the Physical Culture Publishing Company in an attempt to sell to the public an alleged course in strengthening the eyes.

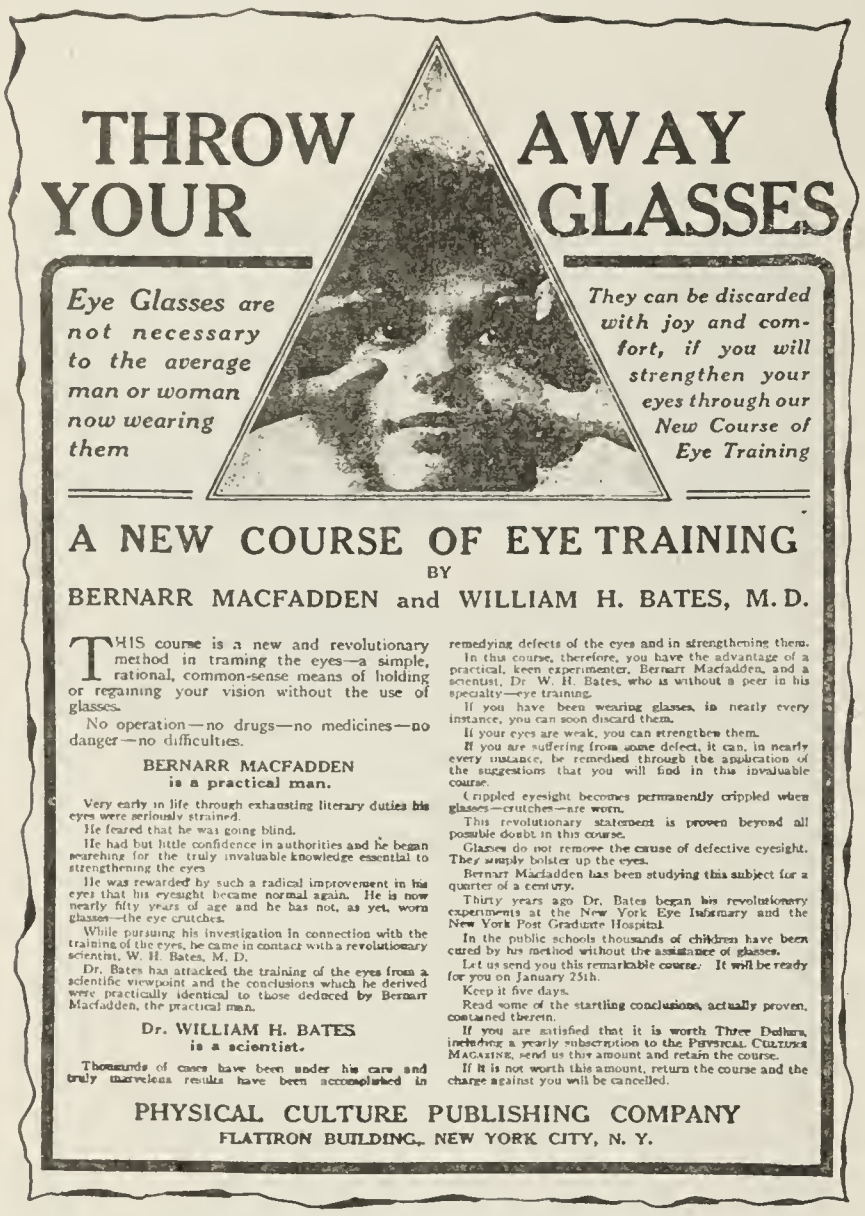
Could anything be plainer? But errors of refraction, it seems, are not the only conditions that Dr. Bates' methods will cure. At the time of the influenza pandemic *Better Eyesight* featured an alleged "quick cure" for influenza. Thus we read:

"When one palms perfectly, shifts easily, or has a perfect universal swing, not only the muscles which control the refraction, but the muscles of the arteries which control the circulation of the eyes, nose, lungs, kidneys, etc., are relaxed, and all symptoms of influenza disappear. The nasal discharge ceases as if by magic, the cough is at once relieved, and if the nose has been closed, it opens. Pain, fatigue, fever and chilliness are also relieved. The truth of these statements has been repeatedly demonstrated. The Editor is very proud of this discovery which is now published for the first time."

These are but specimens of what may be found in almost any issue of *Better Eyesight*. Many issues contain testimonials from alleged cured patients.

Dr. Bates seems to be an active member of that egregious organization, the "Allied Medical Associations," a concern that caters to physicians who live and move in the twilight zone of professionalism. In 1920 his name appears as fourth vice-president of the "Allied Medical Associations" and in 1921 he read a paper before the organization—and, of course, received the necessary newspaper publicity.

In closing, we cannot do better than quote from an editorial on Dr. Bates' theory that appeared in the *American Journal of Ophthalmology* more than three years ago under the title



A typical advertisement from *Physical Culture* advertising the "course" prepared by Dr. Bates and Bernarr Macfadden in collaboration.

"Science Versus Sensationalism." After calling attention to the fallacy of Dr. Bates' theories and the entire lack of scientific evidence for them, that journal said:

"Of course this hypothesis takes its sensational value from the fact that a great many people do not like to wear glasses. Thousands that are wearing them would like to discard them, and tens of thousands who do not wear them prefer to strain their eyes rather than give the needed assistance to their focusing powers. Such people would welcome any 'system' that would enable them to get along without glasses, as they would welcome any system that enabled them to live without paying for what they eat or wear."

Value of Diet and Rest in Tuberculosis.—Well regulated life in the open and a well balanced diet are yeoman aids to rest in the general treatment of tuberculosis. Moving, fresh air stimulates bodily functions and good nutrition improves them. Exposure to the wearing and damaging influences of weather and climate will likely prove disastrous, while forced stuffing with milk and eggs, beyond the demands of appetite and satisfactory gains in weight on more normal diet, delays rather than hastens cure.—A. K. Krause: Rest and Other Things, p. 15.

Correspondence

CONDITIONS IN THE INDIAN MEDICAL SERVICE

To the Editor:—The Bureau of Indian Affairs has recently sent out a call for more physicians for the Indian Medical Service. These calls come with considerable frequency, as there is a chronic shortage of capable men in this branch of government service, the reasons therefor being well known to those who are conversant with Indian Bureau conditions and practices as they relate to medical matters.

It seems to me only fair that physicians who may be considering the question of entering the Indian Service should know beforehand what they are going up against, and why it is that there is so much difficulty in getting and keeping good men in it. The Public Health Service, Army and Navy, etc., have no trouble in obtaining all the trained medical men they require, whereas in the Indian Medical Service we find the converse to be true, so that the Indian Bureau even takes medical students of the final year in order to be able to carry on at all.

When a man takes the civil service examination for physician, and is assigned to duty on some reservation, he naturally thinks that his position gives him full power to do what his professional training and experience shows to be called for in the treatment of his cases. Far too often, however, he is brought up with a sharp turn, and made to realize that this is not the fact, but that he is subject in all things to the will of the superintendent or agent in charge of the reservation, and that his authority is little better than nominal, even when the matters at issue are of a purely medical nature. If he happens to be stationed at a school, he learns that the agent has the power to delegate his arbitrary authority to the principal of the school, so that the latter can override the physician's recommendations as to the disposition of cases, and even go so far as to disregard or set aside his diagnosis! Needless to state, such a condition of affairs is extremely humiliating to a trained physician, but it is a logical result of the retention in Indian matters of the antiquated system that gave the agent czarlike powers in his own jurisdiction. Thirty or forty years ago there might have been some excuse for endowing this official with a great deal of authority: At that time most of the reservations were remote from civilization, settlements were few and far between, and hostile Indians had to be dealt with. Consequently, the agent had to have full control in order to meet any emergencies that arose. In the present day and age, however, such a system is an anachronism—the Indian is peaceable, and the Indian problem is no longer a military one, but a business proposition, pure and simple, and should be universally recognized as such and dealt with accordingly. Owing to the rapid increase in population of the Western states, in which the vast majority of the Indians live, and more rapid means of communication with other parts of the country, there is much more travel, so that diseases are spread more rapidly than was the case in the early days, and the Indian has suffered accordingly, acquiring diseases that were almost unknown to him before he came in contact with the white man. As a result of all this, a large part of the Indian problem is of a medical nature, and this will be more and more the case as time goes on; but as long as the Indian service physician is so restricted, sanitary and health conditions among the government's wards will be no better than they were a generation ago; in fact, they will become increasingly worse.

Another disagreeable feature that the newly appointed physician will encounter is that he is required to report all cases of sickness to his superintendent—this applies to the

white employees as well as to the Indians. So we often find that the patient's illness becomes public property and plentiful food for the evil-minded gossip, making some reservations a veritable little hell on earth. It doesn't need to be said that a physician endowed with gentlemanly instincts finds such a condition of affairs intolerable, so that he resigns just as soon as a good opportunity presents itself to get into another service where he is able to retain some degree of self-respect. All this, of course, is detrimental to the Indian's interests; the constant shifting and changing around of the Indian Medical Service man results in leaving all sanitary matters in an unsettled state.

Although the Indian physician receives a beggarly salary of only $1,200 a year, plus a bonus of $20 a month for the present, he learns that any outside work he may have a chance to pick up is largely according to the will of the superintendent, many of these officials delighting in showing their power by requiring the physician to account for almost every minute he is off the reservation. At many agencies, too, it is the custom to assign the poorest car to the physician, and he is expected to look after it and keep it in repair himself and then he finds very frequently that the use of the machine has to be shared with other employees, all of which means annoyance and delay in carrying on his work. A friend of mine had an automobile that had been in use for eight years allotted to him, and considered himself lucky in having even that much doled out by the powers that be. If the Indian physician examines an applicant for a government pension, he is expected to do the work for nothing, the excuse being that he receives a salary from the Indian Bureau, and that therefore he is not entitled to his examination fee from the Pension Bureau. At the same time, the agent or some employee under him may be postmaster, getting a tidy little sum each month out of the job—that is all right, though; the physician has no rights that any one need trouble to respect, only those that the agent may permit him.

There are certain printed rules that define more or less vaguely the physician's status, and from time to time circulars are sent out from the office at Washington, and when a man reads them he imagines that he is given considerable power in his line of duty. It isn't long, though, until the physician has the fact impressed on him that in actual practice the agent can alter or disregard practically every one of these regulations, and, if he objects, the agent always has a club to use on him, owing to the fact that he makes out the physician's efficiency report; so that at any time the agent can send in a report, or have this done by one of the numerous traveling supervisors or inspectors in the service, and the M.D. receives a peremptory note or telegram from bureau headquarters either "firing" him, suspending him without pay, or transferring him to some undesirable post in a distant state. Of course, the physician may ask for an investigation, but he quickly finds out that he is under almost insurmountable handicaps when he starts anything of this nature: Every employee is responsible to either the superintendent or the school principal, as the case may be, these officials making their efficiency reports, so that the employee has to give his testimony in line with the agent's will or be in danger of "getting it in the neck." This applies to the nurse as well, placing her between two fires, since she is not responsible to the physician at all, when it comes to rating her efficiency; consequently, she may obey the orders of the doctor or disregard them, just as she pleases, knowing that she is safe just as long as she has a stand in with the agent.

The disabilities I have mentioned heretofore are only a few of the ones that the Indian physician labors under. But they are plenty, and it is nothing more than a square deal to let any man contemplating going into the Indian Medical Service know beforehand something of the life he will lead. If he feels willing to take his chances under the conditions revealed, then he will have nobody to accuse of misrepresenting things later on. But, even if he is fortunate enough to obtain a billet where the agent is a man broad-minded enough to recognize that the physician should be supported in his endeavors in behalf of the health of his charges, and not be interfered with at every turn over petty points of authority, in such a case he will always have the knowledge that at any time conditions may reverse themselves—he is never really his own master. Should the physician find and report too much sickness, say numerous cases of tuberculosis or trachoma, so that there is an apparent reflection on the sanitary state of the reservation, right then trouble starts, as there are far too many officers in charge of Indian reservations who are more interested in fine paper records for themselves than they are in the health and safety of those supposed to be in their care.

I have learned these facts either through what I have seen personally on Indian reservations, or through friends in that service, and it has been my endeavor to be as conservative as possible in my statements. There is certainly an urgent need for radical changes and improvements in Indian Medical Service matters, and we have a splendid opportunity to get reforms effected in this department of governmental activities by having a man like Dr. Hubert Work at the head of the Department of the Interior, which contains the Bureau of Indian Affairs. It is believed that he is in thorough sympathy with any efforts to give the Indian physician a better status, and one that would free him from the present handicap of lay control, and we should, as medical men interested in the advancement of our profession, back him up in attaining these desired ends.

J. HERBERT DAREY, M.D., Sioux City, Iowa.

"CAUSATIVE FACTORS AND TREATMENT OF CHRONIC EMPYEMA"

To the Editor:—In my article in THE JOURNAL Sept. 22, 1923, page 999, on "Causative Factors and Treatment of Chronic Empyema," it is stated that "sodium hypochlorite solution" was employed. The solution employed was "Surgical Solution of Chlorinated Soda N. N. R." (Solution Chlorinated Soda, Carrel-Dakin). It was prepared by diluting "Hyclorite" with seven volumes (7 to 1) of water. The strongly alkaline solution of chlorinated soda U. S. P. is too irritating for the purposes I described.

CARL A. HEDBLOM, M.D., Rochester, Minn.

PRIORITY IN DISCOVERY OF A SUBSTANCE DERIVED FROM THE PANCREAS, ACTIVE IN CARBOHYDRATE METABOLISM

To the Editor:—Since insulin has become a clinical success there seems to be a certain amount of discussion as to priority. Naturally, I have been interested in following this discussion, though I had no intention of partaking in it until pressed by some of my acquaintances, and I now do so with reluctance.

During the spring and summer of 1911, while working in the laboratories of biochemistry and physiology of the University of Chicago, I developed a method for extracting a substance from the pancreas which is active in carbohydrate metabolism. The method of preparing the extract, together with an account of some of its physiologic effects, was published in the *American Journal of Physiology* (**29**:306 [Jan.] 1912).

In the *Journal of Laboratory and Clinical Medicine* (**7**:467 [May] 1922), Banting and Best state that "the principle upon which this latter extract depends is the same as that of E. L. Scott and the favorable results led us to see whether adult pancreas could be used in place of fetal. Six c.c. of *whole*

gland extract prepared as above were therefore injected daily from December 8 to January 3 inclusive." (The italics are mine.) This, I believe, is the first extract of a whole normal adult pancreas reported by Dr. Banting or his co-workers as having been used in their work, and constitutes the first repetition of my own work, reported in 1911, which is recorded in the literature. The test to which Banting and Best put the extract was much more severe than any that I made, but the favorable outcome indicates clearly that the discovery of the curative power of "insulin" has been open from January, 1912, to any one who cared to repeat and extend my work. This it remained for Dr. Banting to do, and the credit for this extension is clearly due to him.

In spite of simplification and the rather severe modification to which the process has been subjected for purposes of quantity production, it seems that priority of isolation and in the development of the fundamental principles involved in extraction clearly belong to the work reported from the laboratories of the University of Chicago. On the other hand, the present method of final purification by precipitation at the iso-electric point is an addition to the older method, which, though perhaps of extreme importance in obtaining a safe and uniform product for clinical use, is not necessary for obtaining the active principle, as is shown by the experiment of Banting and Best cited above.

I wish again to emphasize that it is no part of my intention to withdraw any of the credit from Dr. Banting and his co-workers for the work they have done in extending our knowledge of the physiologic and therapeutic properties of insulin. I wish also to point out that in the papers which have been published by him and by Professor MacLeod, full credit has been given to my work. It is only because it has come to my attention that others are attempting to claim priority for the principles involved in making the extract that I call attention to the papers cited in this note.

ERNEST L. SCOTT, PH.D., New York.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

WIDAL REACTION

To the Editor:—Is the Widal reaction positive in malarial fever? In what conditions other than typhoid is the Widal reaction positive?

L. C. B., Arkansas.

ANSWER.—A typical positive reaction—marked clumping with complete loss of motility in one hour at a dilution of 1:50—is practically never due to any other disease than typhoid, if the test is properly performed. However, a positive Widal reaction is not infrequently found in cases of jaundice in which no specific disease is clinically evident. It is certain, says Webster, that most, if not all, of these cases of jaundice are secondary to a typhoid cholecystitis with its accompanying sequelae. These patients may have an "ambulatory" typhoid, or they may have no clinical signs other than a positive Widal reaction. Positive reactions also are undoubtedly seen in which the infection is due to the paratyphoid bacillus, and in which agglutination of the typhoid bacillus shows stronger than the paratyphoid bacillus; on the other hand, cases of true typhoid fever may show a stronger reaction with *Bacillus paratyphosus* than with *Bacillus typhosus*. However, the paratyphoid bacillus, according to Lentz, is agglutinated more quickly by paratyphoid serum than is the typhoid bacillus by typhoid serum. Aside from these considerations, and of cases in which the patients have recently recovered from typhoid fever or have recently been vaccinated against typhoid fever, a positive Widal reaction indicates infection with *Bacillus typhosus* in practically all cases.

RESPONSIBILITY OF THE HOSPITAL FOR MALPRACTICE

To the Editor:—To what extent can a city hospital or any other hospital be held legally responsible for the death of any patient in that hospital due to any form of malpractice on the part of the attending physician? Can such a hospital be sued for any malpractice on the part of an attending physician of his patient in the hospital which might result in death or disability of the patient, in Ohio or in any other state in the union? Please omit name. ———, M. D., Ohio.

ANSWER.—The rule is succinctly stated by Brother's (Medical Jurisprudence, 1914, page 274) as follows: "Where due care is used in the selection of its employees, a private charitable hospital, conducted for benevolent and philanthropic purposes, is not responsible to a patient for damage received through the unskilfulness or carelessness of servants, attendants or physicians in charge, even though the patient paid for the services given. . . . A city, county or state does not possess power to operate a hospital for revenue and, therefore, cannot be made liable for the negligence of persons employed about the hospital, even though the authorities are unlawfully conducting the institution for revenue. Where the hospital is a private institution and conducted for profit, the institution is liable for such negligence." The rule thus laid down is only a general guide. It is subject to variations in our different jurisdictions. For information as to such variations, reference should be made to the statutes and decisions of the several states.

PEMPHIGUS VEGETANS

To the Editor:—Kindly give me the etiology, pathology and treatment of pemphigus vegetans. I am treating an acute case in a woman, aged 45, so far without success. ———, M.D.

ANSWER.—The etiology of pemphigus vegetans is not known. *Bacillus pyocyaneus* has been recovered in some cases in pure culture, but it is possible that this infection only produces the vegetations which constitute the difference between this disease and pemphigus vulgaris. Eberson (*Arch. Dermat. & Syph.* **8**:204 [Aug.] 1923) has recently described a gram-positive anaerobic organism recovered from the blood of seven patients suffering with chronic pemphigus.

The histologic picture of pemphigus vulgaris presents a dilatation of the blood and lymph vessels and cellular infiltration of the upper corium, while the papillae are greatly hypertrophied and acanthosis is present in the epidermis.

Treatment is unsatisfactory. The disease usually pursues a slow course, but usually ends fatally. The general health of the patient should receive attention, and various drugs, as iron, quinin, strychnin and arsenic, are at times of service. Of these arsenic, used in the form of solution of potassium arsenite (Fowler's solution), sodium cacodylate or neoarsphenamin, seems most useful.

CYCLIC, OR PERIODIC, VOMITING

To the Editor:—What is the relationship between toxemia and chronic vomiting in childhood? Is it probable that in many cases an error in diet is only the exciting cause, while the toxemia from diseased tonsils, a diseased appendix, a pyelitis or some other source of infection is the real or basal cause? Can you refer me to some recent literature dealing with the causes of vomiting in childhood? Of course, I have the current medical books in pediatrics.

N. THOMAS ENNETT, M.D., Richmond, Va.

ANSWER.—It is presumed that our correspondent means the toxemia and chronic vomiting commonly known as cyclic, or periodic, vomiting. This general symptom complex unquestionably is often associated with focal infections, especially infections of the tonsils. This association is proved by the fact that when the focus of infection is removed, the attacks of vomiting cease. So far as we know, there has not recently been any literature on the causes of this type of vomiting. Owing to the fact that, often after the vomiting starts, large quantities of acetone and diacetic acid appear in the urine, the condition has been called by some writers an acidosis. There yet is lacking proof that the acidosis is primary.

HEMATIMETERS

To the Editor:—Is the Thoma-Zeiss hematimeter as accurate as other hematimeters? HERMAN CASTILE, M.D., Foreman, Ark.

ANSWER.—Yes. However, the Zappert and the Turck modifications of the Thoma-Zeiss counting chamber are more advantageous in counting leukocytes, in that they permit counting a larger number over a larger ruled area.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, November 13-14. Sec., Dr. J. W. Walker, Fayetteville.

CALIFORNIA: Sacramento, October 15-18. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

CONNECTICUT: New Haven, November 13-14. Sec. Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport.

MAINE: Portland, November 13-14. Sec., Dr. Adam P. Leighton, Jr., 192 State Street, Portland.

NEBRASKA: Lincoln, November 6-8. Supt., J. D. Case, Lincoln.

NEVADA: Carson City, November 5. Sec., Dr. Simeon L. Lee, Carson City.

NEW JERSEY: Trenton, October 16-17. Sec., Dr. Alexander MacAlister, State House, Trenton.

SOUTH CAROLINA: Columbia, November 2. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Dallas, November 20-22. Sec., Dr. T. J. Crowe, Dallas County Bank Bldg., Dallas.

WEST VIRGINIA: Charleston, October 23. Sec., Dr. W. T. Henshaw, Frankenberger Bldg., Charleston.

New York May Examination

Mr. Herbert J. Hamilton, assistant professional examiner, Board of Medical Examiners of the State of New York, reports the written examination held at Albany, Buffalo, New York and Syracuse, May 21-24, 1923. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 58 candidates examined, 32 passed and 26 failed. Twenty-one candidates were licensed by endorsement of credentials, and five candidates were licensed by endorsement of their diplomas or other certificates. The following colleges were represented:

College	PASSED	Year Grad.	Number Licensed
Yale University		(1921)	1
Georgetown University		(1922)	1
University of Kansas		(1922)	1
Baltimore Medical College		(1901)	1
University of Maryland		(1922)	1
Harvard University		(1921), (1922)	2
Tufts College Medical School		(1910)	1
University of Michigan Medical School		(1920), (1921, 2)	3
University of Michigan Homeo. Medical School		(1919)	1
Columbia University		(1920), (1922, 3)	4
Fordham University		(1916)	1
University and Bellevue Hospital Medical College		(1922)	1
University of Oklahoma		(1922)	1
Jefferson Medical College		(1919), (1920)	2
Woman's Medical College of Pennsylvania		(1894)	1
Queen's University		(1919), (1921)	2
University of Toronto		(1921), (1922, 2)	3
Bohemian University of Prague, Czechoslovakia		(1919)*	1
University of Budapest, Hungary		(1915),* (1918)*	2
University of Glasgow, Scotland		(1912)	1
Syrian Protestant College, Beirut, Syria		(1908)	1

College	FAILED	Year Grad.	Number Failed
Johns Hopkins University		(1920)	1
University of Maryland		(1918)	1
Tufts College Medical School		(1921)	1
New York Homeo. Medical College and Flower Hosp.		(1922)	1
University of Oklahoma		(1922)	1
Jefferson Med. Coll. of Philadelphia		(1912), (1920), (1921)	3
University of Tennessee		(1920)	1
University of Toronto		(1921)	1
McGill University		(1921, 3), (1922)	4
University of Vienna, Austria		(1893),* (1921),* (1922)*	3
University of Munich, Germany		(1921)*	1
University of Budapest, Hungary		(1912),* (1919)*	2
University of Catania, Italy		(1907)*	1
University of Florencé, Italy		(1922)*	1
University of Genoa, Italy		(1916)*	1
University of Naples, Italy		(1920)*	1
University of Padua, Italy		(1917)*	1
University of Palermo, Italy		(1921)*	1

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
College of Physicians and Surgeons, San Francisco		(1917)	California
Cooper Medical College		(1902)	California
University of Southern California Coll. of Med.		(1909)	California
Yale University		(1896)	Mass.
Howard University School of Medicine		(1921)	New Jersey
Hahnemann Medical College, Chicago		(1908)	Mass.
Rush Medical College		(1917)	Illinois
Johns Hopkins University Medical Department		(1915)	Maryland
Tufts Medical School		(1911)	Mass.
University of Michigan Medical School		(1902)	Indiana
Bellevue Hospital Medical College		(1896)	New Jersey
Miami Medical College		(1904)	Ohio
Ohio State University Homeo. Medical College		(1919)	Ohio
Jefferson Medical College		(1898), Pennsylvania, (1901)	Connecticut
University of Pennsylvania		(1901), (1908) (1911) California	Penna.
University of Vermont		(1919)	California
Medical College of Virginia		(1921)	Virginia
University of Toronto, Canada		(1908)	Penna.

College	ENDORSEMENT OF DIPLOMAS OR CERTIFICATES	Year Grad.
College of Physicians and Surgeons, Baltimore		(1890)
Bellevue Hospital Medical College		(1888, 2)
University of Buffalo Department of Medicine		(1875) (1888)

* Graduation not verified.

Book Notices

MODERN ASPECTS OF THE CIRCULATION IN HEALTH AND DISEASE. By Carl J. Wiggers, M.D., Professor of Physiology in the School of Medicine of Western Reserve University, Cleveland, Ohio. Second edition. Cloth. Price, $7.50. Pp. 662, with 204 illustrations. Philadelphia: Lea & Febiger, 1923.

The first of the three sections of this book presents the most modern conceptions as to how the circulation is maintained in health and disease. The second deals with the various instruments and procedures that are available for studying the circulation in man. In the third section an effort is made to correlate the data obtained by experimental investigation of abnormal conditions in the laboratory, with the results derived from the application of instrumental methods at the bedside and then to relate these, in turn, with the simpler signs and symptoms of the clinic. When we say that the last section is the weakest of the three, it does not imply that it is poor. It is poor only by comparison with the unusual excellence of the earlier chapters. Wiggers is at his best in discussing the physiologic, physical and mechanical questions involved in the circulation. To one interested in these features, this volume is invaluable. Much of what is contained is the result of his own investigations. These, as is well known, are most highly creditable to American scientific medicine. This edition contains so much that is new, and so much revision of the material of the first edition of eight years ago, that it is really a new book.

GRUNDZÜGE DER HYGIENE. Unter Berücksichtigung der Gesetzgebung des Deutschen Reiches und Österreichs. Von Prof Wilhelm Prausnitz. Zwölfte Auflage Bearbeitet von Dr. Carl Prausnitz, a. o. Professor der Hygiene an der Universität Breslau, und Dr. W. Prausnitz, o. ö. Professor der Hygiene, Vorstand des Hyg. Inst. d. Universität Graz. Cloth. Price, $4.25. Pp. 821, with 295 illustrations. München: J. F. Lehmann, 1923.

This edition, the twelfth, carries on the traditions of the earlier issues. Although the paper and binding show evidences of the changed conditions in Germany, the book makes a creditable appearance. As in most works of this sort, judicious pruning should be resorted to more freely. Antiquated or discredited procedures should be omitted, and much irrelevant material left out. There are, for example, thirty pages on disinfection, with descriptions of a multiplicity of apparatus and an insistence on detail that seem unnecessary. The section on ventilation is not very modern in its point of view, and there are other chapters in which American sanitarians will find little of service. In discussing pasteurization of milk, the statement is made that heating at 60 degrees for ten minutes is sufficient. This is not in accord with the best American practice. Prausnitz' Grundzüge, good as it is in many respects, is distinctly inferior to several modern books on hygiene in the English language.

THE TONSILS, FAUCIAL, LINGUAL AND PHARYNGEAL. With Some Account of the Posterior and Lateral Pharyngeal Nodules. By Harry A. Barnes, M.D., Instructor in Laryngology, Harvard Medical School. Second edition. Cloth. Price, $5. Pp. 217, with 45 illustrations. St. Louis: C. V. Mosby Company, 1923.

This admirable work may be studied with profit by every otolaryngologist. It begins with a discussion of the general nature of lymphoid tissue, with chapters devoted to the development of the tonsils, the anatomy and histology, and the question of the function. This part of the book is handled in a masterly manner which shows that the author has been a careful student of the subject. The chapters on the disease

of the tonsils and on neoplasms are handled in the same clear, lucid manner characteristic of the whole book. The chapter on the surgery of the tonsils contains a very fair presentation of the surgical problems and the several methods of removing these structures. The method of removing the faucial tonsils with local anesthesia has not been presented as favorably as many surgeons who are using this method more extensively will feel that it deserves. The author fails to emphasize sufficiently the much greater danger of using cocain injection as compared with procain. In his discussion of the latter anesthetic, his recommendation of waiting from ten to fifteen minutes after making the injection is not at all necessary. The operation may proceed immediately after the injection; and, when this has been properly carried out, pain is rarely experienced. The recommendations regarding general anesthesia will also hardly meet the approval of most experienced surgeons. This applies particularly to the recommendation that the operation be done with the patient in the upright position. The author admits that this position increases the risk of pulmonary abscess as the result of inhaling septic material expressed from the tonsil, but he favors the method because of the greater ease in doing the operation. This, however, is only a matter of experience, since a surgeon finds it just as easy in every way to do the operation with the patient in the recumbent position, which is the only proper position for administering a general anesthetic. In this connection we recall that the upright position was the one usually preferred by the early laryngologists for those exceptional operations requiring general anesthetics, and for the same reason that the author has given. The persistence, however, in this method for doing tonsil work at this time would appear to be a failure to adjust oneself to the change that has come in the practice of otolaryngology, a change that makes the operation of tonsillectomy under ether a very common and not an exceptional procedure. The final chapter on sequelae and complications includes a discussion of the roentgen-ray and radium treatment of tonsillar hypertrophy. In this the author points out that the extreme optimism of the early workers along this line has not been warranted by later work, and that the prospect held out that this method of treatment would make it possible for us to substitute such treatment for surgical procedures does not seem at all likely to be realized.

Lexikon der gesamten Therapie des praktischen Aerztes mit Einschluss der therapeutischen Technik. Unter Mitarbeit zahlreicher Fachgenossen, Herausgegeben von Walter Marle. Second edition. Paper. Pp. 481-640, with 109 illustrations. Berlin: Urban & Schwarzenberg, 1923.

This instalment includes, among other items, a series of practical illustrated articles on the extraction of foreign bodies from the various parts of the body. Normal and abnormal sexual relations—a subject apparently tabu in our books on therapeutics—are briefly but satisfactorily discussed.

Lungentuberkulose. Von Dr. O. Amrein, Chefarzt am Sanatorium Altein, Arosa. Second edition. Paper. Price, $1.20. Pp. 141, with 26 illustrations. Berlin: Julius Springer, 1923.

In spite of the fact that the author offers nothing new, and admits it, he has presented a book which cannot fail to be of help to any one who wants a short, concise treatise on tuberculosis of the lungs. The book contains numerous quotations, but these do not detract from its readableness. When Dr. Amrein presents his own views, he is conservative and clear. He gives space to palpation in the diagnosis of tuberculosis more freely than has any other German writer with whom we are acquainted. In the matter of diagnosis, he points out, quite correctly, that the average physician fails to differentiate between tuberculous infection and active tuberculosis. He calls attention to the man with an inactive tuberculosis, even an open case, who may be able to earn a livelihood for himself and his family, and puts the pertinent query: "When shall we treat the patient and when shall we let him alone?" This is a question for health officers to consider. Much space is given to medicinal treatment, but this is not uncommon among the Germans, who do not incline to therapeutic nihilism. The American student of climatology may find something useful in the chapter on climate, even though the author presents only European data. Complimentary reference is made to American health laws and sociological development, which serves, incidentally, to accenuate the shortcomings of similar endeavor in European countries.

Diseases of the Rectum, Anus and Colon, Including the Ileocolic Angle, Appendix, Colon, Sigmoid Flexure, Rectum, Anus, Buttocks and Sacrococcygeal Region. By Samuel Goodwin Gant, M.D., LL.D., Professor and Chief of the Department for Diseases of the Colon, Rectum and Anus at the Broad Street Hospital Graduate School of Medicine. Three volumes. Cloth. Price, $25 net, per set. Pp. 1616, with 1128 illustrations. Philadelphia: W. B. Saunders Company, 1923.

The previous books of Dr. Gant on some of the subjects covered in these volumes are well known for the place they have made in medical literature. The present three volume set represents what is apparently one of the most complete discussions of gastro-enterology available in English. Every aspect of the subject is considered, and that too in a systematic, direct manner. The various chapters are replete with center headings and side headings, differentiated by appropriate type to permit adequate reference. Undoubtedly, one of the most valuable features of the publication is the extensive illustrations. There are 1,128 illustrations and ten excellent colored inserts. The importance of hemorrhoids in proctology is shown by the fact that nine chapters are devoted to this subject, including anatomy, pathology, all of the various nonsurgical methods of treatment and surgical methods illustrated with complete technic. A special section devoted to physical therapy reveals the large place such methods have assumed in the treatment of chronic constipation and intestinal stasis. The volumes are complete with an excellent index.

A Simple Treatment for Tuberculosis. By Owen F. Paget, M.D., with Introduction by J. George Adami, M.D., F.R.S., and Prefatory Remarks by W. P. Birmingham, B.A., M.D., Hon. Surgeon, Public Hospital, Fremantle, Western Australia. Cloth. Price, $1.75. Pp. 80, with 7 illustrations. New York: William Wood & Co., 1923.

The treatment here described consists in the administration of dead tubercle bacilli by way of the nasal membrane. Accuracy of dosage is insured by using tablets of bacillus emulsion (B. E.), divided so as to permit of doses ranging from $\frac{1}{6000}$ to $\frac{1}{40}$ mg. The basis of treatment is stated by the author to be the ability of the nasal mucous membrane to elaborate infective material that comes in contact with it. As a result of this elaboration, antibodies are formed which are of advantage to the patient. The writer offers several temperature charts to show the improvement that follows the use of tubercle bacilli according to his method. The book is not particularly convincing, if one demands an accurate exposition of new theses; but the subject set forth is so simple of demonstration that it seems easy of confirmation—or the contrary. In addition, the introduction by Professor Adami and a preface by Dr. Birmingham serve as guarantees of good faith on the part of Dr. Paget. If further investigations bear out the statements of the author, a valuable addition to the therapy of tuberculosis will have been made; while, should his assertions be refuted, the matter will drop of its own weight.

Physical Examination of the Chest, with Special Reference to Pulmonary Tuberculosis, Including a Chapter on Tuberculosis of the Larynx. By James Crocket, M.D., D.P.H., M.R.C.P.E., Lecturer on Tuberculosis, Glasgow University. Cloth. Price, 9 shillings net. Pp. 254, with 56 illustrations. London: H. K. Lewis & Co., Ltd., 1922.

This book contains the gist of the lectures given by the author in the course on physical diagnosis at Glasgow University. The author has given the essentials of topographic anatomy and physiologic features of both the normal and the abnormal chest. Such facts as given are those with which all who make physical examinations of the chest should be familiar. These facts, the normal topography and the abnormal variations, seem to be set forth in their proper relationships. The book covers inspection, percussion and auscultation of the chest, and includes three chapters on the roentgen-ray findings in the diagnosis of lung conditions, the larynx in pulmonary tuberculosis, and the classification of pulmonary tuberculosis. The chapter on roentgen-ray examination of the chest is short, and, of necessity, inadequate for a proper understanding of the subject. This chapter should not have been included in such a volume,

but taken up at adequate length in a work devoted to this subject. While the volume offers little that is new in physical diagnosis, it is surprisingly full of good material, and will be read with satisfaction.

DER EINFLUSS TIEFER ATMUNG AUF DEN HERZRHYTHMUS (SINUSRHYTHMUS) UND SEINE KLINISCHE VERWENDUNG. Von Dr. Alfred Pongs, Privatdozent für innere Medizin und Oberarzt der Medizinischen Universitäts-Klinik zu Frankfurt A.M. Paper. Price, $2.40. Pp. 326, with 160 illustrations. Berlin: Julius Springer, 1923.

The young author of this book died in 1921 before it had appeared in print. According to the preface by Professor von Bergmann, it embodies the results of eight years of study, research and bedside observation. To one interested in the physiologic and clinical aspects of the subject, it will be a valuable source of information. The average reader will be deterred from going far by the bewildering mass of detail and the long case histories. Condensed and worked up into a well-digested fifteen page article in a monthly medical journal, there would be many readers. Not the least important of the sections of the book is the one devoted to a study of digitalis in relation to respiration.

Miscellany

INDUSTRIAL ACCIDENTS IN THE UNITED STATES

When compensation for industrial accidents entered the field of legislation less than fifteen years ago, many states already had factory inspection organizations that were intended to care for accident prevention. These organizations compiled few statistics, however, and such as were compiled were of doubtful value from the standpoint of accident prevention. In 1914, Hoffman, in Bulletin 157, of the Bureau of Labor Statistics, pointed out that trustworthy industrial accident statistics did not exist for a single important industry. Since then the Interstate Commerce Commission, the Bureau of Mines, and the Bureau of Labor Statistics have undertaken to collect these facts, and during that time the whole system of workmen's compensation laws has developed. Many states, therefore, have assumed a greater interest in preparing and using accident statistics. Chaney has brought together this statistical activity of the states in Bulletin 339 of the Department of Labor, which gives a national view for the entire industrial field. However, lack of uniformity and completeness of state accident records render this data less useful than it should be. It was possible to obtain information for forty-two states concerning fatal and nonfatal accidents, but for only twenty-two states was there a classification of accidents by industries, for eighteen states a classification by cause of injury, for twelve states a classification by nature of injury, for eleven states a classification by location of injury, for three states severity of accidents, and for two states the amount of exposure. Agricultural labor and domestic service are not included in the operation of the workmen's compensation law in most states, and, in many, steam railways are not. The number of nonfatal accidents reported (1,636,837 in 1920) therefore is short of what it would be if all "tabulatable" accidents were recorded. Fatalities are more uniformly recorded from state to state. For five years ending with 1921, the greatest number of fatal accidents (12,531) occurred in 1918, since when there has been a steady decline in the number of deaths. This probably reflects the influence of a declining industrial activity as well as a renewed effort to prevent accidents which had been lessened by war. The preponderance of mining and the basic processes of iron and steel keep Pennsylvania foremost each year in the number of fatalities. New York comes next, probably because of the extent of her industries rather than their hazardous nature.

Steam railways have fairly complete records of industrial accidents since 1888. They show a large increase in injuries until about 1916, owing in part to expansion of operations and, in part, to better records than were possible in earlier years. The fatality rate for trainmen is declining. It dropped from 4.48 in 1917 to 1.79 in 1921. Yard brakemen have the highest fatality rate in three of these years, and road freight brakeman for the other two years. In frequency of nonfatal injury, yard brakemen exceed all other trainmen in each of the five years. The lowest casualty rates are for passenger conductors.

The iron and steel industry as a whole appears to show a definite decline in accident rates. The rates for blast furnaces are among the highest found in this industry, and these declined 52 per cent. in the second of two five-year periods ending in 1921. Foundries were the only department of the industry to show an increase for both accident frequency and severity. It is possible that the low accident figures for 1921 were partly due to industrial depression, and that rising accident rates will accompany the revival. Accident rates for the erection of structural steel were higher than for any other industrial group found, and were approached only by those for logging and sawmill operations. The accident severity rate for the erection of structural steel in 1920 was 25.9 per thousand hours' exposure, while that for logging (Oregon) was 21.56.

The fatality rate for coal mines has irregularly but steadily declined. From 1907 to 1921 it dropped 34 per cent., and at the same time production per death rose 71 per cent. The serious danger in mines, as shown by these records, is falling material. This accounts for nearly half of all accidents, and there is practically no decline in fatalities from this cause from year to year. Considering the fatality rates from the standpoint of causes of accidents, it seems that the coal mining industry has been standing still in the matter of safety in recent years. Even so, coal mining appears to be less hazardous than operating trains.

THE POSSIBILITY OF EXTENDING HUMAN LIFE

The average span of life in recent years in fourteen countries has ranged from 61.8 years in New Zealand for females to 22.6 years in India for males. Considering the diversity of social, sanitary and economic conditions that prevail in these countries, it is not difficult to realize why some persons live longer than others. A good indication of the material progress of the civilized countries of the world is the substantial increase in longevity that has occurred in the last hundred years. But we are still far from having attained the maximum extension of human life with the knowledge of medicine and sanitation that we now have.

The most important single item of mortality is the record for the first year of life; 15 per cent. each year of all deaths are of children less than 1 year of age. Fortunately, infant mortality is subject to control, a fact demonstrated in the recent drop in the birth registration area to a rate of 76 per thousand births. But New Zealand, in 1920, had an infant mortality rate of 50 for the entire country, and in a large number of cities in the United States the rate is already below 40. Dublin (*Nation's Health* **5**:189 [April] 1923) therefore assumes that an infant mortality rate for this whole country of 38.2 is attainable within a relatively short period of time.

We can, in fact, surpass that figure by suppressing infant mortality in the first month of life, in which field scarcely anything has been done on a country-wide scale. The detection and proper handling of syphilis in the mother, control of the toxemias of pregnancy, better obstetrics, and good nursing will bring the desired result. In the third year of life, almost two thirds of the entire mortality is due to diarrhea and enteritis, typhoid, measles, scarlet fever, whooping cough and diphtheria, all of which now can be controlled.

In the broad span between 10 and 60 years of age, it is assumed that the mortality can be reduced to half of what it was in 1910, a figure only 20 per cent. below that in recent years for New Zealand, where there is still much preventable mortality from tuberculosis. Diseases of the heart, kidney and blood vessels take a heavy toll in the latter part of this age period. These are preventable in part, and have actually been prevented in limited groups of people. The annual physical examination and the hygienic follow-up to encourage medical supervision should bring good results.

Medicolegal

Permanent Disability Dates from Last Amputation

(Milwaukee Electric Ry. & Light Co. v. Industrial Commission et al. (Wis.), 193 N. W. R. 352)

The Supreme Court of Wisconsin says that an employee of the plaintiff company sustained an injury that necessitated the amputation of one of his arms two inches below the elbow. The wound became infected, and was treated for six months by a physician, when another amputation was made just above the elbow. Under the workmen's compensation act of Wisconsin, the employee was entitled to a weekly indemnity to the time of amputation and a prescribed compensation for the permanent disability resulting from the loss of an arm at the elbow. The question was as to which amputation the weekly indemnity was to be allowed. The industrial commission allowed it to the second amputation, and the company sought through this action to have the allowance of the weekly indemnity limited to the time of the first amputation. The difference in this instance amounted to $368.31. The supreme court affirms a judgment that affirmed the award.

It is clear that no intermediate amputation is meant when there are more than two amputations, but it is not clear whether the first or the last amputation is meant by the statute. The plaintiff argued that it was the first, because that was the natural inference from the language used, and that was the amputation that severed the arm or limb from the body. But the court is led to the conclusion that the statute means the last amputation by these considerations: It frequently happens that a finger, for instance, needs amputation, and then it is found later that, owing to serious infection or otherwise, the hand must go, and later still, perhaps the arm. Now, it cannot be seriously doubted that in such case the amputation that measures the liability for permanent disability under the statutory schedule is meant, and that is the last amputation. It is true that in this case the liability for permanent disability was under the same schedule as to both amputations, one being just below and the other just above the elbow; but the construction adopted makes the term "amputation" mean the same in each case, no matter how many amputations have occurred and no matter whether there has been a change in the schedule under which it comes; namely, the last amputation. It is also reasonable to suppose that the legislature intended the period of permanent disability for which compensation is allowed to begin at the time the amputations end, when there is more than one amputation, for it is the last amputation that measures the extent of liability, and the supreme court thinks that this was the amputation the legislature had in mind. The fact that in this case the liability for permanent disability remained the same did not take it out of the general or uniform rule of construction adopted as to what amputation the statute means.

Allowed to Show Roentgenogram of Normal Person and to Quote Physician

(McGrath v. Fash (Mass.), 139 N. E. R. 303)

The Supreme Judicial Court of Massachusetts, in overruling the defendant's exceptions in this action to recover damages for personal injuries, for which the plaintiff obtained a verdict, says that a physician who was a specialist in the use of the roentgen ray was called as a witness by the plaintiff and testified concerning certain roentgenograms purported to be of the plaintiff's pelvic region, where the principal injury claimed by her existed. He said that the plates showed an abnormal condition of the pelvis, particularly with reference to the relation of the bones, some of which were alleged to have been fractured. He also produced another roentgenogram, which he testified showed the pelvic bones of a normal person. this plate being admitted in evidence subject to the defendant's exception.

It is settled that a roentgenogram showing the physical condition of a plaintiff in an action for personal injuries is admissible in evidence, and this court sees no valid reason why a plate of another person, properly verified by proof, which showed the pelvis in its normal condition, was not competent to assist the jury in understanding the nature and extent of the plaintiff's injury, in the same way that a skeleton is often exhibited in similar cases. Whether the plate was sufficiently verified was a preliminary question of fact to be decided by the trial judge, and was not subject to exception. As the plate in question would have been of assistance to the jury in understanding the case, this court is of the opinion that it was admissible in the discretion of the trial court.

A physician called by the defendant testified that he had examined the plaintiff at the hospital. He described the injuries which he found and stated that there had been fractures of two bones of the pelvis, which were well set, and that the pelvis "was tipped a little bit." The plaintiff was called in rebuttal and testified that she remembered when she was examined by this physician. She was then asked as to what he said about her condition, and answered, "He told Dr. Robbins this was the worst accident case he handled in the last ten years." The defendant requested that the answer be stricken out; and the judge admitted it only so far as it tended to contradict any opinion or statement of the physician previously testified to by him. A majority of the supreme judicial court is of the opinion that the evidence as so limited was admissible in the discretion of the presiding judge. The jury might have found that it was more or less inconsistent with the testimony of the physician on his direct examination, in that he believed the plaintiff's injury was more serious than he had testified it to be. The statement made in the hospital had a tendency to contradict his testimony, and for this reason might be found to affect its weight. As limited by the presiding judge, the substantial rights of the defendant were not injuriously affected.

Evidence of Negligence in Setting Broken Arm

(Knopp v. Thornton (Ky.), 250 S. W. R. 853)

The Court of Appeals of Kentucky, in reversing a judgment entered on a verdict directed for the defendant, says that while the plaintiff was cranking an automobile, one of the bones of his forearm next to the wrist was broken and twisted around out of position, and the other bone of the forearm was dislocated. According to his evidence, he applied for treatment to the defendant, who pulled at the arm, laid it on a board on the plaintiff's knee, placed another board on top of the arm, bound it, and sent the plaintiff away, telling him that he need not come back until the end of six weeks, unless there was too much pain. Twice the plaintiff returned to have his arm examined, but the defendant gave him only casual attention. Later, the defendant removed the splint and told the plaintiff that the arm was all right, although it was a little crooked. However, roentgenograms were then made by other surgeons, who found that the ends of the broken bone were not together, but were in such a position that they would not unite, while the other bone was out of its socket. The gist of the defense was that the plaintiff had dislocated the bones after they had been set and bound by the defendant; but the plaintiff's evidence on this point directly and positively negatived that. He said that he did not jar or wrench his arm in any way; that he was very careful not to do so, following the defendant's instructions on that subject; that the bones in his arm were left exactly in the same position in which they were placed by the defendant. There was no evidence to the contrary. With the evidence in this condition, the trial court erred to the great prejudice of the plaintiff in directing a verdict for the defendant physician. The plaintiff had a right to have the case submitted to a jury.

The rule is that a physician holding himself out as skilled in the performance of surgical operations, who undertakes to perform an operation, must exercise such care as physicians and surgeons of that vicinity generally exercise in the performance of like duties; and if he fails to do so, he is liable in damages to a person injured by his negligence or carelessness. If the evidence of the plaintiff could be relied on, the defendant was not only negligent and unskilled, but directly responsible for much of the pain and suffering that the plaintiff endured, and for the failure of the bones of

his arm to unite and strengthen immediately after the plaintiff applied for treatment. The horrible condition of the bones of the plaintiff's arm, as shown by the roentgenograms, which were acknowledged to be correct, made it plain that there was no skill or ability employed in the setting of the bones if they were in the same position at the time the pictures were made that they were at the time when the defendant set them, as contended by the plaintiff. That was a question of fact which should have been submitted to the jury.

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Washington, D. C., Oct. 15-20. Dr. Luther C. Peter, 1529 Spruce St., Philadelphia, Secretary.

American Association of Railway Surgeons, Chicago, Oct. 18-20. Dr. L. J. Mitchell, 29 E. Madison St., Chicago, Secretary.

American College of Surgeons, Chicago, Oct. 22-26. Dr. Franklin H. Martin, 40 E. Erie Street, Chicago, Secretary.

Central Neuropsychiatric Association, St. Louis, Oct. 20. Dr. Karl A. Menninger, Topeka, Kan., Secretary.

Central States Pediatric Society, Detroit, Oct. 18-19. Dr. H. T. Price, Westinghouse Building, Pittsburgh, Pa., Secretary.

New England Surgical Society, Boston, Oct. 17-18. Dr. P. E. Truesdale, 151 Rock Street, Fall River, Mass., Secretary.

Radiological Society of North America, Rochester, Minn., Dec. 3-7. Dr. M. J. Sandborn, Appleton, Wis., Secretary.

Southern Medical Association, Washington, D. C., Nov. 12-15. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Tri-State District Medical Society, Des Moines, Iowa, Oct. 29-Nov. 1. Dr. William B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.

Virginia, Medical Society of, Roanoke, Oct. 16-19. Mr. G. H. Winfrey, 104½ W. Grace St., Richmond, Secretary.

AMERICAN ASSOCIATION OF OBSTETRICIANS, GYNECOLOGISTS AND ABDOMINAL SURGEONS

Thirty-Sixth Annual Meeting, held at Philadelphia, Sept. 19-21, 1923

(Concluded from page 1230)

Clinical Significance of Chemical and Serum Analyses of the Blood of Uterine Cancer Carriers Subjected to Measured Radiation Doses

DR. HENRY SCHMITZ, Chicago: Radiation sickness is caused by the absorption of autolytic products from the degenerative areas of the tumor mass. This intoxication is an example of a nonspecific reaction. The serum of patients with carcinoma becomes carcinomalytic after treatment with radium and roentgen rays, as evidenced by the Freund-Kaminer reaction. The results of the chemical and serum examinations of the blood of carcinoma patients would indicate that patients with extensive and necrotic cancer tumors should be subjected to radiation therapy with a great deal of caution, a fractional interval method being preferably used to prevent severe radiation intoxications. Patients with advanced carcinoma should not be subjected to radiation therapy.

Treatment of Placenta Praevia

DR. ROSS MCPHERSON, New York: In our recent series of cases the preference in treatment was given to gauze packing, followed in most instances by an internal podalic version, this being done in 354 out of 591 cases. There were thirty-four abdominal cesarean sections, two extraperitoneal cesarean sections, three vaginal hysterotomies, twenty Braxton Hicks operations, forty-three breech extractions and twenty-two craniotomies on dead children, the rest being made up of forceps and normal deliveries. The resultant mortality to the mother was 12.1 per cent., with a stillbirth mortality of 42 per cent. One hundred and seven children born alive died before leaving the hospital, or about 18 per cent., a total fetal mortality of slightly more than 60 per cent. I believe that most of the maternal mortality in placenta praevia is due to delay in diagnosis of the condition, accompanied by tardiness in treatment, combined with careless manipulation and resultant infection, all of which are preventable and inexcusable. If these factors are eliminated, as they can be, the results for the mother should be much improved, and a patient will rarely be lost. Regarding the fetal mortality, so much cannot be said, as the greater majority of the children are so premature that little can be done to save them, even if born alive. Cesarean section on the viable fetus does offer a means of lowering this mortality to an appreciable degree, and should be employed in this class of cases more frequently.

Duplex Uterus with Multiple Pregnancy

DR. WILLIAM SEAMAN BAINBRIDGE, New York: A woman, aged 31, had four children, all born in normal labor. During her fifth pregnancy she had an uncontrollable uterine hemorrhage. I operated and found a duplex uterus with a single cervix. The right half of the uterus contained the remains of a dead fetus of about 4 months. There was a living fetus in the left body of the uterus. The patient had an uneventful convalescence and a rapid recovery. She had two subsequent pregnancies, one a full term child with normal delivery, and the other a miscarriage at three months.

Endometrial Tissue in the Ovary

DRS. OTTO H. SCHWARZ and ROBERT CROSSEN, St. Louis: The frequency with which we encountered this lesion in our series leads us to believe that it is quite common. The lesion in the stage which respresents a hematoma surrounded by a wall containing old blood, connective tissue cells and large mononuclear wandering cells without any epithelial lining can easily be overlooked. We have failed to observe this lesion in connection with definite lutein and follicular hematomas in various stages, although we observed these conditions in considerable numbers in our series. Occasionally, there was a somewhat similar appearing lesion in small stromal hemorrhages, but this occurred in a rather irregular manner and never in the same characteristic way in which it was constantly observed in connection with the hematomas supposedly of endometrial origin. The germinal epithelium of the ovary in the presence of adhesions particularly associated with hemorrhage may simulate tube or uterine epithelium. We have observed this frequently, but we have not observed the formation of gland tubules beneath such an area, nor have we observed any characteristic stroma beneath the germinal epithelium. We believe that in the case of chronic subinvolution of the uterus, with no other lesion present in the wall of the uterus, in the production of the lesion of diffuse adenomyoma of the uterus the glands invade the wall primarily, and the hyperplasia of the myometrium develops subsequently. Accordingly, we feel that the muscle tissue so well developed in the late stages of adenomyoma of the rectovaginal septum may have its origin in this manner.

Maternal Morbidity and Mortality in the United States

DR. GEORGE CLARK MOSHER, Kansas City, Mo.: We stand fourteenth among the so-called civilized nations, with a higher death rate only in Spain and Belgium. No decrease in maternal mortality has occurred since 1900 according to the census reports: 16,000 women die in labor each year, 7,500 of these from puerperal fever. We must eliminate the midwife as the chief source of sepsis in childbirth. The death rate of mothers in Philadelphia is reported as higher in 1921 than in 1920. This is also true of St. Louis, Cleveland and Buffalo. In every large city, except Pittsburgh, the number of midwives has largely decreased. There is no mass mortality in obstetrics. It is an individual mortality. There has been no reduction in the death rate in twenty years. Puerperal sepsis and eclampsia claim more than half the patients who die. These conditions are largely preventible. Many patients fail to consult a physician early in pregnancy. As a result, toxemia gains a start which results in eclampsia which intelligent supervision might have prevented. Counsel, when called, is too frequently a young surgeon whose only idea of delivery is a cesarean section. Too little attention to prenatal care or the postpuerperal observance of patients is given women by the general practitioner, as a rule. The midwife is rapidly disappearing; she is not the menace formerly supposed. The problem resolves itself into reform in our methods. We must institute a program to elevate obstetrics: to give the student more careful training in

principles, placing obstetrics on a plane with surgery; to advise the man in general practice to take advantage of post-graduate opportunities at least once in five years and to attend a short clinic every year; to urge the physician to read the standard medical journals and to apply his knowledge; to educate and urge patients to consult their physician early in pregnancy and to follow advice throughout.

Radical Surgical Treatment of Procidentia

Dr. E. P. Sloan, Bloomington, Ill.: I performed the Murphy operation twenty-eight times. In every single case drainage was instituted, or had to be instituted. In nineteen cases there was a fistula that persisted over four months; eight of these patients required operation for removal of fistula. In six cases the drainage stopped and the fistula closed in three months. In two cases, drainage was maintained for only six weeks. Sixteen of these patients were troubled with an irritating discharge afterward. I have performed the Collins operation 119 times. Fourteen women were subsequently bothered with offensive discharge from the cervix. In not one of these 119 cases was drainage maintained for more than four weeks. I have performed the Jackson operation sixteen times. Not one of these patients has developed postoperative cervical discharge. None have required drainage for more than four days. The results from this operation have been as satisfactory as those from the Collins operation, with the exception of some pain that persists for some months. I attribute this pain to the compression of, and tension on the portions of the sensitive rectus muscles, encircled by the uterus. In the Collins operation the uterine stump is supported by the only slightly sensitive fascia fibers and so no tension pain occurs.

Chemical Hysterectomy

Dr. W. Wayne Babcock, Philadelphia: This is a very simple and easy method for the removal of most of the uterus without invasion of the peritoneum. The uterus is packed with a gauze tape moistened with a saturated solution of zinc chlorid, and the vagina with a protective packing of gauze impregnated with sodium bicarbonate. After from one hour to seventy-two hours, dependent on the intra-uterine capacity and the thickening of the uterine walls, all gauze is removed. The patient usually remains in bed, with but little reaction or pain, for about four days, and shortly after this the uterus, with the exception of the parametrium and an outer thin layer of cortex, is expelled from the vagina as a firm, nearly odorless mass. A few months later, examination reveals what appears to be a diminutive uterus and cervix without cavity or discharge. The operation may be conducted under local, narcotic or gas anesthesia in from three to ten minutes. The operation is used: (1) quickly to sterilize and destroy infected metrium and endometrium in certain acute and chronic infections; (2) to produce amenorrhea and sterility, and (3) to remove certain interuterine and intra-uterine tumors.

Use of Local Anesthesia in Handling Septic Conditions Within the Abdomen

Dr. Robert Emmett Farr, Minneapolis: At present, the use of local anesthesia is largely limited, when dealing with septic conditions within the abdomen, to such operations as simple drainage of abscesses, and moribund patients in whom general anesthesia would be especially hazardous. In limiting the use of local anesthesia to the classifications mentioned, surgeons fail to realize the facility with which it may be employed. In the majority of cases the use of local anesthesia offers a better chance for the patient. It is surprising how much may be accomplished with local anesthesia in the treatment of subacute and chronic infectious processes.

Diverticulitis

Dr. Jerome M. Lynch, New York: The treatment of diverticulitis should be conservative. When an acute abscess occurs, the same treatment applies as in any other part of the abdominal cavity. A stoma is always indicated preliminary to any radical procedure, and it is needless to mention that it should be placed as far as possible from the seat of inflammation. A stoma, by directing the fecal current, prevents further infection, allows the patient to recuperate, and puts him in the best position for subsequent radical procedure.

Lesions of the Cervical Stump of a Supravaginally Ablated Uterus

Dr. Francis Reder, St. Louis: Total hysterectomy is indicated when the patient's history shows the presence of malignancy, and in those cases of cervical lacerations in which an extreme ectopic condition has developed. Patients with a cervical disease amenable to a plastic operation, and still in active sex life, should be subjected to supravaginal section as the preferable operation. Especially precaution should be exercised in equalizing the wound surfaces created by the wedge shaped excisions, that a good apposition of the newly formed lips may be obtained. Such a cervix, after healing, is perfectly smooth and healthy in appearance, and what remains of the cervical canal is almost completely obliterated. The removal of the cervical tissue should be as extensive as is consistent with the judgment of the surgeon, since it is presumed, on histologic grounds, that the removal of a large amount of the glandular portions of the cervix proportionately diminishes the chances of subsequent carcinomatous degeneration. I prefer this procedure to the "cupping out" of the cervix as practiced by Kelley, or the intracervical enucleation of Lahey. Ever since Dr. Polak began to agitate this subject of stump cancer so forcibly, my examination of the cervix in a patient to be operated on for a uterine fibroid has been more searching and minute.

Septic Infections Following Childbirth, or an Analysis of Maternal Mortality Considered From the Standpoint of Increase of Death Among Mothers

Dr. Edgar A. Vander Veer, Albany, N. Y.: Midwives, so far as statistics are available, seem to make a better showing than the ordinary practitioner, which may be explained in two ways: 1. The general practitioner is usually in a hurry when attending a confinement case, and makes frequent and unnecessary vaginal examinations, with the resultant increase of the chances of infection. The midwife is content to sit patiently by and let Nature perform her part, making few examinations, and consequently with a good deal less chance of infecting the woman in labor. 2. The midwife, in a great majority of the cases, attends only the normal confinement, sending for the physician whenever anything abnormal occurs, with the result that if anything goes wrong the physician is charged on the records with the maternal death, and not the midwife, to whom, in many cases, it should be attributed, thus apparently giving the midwife a better record than she should have, and the physician a poorer one. I believe there should be a classification in which both the midwife and the physician are in attendance and sharing the responsibility. In 1910, the maternal mortality rate, outside New York City, from all puerperal causes, was 78 per cent.; in New York City it was 66 per cent. The mortality rate for puerperal septicemia was 28 and 18 per cent., respectively. The maternal death rate, from all puerperal causes, gradually dropped to 1916, when it was 54 per cent. and 46 per cent., respectively. The death rate from puerperal septicemia dropped to about 20 per cent. and 18 per cent., at about which it has remained ever since, showing some improvement in that direction. In 1917 the maternal death rate from all puerperal causes gradually rose again, reaching its peak in 1918, when it was 82 per cent. and 70 per cent., respectively. This increase in the death rate was due to the influenza epidemic and possibly also to the inability for the woman in labor in the rural district to receive proper medical attendance, so many physicians being away in service. That year the mortality rate from puerperal septicemia remained about the same. For 1921 the mortality rate from all puerperal causes was 60 per cent. outside New York City, and 54 per cent. in New York City. The mortality from puerperal septicemia in 1921 was 21 per cent. and 12 per cent., respectively. Under proper surgical technic, puerperal septicemia should virtually be abolished.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

6: 137-256 (Aug.) 1923

*Olshausen Operation for Suspension of Uterus. W. P. Graves, Boston. —p. 137.
Sociologic Responsibility of Obstetrics and Gynecology. O. P. Humpstone, Brooklyn.—p. 149.
*Changes in Uterine Vessels During Pregnancy. O. H. Schwarz and F. P. McNalley, St. Louis.—p. 155.
Treatment of Benign Uterine Hemorrhage by Irradiation. Analysis of 100 Cases. W. C. Danforth, Evanston, Ill.—p. 172.
Resuscitation in Abdominal Surgery. W. W. Babcock, Philadelphia.—p. 179.
*Incidence of Cervical Erosion Following Normal Childbirth and Results Obtained with Dickinson Method of Treatment. Wm. Kerwin, St. Louis.—p. 185.
Diagnosis of Borderline Obstetrics. G. C. Mosher, Kansas City, Mo.—p. 188.
Nephrolithiasis and Pregnancy. A. P. Heineck, Chicago.—p. 191.
Case of Endometritis Decidualis Polyposa. E. C. Sage, Omaha.—p. 206.

Olshausen Operation for Suspension of Uterus.—Graves has performed the Olshausen operation 1,370 times, 50.2 per cent. of the cases being for general prolapse of all stages. The other cases include, in the order of frequency, simple retroversion, anteflexion with retrocession, pelvic inflammation, uterine fibroids, ovarian tumors and extra-uterine pregnancies. Of the 1,370 cases follow-up examinations were possible in 746, made at periods ranging from two months to about eight years after operation. In six of the recorded cases the artificial attachment failed to hold. Of these six failures, two cases occurred when the cervical stump had been suspended for severe procidentia; three followed childbearing, and one case followed suspension for simple retroversion in a patient who had had a previous recurrence after round ligament shortening. In fifteen of the 1,370 cases one of the silk stitches became infected, and in six of these cases the stitch required removal. In the remaining cases, the wound healed or the stitch was discharged spontaneously. In one case a small hernia worked its way through the site of the silk ligature on one side of the wound. There were no known cases of intestinal obstruction, nor of dystocia following the operation and this may also be said of all operations by the Olshausen method at the Free Hospital for Women by other members of the staff. There were four deaths in the series, one from pulmonary embolism in a case of procidentia; one from cerebral embolism in a prolapse case with a history of endocarditis; one from probable peritonitis in a case of tubercular salpingitis; and one from a typical streptococcus peritonitis. In this last case the abdomen was opened on the suspicion of intestinal obstruction, at which time the true diagnosis was made. The patient died soon after the second operation. None of the deaths could be attributed specifically to the Olshausen operation.

Changes in Uterine Vessels During Pregnancy.—Schwarz and McNalley examined twenty-four uteri, some from early pregnancies between fourteen and nineteen weeks, sixteen from later pregnancies, five in the early puerperium, and one five months postpartum with reference to changes in the blood vessels and especially the intima. Intimal changes in the arteries varied from "definite" in the early cases to "marked" in the later and the postpartum cases. Changes in the veins were present in postpartum cases, only with one or two exceptions. These vessel changes are believed to have clinical significance, explaining complications of pregnancy abnormalities seen in the placenta. Premature detachment of a normally implanted placenta, abruptio placenta, and uteroplacental apoplexy is probably caused by the sudden escape under pressure of blood from the normal channels. The authors feel that the term "uteroplacental apoplexy" is the preferable term for this condition.

Incidence of Cervical Erosion After Childbirth.—Of 102 cases seen by Kerwin, twenty-one women who were delivered spontaneously showed a marked cervical erosion. Kerwin favors the use of the Dickinson cautery knife in the treatment of these cases.

Annals of Clinical Medicine, Baltimore

2: 1-74 (July) 1923

*Clinical Study of Pancreatitis. J. B. Deaver, Philadelphia.—p. 1.
Roentgenologic Studies of Pneumoconiosis and Other Fibrosing Conditions of Lungs. H. K. Pancoast, Philadelphia.—p. 8.
*Hypertension: Its Significance and Treatment. R. M. Goepp, Philadelphia.—p. 24.
*Phenoltetrachlorphthalein Test for Liver Function. C. C. Higgins, St. Louis.—p. 30.
Basal Metabolism: Value of Its Estimation. H. K. Mohler, Philadelphia.—p. 39.
Clinical Value of Graphic Heart Records. S. C. Smith, Philadelphia. —p. 42.
Diagnosis of Gastric Disease. M. E. Rehfuss, Philadelphia.—p. 55.
Why Abnormal Mental Disorders Develop. E. A. Strecker, Philadelphia.—p. 63.
Significance of Findings of Health Survey. F. A. Craig, Philadelphia. —p. 70.

Pancreatitis.—Pancreatic disease, in Deaver's opinion, is the result of associations with bad company in the abdominal cavity. The pancreas suffers from continued insults from a diseased appendix, gallbladder, stomach or duodenum. Therefore, patients should be protected against these evil influences by early attention and removal of the primary offenders. The pancreas is a very important organ of digestion and a very essential part of the endocrine system. It is securely lodged within the abdominal cavity and cannot itself be removed. It is essential, therefore, to give it every possible protection from assault from its neighbors which so often behave very badly and can be routed out only by surgical methods.

Hypertension: Significance and Treatment.—The management of a patient who presents himself for treatment because some one has told him his blood pressure is too high, Goepp says, is one of the commonest and often the most difficult task the physician is called on to perform. At the outset it is well to warn the patient not to pin his hopes on any considerable reduction of his blood pressure, and above all not allow him to know what the reading is if it can possibly be avoided. If the abnormal blood pressure is found to be due to nephritis, heart disease or other pathologic condition, the problem at once becomes less difficult, and the appropriate treatment follows the usual lines. If, after thorough physical and laboratory examination, no definite cause is discovered, the next step should be the removal of any possible focus of infection, and if this fails, certain general measures are available which may prove helpful. First in importance is the proper regulation of the patient's habits; securing the necessary amount of rest and recreation, above all the avoidance of strain—physical, mental and emotional—and worry. Occasional periods of absolute rest in bed on a restricted diet should be prescribed whenever possible. These matters must be regulated differently according to the patient's age, sex and social state. Golf, horseback riding, swimming are suitable; tennis, handball and the more active sports must be forbidden. In the matter of diet, coffee, condiments, the red meats and foods containing a large amount of extractives are chiefly to be avoided. Quantity, however, is more important than quality. Tobacco in moderation probably does no harm. If evidences of intestinal stasis—constipation, flatulence, indicanuria—are prominent, colonic irrigation may prove useful. Warm baths and electric baths, followed by massage, enjoy a well merited popularity. In the arteriosclerotic, especially in cases of aortitis, occasional courses of mercury and sodium iodid, combined with spartein or digitalis have proved quite helpful in Goepp's experience. Digitalis, however, is not always well tolerated. It often aggravates the subjective symptoms of precordial discomfort, palpitation and the like, when they are present.

Phenoltetrachlorphthalein Test of Liver Function.—The liver functioning normally, eliminates phenoltetrachlorphthalein in from eighteen to twenty-two minutes; at that time dye first appears in the bile recovered by the duodenal drainage tube. This follows intravenous injection. The normal total dye excretion varies between 40 and 48 per cent. Normally, the dye reaches a maximum elimination in approximately

eighty minutes, and disappears in from 120 to 140 minutes. In diseases involving the liver, a definite inability to eliminate the dye is observed, the diminution of total output and the delay in the initial time of output running somewhat parallel with the destruction or stasis of liver parenchyma. In cardiac disease in which decompensation has occurred and is complicated by chronic passive congestion of the liver, a diminution of total output, as well as a delay in the initial appearance of the dye, is discernible; moderate congestion exhibits only to minor degree the inability to excrete the pthalein.

Arkansas Medical Society Journal, Little Rock

20: 55-73 (Aug.) 1923

Development of Treatment of Tuberculosis. A. C. Shipp, Little Rock.—p. 55.

Boston Medical and Surgical Journal

189: 269-302 (Aug. 23) 1923

*Psychotherapy. A. F. Riggs, Stockbridge, Mass.—p. 269.
*Estimate of Information Derived from Use of Tests for Renal Function. W. T. Longcope, Baltimore.—p. 273.
Focal Infections in Relation to System Diseases. W. G. Thompson, New York.—p. 280.
*Syphilis with Negative Wassermann Reaction. C. M. Smith, Boston.—p. 286.
Insulin, Diabetes and General Practitioner. E. P. Joslin, Boston.—p. 288.

Psychotherapy.—There are, says Riggs, two outstanding elements in all forms, regular or irregular, of psychotherapy. They are: suggestion, be it indirect or direct, with or without some form of hypnosis; and education. These elements are not only the all important factors in formally specific psychotherapy, but are always present and to be reckoned with in all forms of therapy. The degree of their potency for good or evil varies directly with the sensitiveness of the patient and the intelligence of the physician.

Value of Renal Function Tests.—No one test, or scarcely any combination of tests, according to Longcope, is alone indicative of nephritis as we now understand the disease. In the acute and subacute forms of the disease they need rarely be employed for diagnosis. For prognosis, however, as an indication for treatment, and to measure the degree of recovery, the phthalein excretion and blood chemistry may be used to good advantage in acute nephritis. In the chronic form of the disease the test devised to measure the power of the kidney to concentrate chlorids and nitrogen, and the phthalein test are of real value in accurate and early diagnosis. A study of the blood chemistry furnished a method which sometimes gives further assistance in diagnosis, but is of much more value for prognosis and the control of therapy. In the later stages of the disease, when uremia is pending or when the patient is in coma, a study of the blood chemistry is one of the most important adjuvants at our disposal in differentiating uremia of nephritic origin from other forms of convulsive seizures and coma, with which it is so often confused.

Importance of Routine Wassermann Tests.—The taking of blood for a Wassermann reaction, Smith asserts should be part of a complete physical examination—like a routine urine analysis or blood pressure observation, the results to be studied and interpreted with the history and physical findings. Unsuspected positive reactions in supposedly healthy people vary from 0 to 10 or 20 per cent., race, environment and social status playing important parts as determining factors. Urban always shows an increase over rural population. With a positive Wassermann reaction as a basis, incipient nerve, vascular or visceral changes hitherto unsuspected may be detected in time to derive benefit from the application of appropriate treatment.

Endocrinology, Los Angeles

7: 519-660 (July) 1923

Progress in Preparation of Pancreatic Extracts for Treatment of Diabetes. J. R. Murlin, Rochester, N. Y.—p. 519.
*Classification and Treatment of Hypophyseal Disorders. J. L. Tierney, St. Louis.—p. 536.
*Function of Lobes of Hypophysis as Indicated by Replacement Therapy with Different Portions of Ox Gland. P. E. Smith and I. P. Smith, San Francisco.—p. 579.

Classification and Treatment of Hypophyseal Disorders.—Tierny's paper is based on study of 1,995 cases displaying endocrine abnormality, as manifested by their hormonic signs. Of this number 711 showed pituitary disturbance (285 purely pituitary, and 426 pluriglandular with pituitary involvement). Tierney stresses the fact that there is remarkable discrepancy and lack of coordination in the available evidence concerning the function of the pituitary gland, considered either in its entirety or from the standpoint of its component lobes. There is little definite knowledge concerning the chemistry of the gland. The anterior lobe conforms to the requisites of a secretory gland, whereas the pars nervosa does not, being purely nervous tissue, unless the pars intermedia is regarded as being the essentially secreting portion of the posterior lobe. Concerning the efficacy of the desiccated preparations of the gland, Tierney says, there is contradictory evidence. The value of pluriglandular therapy on the basis of a cell selectivity is being overpopularized; and, while one must realize the frequency of pluriglandular combinations and the almost absurd number of possible pathologic combinations, sufficient attention must be paid to uniglandular therapy, or the rational combination of glands based on the presenting hormonic signs, and to the fact that pluriglandular imbalance may occur as the result of a lesion in one gland and may be restored by correcting the function of that particular gland. Therapy should be based on the presenting hormonic signs, and, if these signs warrant, should be uniglandular, or even unilobar; and if other glands are apparently involved, an associated therapy should be instituted, but one based on the presenting symptomatology. To secure the best results, therapy should be instituted early in the course of the disease, which implies early diagnosis. After pluriglandular involvement has occurred, a state usually resulting within a year, responses to therapy are less certain.

Functions of Lobes of Hypophysis.—The intraperitoneal injection made by the Smiths of different portions of the bovine hypophysis in the hypophysectomized tadpole gave the following results: Pars anterior brings to normality the four deficiencies resulting from hypophysectomy in that it accelerates the growth rate; induces a normal depth of pigmentation; repairs the atrophic thyroid and interrenal bodies, the specimens metamorphosing; and reduces to normal dimensions the fat organ. The normal and thyroidless tadpoles, when injected with anterior hypophysis, show an acceleration in their growth rate, attaining an unusually large size, and display an increased depth of pigmentation. Pars intermedia corrects the pigment upset and reduces the size of the fat organ. Pars neuralis elicits a moderate pigmentary response and reduces the size of the fat organ. Colloid induces a slight response in the pigmentary system. Of the various principles in the bovine anterior hypophysis that evoking a response in the pigmentary system appears to be stable, withstanding drying, severe heat, and certain chemical treatments; while those principles accelerating growth and reaction with the endocrine system are more labile, remaining active, however, after treatment with alcohol.

Florida Medical Association Journal, St. Augustine and Jacksonville

10: 33-64 (Aug.) 1923

Treatment of Burns and Other Injuries of Eye. W. S. Manning, Jacksonville.—p. 33.
Major Eye Injuries. W. H. Adams. Jacksonville.—p. 35.
Nasal Headaches with Case Histories. A. K. Wilson, Jacksonville.—p. 36.
Meckel's Ganglion and Glaucoma. H. Byrd, Ocala.—p. 39.
Treatment of Fractures of Lower Third of Femur. J. S. McEwan, Orland.—p. 42.
Cardiovascular Troubles. Suggestions as to Treatment and Prevention. W. L. Hughlett, Cocoa.—p. 44.
Hodgen Splint. R. B. Harkness, Lake City.—p. 49.
Pyorrhea. A. B. Whitman, Orlando.—p. 50.

Indiana State Medical Association Journal, Ft. Wayne

16: 217-240 (July 15) 1923

Some Types of Dyspnea. J. Wynn, Indianapolis.—p. 217.
Digitalis Therapy. E. F. Kiser, Indianapolis.—p. 220.
Adenoma of Prostate Gland. C. M. Mix, Muncie.—p. 222.
Treatment of Syphilis. J. A. Fordyce, New York.—p. 226.

Journal of Biological Chemistry, Baltimore

57: 1-315 (Aug.) 1923

*Synthesis of Hippuric Acid in Animal Organism. V. Influence of Amino-Acids and Related Substances on Synthesis and Rate of Elimination of Hippuric Acid After Administration of Benzoate. W. H. Griffith and H. B. Lewis, Ann Arbor.—p. 1.
*Influence of Positive Nitrogen Balance on Creatinuria During Growth. V. J. Harding and O. H. Gaebler, Toronto.—p. 25.
*Alkalosis Versus Abnormal Sodium Ion Concentration as Cause of Tetany. W. Denis and L. von Meysenbug, New Orleans.—p. 47.
*Glucokinin. J. B. Collip, Edmonton, Alberta.—p. 65.
Age and Chemical Development in Mammals. C. R. Moulton, Chicago. —p. 79.
Study of Condition of Several Inorganic Constituents of Serum by Means of Ultrafiltration. B. S. Neuhausen and J. B. Pincus, Baltimore.—p. 99.
*New Permanent Standard for Estimation of Hemoglobin by Acid Hematin Method. E. E. Osgood and H. D. Haskins, Portland, Ore. —p. 107.
*New Permanent Standard for Sahli's Hemoglobinometer. H. D. Haskins, Portland, Ore.—p. 111.
*Diet and Borderline of Acetonuria. R. S. Hubbard and F. R. Wright. Clifton Springs, N. Y.—p. 115.
*Studies in Nuclein Metabolism. I. Adenine Nucleotid in Human Blood. H. Jackson, Jr., Boston.—p. 121.
*Color Test for Water Soluble B Vitamin. A. Jendrassik, Baltimore.— p. 129.
Changes in Proteins and Gelatification of Formalized Blood Serum. R. R. Henley, Washington, D. C.—p. 139.
*Extraction of Vitamins from Yeast and Rice Polishings with Various Water-Miscible Solvents. C. Funk, B. Harow and J. B. Paton, New York.—p. 153.
Studies of Autolysis. IX. Hydrogen Ion Concentration in Autolysis. E. L. Sevringhaus, A. E. Koehler and H. C. Bradley, Madison, Wis. —p. 163.
Postmortem Acidity. I. Acids Formed in Autolyzing Liver. E. L. Sevringhaus, Madison, Wis.—p. 181.
Analysis of Tuberculinic Acid. E. E. Brown and T. B. Johnson, New Haven, Conn.—p. 199.
*Microcolorimetric Method of Estimating Hydrogen Ion Concentration of Blood. V. C. Myers, H. W. Schmitz and L. E. Booher, New York.—p. 209.
Effect of Therapeutic Application of External Heat on Acid Base Equilibrium of Body. F. A. Cajori, C. Y. Crouter and R. Pemberton, Philadelphia.—p. 217.
Determination of Fibrinogen by Precipitaton with Sodium Sulphate Compared with Precipitation of Fibrin by Addition of Calcium Chlorid. P. E. Howe, Princeton, N. J.—p. 235.
Relative Precipitating Capacity of Certain Salts When Applied to Blood Serum or Plasma and Influence of Cation in Precipitation of Proteins. P. E. Howe, Princeton, N. J.—p. 241.
*Studies in Inorganic Metabolism. I. Influence of Cod Liver Oil on Calcium and Phosphorus Metabolism. B. Sjollema, Utrecht, Holland. —p. 255.
Studies in Inorganic Metabolism. II. Influence of Crude Fiber and of Protein on Calcium and Phosphorus Metabolism. B. Sjollema, Utrecht, Holland.—p. 271.
*Studies of Thyroid Apparatus. XVII. Effect of Thyroparathyroidectomy and Parathyroidectomy at 100 Days of Age on Calcium, Magnesium and Phosphorus Content of Ash of Humerus and Femur of Male and Female Albino Rats. F. S. Hammett, Philadelphia.—p. 285.
*Experiments on Utilization of Calcium of Almonds by Man. M. S. Rose and G. MacLeod, New York.—p. 305.

Study of Excretion of Hippuric Acid.—A study was made by Griffith and Lewis of the rate of excretion of hippuric acid in rabbits during a six hour period after the oral and intravenous administration of sodium benzoate in doses of approximately 1 gm. of benzoic acid per kilogram of body weight. The rate of excretion was decidedly increased by the administration of glycin with sodium benzoate, probably representing an increased rate of synthesis of hippuric acid due to the presence in the organism of large amounts of performed glycin. Other amino-acids did not increase the rate of synthesis of hippuric acid when administered with the benzoate.

Influence of Positive Nitrogen Balance on Creatinuria.—As a result of a study of the excretion of creatin in children when on high protein diets, Harding and Gaebler had come to believe that there existed a definite maximum production of creatin. As a matter of fact, their experiments showed that the maximum creatin production corresponds to the maximum positive nitrogen balance. Creatin excretion in the growing dog under conditions of constant nitrogen intake varies inversely with the height of the nitrogen gain. Catabolized protein per se cannot be considered as the origin of creatin.

Alkalosis Cause of Tetany.—In a series of experiments planned to throw light on the cause of the tetany following excessive sodium bicarbonate administration, it was found by Denis and Meysenbug that when sodium bicarbonate was introduced into dogs by intravenous injection there followed, when the dosage was sufficiently large, various twitching and jerking movements, together with an increased irritability to electrical stimuli. Examination of the blood serum indicated a slight lowering of the calcium content, and an increase in the sodium, carbon dioxid and hydrogen ion concentration. When sodium chlorid or sodium sulphate was injected in place of the bicarbonate, "convulsions" similar to those mentioned, invariably appeared, but a determination of the electrical reactions showed that in these animals a normal or a decreased irritability prevailed. Examination of the blood serum showed an increased sodium content and a decrease in calcium, carbon dioxid and hydrogen ion concentration. These results, therefore, make it seem improbable that the spasmophilic condition following excessive sodium bicarbonate injection is due to "sodium poisoning," but rather to an abnormal carbonic acid: sodium bicarbonate ratio.

Glucokinin.—Further observations on the effects of plant extracts on blood sugar are recorded by Collip. A totally depancreatized dog was kept alive sixty-six days. The animal received three injections of glucokinin (onion extract). Lawn grass as a source of glucokinin has been found to give satisfactory results.

Estimating Hemoglobin by Acid Hematin Method.—While investigating various hemoglobin methods Osgood and Haskins found the acid hematin modification of Palmer's method very satisfactory in as far as accuracy of estimation is concerned. They have devised a standard solution containing inorganic material only, which if set at 15 mm. in a colorimeter will match the color of a 1 per cent. acid hematin solution set at 10 m.m. (a 1 per cent. solution being a 1:100 dilution in weak hydrochloric acid of blood containing 13.8 gm. of hemoglobin in 100 c.c.). The intensity of the color varies with change in temperature, but this is taken into account in the calculation. The final standard contains 32 gm. of ferric sulphate and 80 mg. of chromic sulphate in 100 c.c.

Permanent Standard for Sahli's Hemoglobinometer.—Haskins prepared a permanent standard from inorganic material that has shown no change in ten months. It is made by mixing 50 c.c. of ferric sulphate solution (containing 53.3 gm. in 100 c.c.), 15 c.c. of cobalt sulphate solution (10 gm. cobalt sulphate containing 7 molecules water of hydration in 100 c.c.), and 10 c.c. of water.

Diet and Borderline of Acetonuria.—Diets containing between 1 and 2 molecules of ketogenic for each molecule of antiketogenic material were fed by Hubbard and Wright to four arthritic subjects, and the amount of the acetone bodies excreted in the urine was determined. While there was an excretion of the acetone bodies, the amounts found were small and could be explained by Shaffer's theories of ketogenesis.

Adenin Nucleotid in Blood.—Evidence is presented by Jackson to show that adenin nucleotid exists in human blood in appreciable quantities, and a simple method is described whereby this portion of the undetermined nitrogen may conveniently be determined.

Color Test for Vitamin B.—The color reaction for the vitamin B as used by Jendrassik is carried out as follows: To the concentrated aqueous solution of the preparation in question acetic acid is added to make the concentration about 2 per cent. The reagent is freshly prepared by mixing equal volumes of tenth molar ferric chlorid and potassium ferricyanid solutions. The reagent is added as long as the depth of the blue color increases. The test tube containing the mixture is stoppered and allowed to stand ten minutes, when the color is observed. From one to five volumes of distilled water are added to reach a convenient dilution and the color is again observed. If there is not a distinct blue color, or if after standing for some time a bright blue precipitate, the test is negative.

Alcohol Is Best Solvent for Vitamins.—If inactivity of residue be taken as a criterion, then, according to Funk, Harrow and Paton, 70 per cent. alcohol has proved to be the best solvent for vitamin among the solvents used. If, however, not only the high degree of activity of the extract, but also the low proportion of nitrogenous and other impurities are

stressed accompanying the vitamin, then the best among the solvents is acetone.

Microcolorimetric Method of Estimating Hydrogen Ion Concentration of Blood.—The colorimetric method of Cullen for the determination of the hydrogen ion concentration of blood plasma has been adapted by Meyers et al. to the bicolorimeter. By a simple technic, contact of the blood with air is entirely excluded. The final determination is carried out on 0.1 c.c. of plasma, and requires less than ten minutes after the blood has been obtained. The error in color comparison falls within ± p_H 0.02.

Influence of Cod Liver Oil on Calcium-Phosphorus Metabolism.—Sjollema's experiments on rabbits show that as the result of administration of cod liver oil the calcium-phosphorus loss is decreased when the calcium balance is negative, and that when it is positive, the retention is increased. In the first case, it is principally the fecal calcium output, in the second, it is the urinary output that is decreased. Cod liver oil diminishes the production of feces if the calcium output greatly surpasses the intake, that of urine if the diet is rich in calcium. There is reason for the supposition that the fat soluble A (or the specific vitamin of cod liver oil) prevents the consequences of diets deficient in this dietary factor through the influence it has on the mineral metabolism. The total output of phosphorus is independent of the amount of calcium present in the food.

Effect of Thyroparathyroidectomy and Parathyroidectomy on Bone.—Data are presented by Hammett which, he says, justify the belief that the decrease in calcium percentage of the ash of the bones of the female thyroparathyroidectomized and parathyroidectomized rats is due to a combination of parathyroid deficiency and ovarian dystrophy, the latter probably being the determining factor acting on a substratum already weakened as to its calcium-retaining ability by the toxemia produced by the lack of the function of the parathyroids.

Almonds a Source of Calcium.—On the whole, it would appear from Rose and MacLeod's experiments that almonds contribute efficiently to the calcium of the diet, but when a very high proportion of the calcium comes from almonds the conditions in the digestive tract may not be quite so favorable for economical utilization as when carrots or milk form the main source of the calcium.

Journal of Metabolic Research, Morristown, N. J.

3: 201-371 (Feb.) 1923

*Relations Between Fertility and Nutrition. III. Normal Reproductive Performance of Rat. H. McL. Evans and K. S. Bishop, Washington, D. C.—p. 201.
Production of Sterility with Nutritional Regimens Adequate for Growth and Its Cure with Other Foodstuffs. H. McL. Evans and K. S. Bishop, Washington, D. C.—p. 233.
*Fasting and Diets in Treatment of Epilepsy. D. F. Weeks, D. S. Renner, F. M. Allen and M. B. Wishart, Morristown, N. J.—p. 317.
Distribution of Sulphur in Protein-Free Milk. B. Sure and R. E. O'Kelley, Fayetteville, Ark.—p. 365.

Relations Between Fertility and Nutrition.—The classic "basic ration" (casein-lard-corn-starch mixture) used by Evans and Bishop for studies on growth fails to give normal fertility in a large proportion of female rats reared on this diet. The sterility produced does not interfere with the early steps in gestation. The ovulation and implantation incidence is normal, but most of the implantations are resorbed (from 80 to 100 per cent.). In two clear instances of proven sterility, fertility was restored by a beneficial food (leaves, high milk fat) given after ovulation had occurred. The sterility may either be prevented or cured after its appearance in any individual case by the addition of certain natural foodstuffs to the basic ration. Lettuce, meat, whole wheat, wheat germ, rolled oats, dried alfalfa and large quantities of milk fat are such curative substances. Whole milk, fresh or dried, cod liver oil, orange juice and yeast fail to act as curative agents when added to the basic diet. The sterility was not influenced by certain changes in the quality or quantity of the protein in the basic action. There is no evidence that the salt content of the basic ration is at fault. Varying the proportions of fat and carbohydrate in the ration has not influenced the specific sterility deficiency disease. The unknown fertility conferring factor (X), shown to be present in lettuce, meat, wheat, oats, alfalfa and milk fat, cannot be identified with the known vitamins A, B, C or D. The factor X, does not seem to be stored for long periods in the animal body, and is resistant to ordinary cooking temperatures.

Fasting and Diets in Treatment of Epilepsy.—The therapeutic value of fasting was tried by Weeks and his associates in epileptic patients for three weeks. Epileptic seizures ceased during the fast in only thirty out of sixty-four instances, but, in general, the observations confirm those of previous writers that the attacks are more or less diminished during this time. The authors interpret this result as an accidental phenomenon, such as can easily be produced in epileptics by a variety of psychic and other influences, not as a genuine therapeutic benefit. This interpretation based on clinical experience is strenghtened by the unchanged progress of the epilepsy after termination of the fast, and also by the effects of special diets. If fasting really benefits epilepsy, it was assumed, as a corollary, that one or more forms of food must be harmful to epilepsy. Diets of nonnutritive bulk, high protein, high carbohydrate, high fat and high total calories were found to be neither harmful nor beneficial. These diet tests have afforded no indication of a metabolic element in epilepsy. On the practical side, the most important conclusion is that any kind of healthful mixed diet may be used in the management of epilepsy. The group used for this study has included various degrees and stages of epilepsy. The most important observations, theoretically, were the astonishing tolerance of these patients for one sided fat diets, without serious acidosis or clinical symptoms, and still more the remarkable hyperglycemia which developed in every case on high fat diet and not with any of the other diets.

Maine Medical Association Journal, Portland

14: 1-26 (Aug.) 1923

Transcript of Proceedings at Seventy-First Annual Meeeting.—p. 1.

Nebraska State Medical Journal, Norfolk

8: 221-260 (July) 1923

Present Status of Treatment of Diabetes Mellitus. A. D. Dunn, Omaha.—p. 221.
Focal Infection of Dental Origin and Principles Governing its Removal. W. L. Shearer, Omaha.—p. 235.
Report on Radium Therapy. E. J. Angle, and L. J. Owen, Lincoln.—p. 236.
Episiotomy and Its Repair. W. Shepherd, Rulo.—p. 240.
Specific Hypersensitiveness or Allergy as Common Cause of Illness. W. W. Duke, Kansas City, Mo.—p. 241.

Philippine Journal of Science, Manila

23: 123-236 (Aug.) 1923

Eels of Philippine Archipelago. A. W. C. T. Herre, Manila.—p. 123.

Public Health Journal, Toronto

14: 339-386 (Aug.) 1923

Research on Mental Hygiene. E. D. MacPhee.—p. 339.
Schick Test and Active Immunization Against Diphtheria. J. Roberts.—p. 347.
Vital Statistics. S. J. Manchester.—p. 356.

Southern Medical Journal, Birmingham, Ala.

16: 571-646 (Aug.) 1923

*Current Conceptions of Etiology and Pathogenesis of Tetany. L. F. Barker, Baltimore.—p. 571.
Diagnosis and Treatment of Tetany. S. R. Roberts, Atlanta.—p. 576.
*Value of Glucose Tolerance Test in Diagnosis of Malignant Growths of Digestive Tract. S. K. Simon and J. H. Smith, Jr., New Orleans.—p. 582.
Cancer of Stomach: Review of Fifty Cases Proven Operatively and Pathologically. J. B. Fitts, Atlanta.—p. 587.
*Renal Glycosuria: Report of Three Cases. I. I. Lemann, New Orleans.—p. 592.
Practical Points on Purgation. L. W. Elias, Asheville, N. C.—p. 597.
*Diphtheria with Unusual Complications. A. G. Jacobs, Memphis.—p. 602.
Fractures of Neck of Femur. D. Eve, Sr., Nashville.—p. 606.
General Treatment of Fractures; Fracture of Femur. E. T. Newell, Chattanooga.—p. 608.
Treatment of Fractures of Upper End of Humerus. J. N. Baker, Montgomery, Ala.—p. 611.
Deep Roentgen-Ray Therapy in Treatment of Metastatic Pain in Carcinoma of Prostate. C. A. Waters and J. W. Pierson, Baltimore.—p. 620.
*Case of Abdominal Pregnancy at Sixteen Months. H. S. Geiger, Kissimmee, Fla., and J. S. McEwan, Orlando, Fla.—p. 622.

Routine Procedure in Eye-Ball Affections. R. Caldwell, Little Rock, Ark.—p. 623.
Review of Thirty-Two Cases of Endoscopy. E. W. Carpenter, Greenville, S. C.—p. 629.
Private Nursing Homes. S. R. Miller, Baltimore.—p. 633.
University Campus Hospital. W. White, Atlanta.—p. 636.

Etiology and Pathogenesis of Tetanus.—This review by Barker of contemporary studies of the metabolism in tetany makes it clear that students of the disease are endeavoring through their researches to forge the links in the pathogenetic chain that connects parathyroid deficiency with hyperexcitability of the nervous system. Intoxication by guanidin bases, disturbance of acid-base equilibrium, or disturbances of the relative proportions of antagonistic cations in the blood and tissue fluids, may prove to be among the links. Once the links that constitute the pathogenetic chain in the development of tetania parathyreopriva have been determined, students will endeavor to ascertain whether the other forms of tetany can be demonstrated to possess similar links in their pathogenetic chains. Certain of these forms may conceivably be entirely independent of any primary disorder of the parathyroid glands or of any disturbance of parathyroid functions, for pathologic processes may easily be thought of as becoming interpolated at the level of any one of the series of links in the parathyroid-nervous system chain, sometimes, perhaps, closer to the parathyroids, sometimes closer to the nervous system, sometimes in a more intermediate position between parathyroid function and neural disturbance. For example, in the tetany of hyperpnea coming on, say, after a few minutes of forced respiration in health or of spontaneous hyperpnea in disease, it is scarcely conceivable that the parathyroid function can be concerned at all. It would seem much more likely that the change here sets in as an alkalosis link, whereas in the tetany of chronic diarrheas, accompanied by increased calcium excretion in the feces, it may set in as a cation antagonism link. For a long time the clinic made progress by attempting to corroborate Pineles' conception of a unitary pathogenesis of tetany. For the time being, Barker feels it may be well to attempt to refute the unitary conception by establishing the existence of different pathogenetic chains or by determining the possibility of intervention of special processes at the level of the different links in a single chain.

Value of Glucose Tolerance Test in Diagnosis of Carcinoma.—The glucose tolerance test was carried out by Simon and Smith in forty-five cases, in fifteen of which the diagnosis of carcinoma was definitely proved. Nine of these fifteen patients gave a typically high sustained curve; in one case a high but atypical sustained curve was present. Thus a total of 66.666 per cent. gave a sustained typical or atypical curve among cancer patients. One case of pulmonary tuberculosis likewise furnished a Type I sustained curve. A new type involving a relatively low percentage of blood sugar at the forty-five minute reading, which was sustained to the end of the two-hour period, was observed. The type is not believed to be of significance in the diagnosis of malignancy.

Renal Glycosuria.—Lemann summarizes his cases thus: Male, aged 21, was observed for six years. His pulmonary tuberculosis progressed to cavitation and then to apparent arrest. While on full diet he showed inconstant traces of sugar in his urine, with normal blood sugar, and when submitted to a glucose tolerance test he showed a low renal threshold, but a normal blood sugar curve. He has at no time showed any symptoms of diabetes mellitus. A child observed during three years, from the age of 3 to 6, constantly exhibited amounts of sugar in the urine irrespective of diet. He meanwhile went through one infectious disease. His blood sugar is normal, and he has shown no symptoms of diabetes. His weight has increased from 33 to 42 pounds. A male, aged 20, has been observed for a year, during which time his urine contained small amounts of sugar without respect to the diet. His blood sugar is normal and his glucose tolerance is normal. There are no manifestations of true diabetes. There is apparently a familial sensitiveness of the renal threshold. The substance observed in all these urines reduces copper, ferments and yields with phenylhydrazin osazone crystals of characteristic melting point. It usually is present in amounts not sufficiently large to permit a polariscopic reading.

Gangrene of Leg Complicates Diphtheria.—Jacobs reports a case of dry gangrene of the lower half of the left leg from thrombosis of the popliteal artery occurring on the sixteenth day of an attack of diphtheria and necessitating amputation. The case is said to be the fifth to be reported in America.

Abdominal Pregnancy with Death of Fetus.—In the case reported by Geiger and McEwan medical advice was not sought until six months after the death of the full term fetus. Labor failed to set in at the expected time. Menstruation returned and was apparently normal. There had been at no time any unusual bleeding from the uterus. The abdominal enlargement became somewhat less, and the woman lost considerably in weight and strength. A mass occupied the entire abdomen, the size and contour corresponding to that of an eight months' pregnancy. There were no irregularities of the surface. There was considerable tension, but fluctuation could not be elicited. Nothing corresponding to fetal parts could be palpated, except in the right iliac region, where a small, apparently bony, protuberance could be felt. The consistency of the mass was something less than that of a pregnant or fibroid uterus. Vaginal examination was negative, the cervix being firm and normally placed. It being impossible to separate the sac from the intestine, owing to the adhesions, the sac was opened and about 3 quarts of brownish fluid, having the odor of stale urine, was removed by aspiration. A dead, macerated fetus was delivered. The male infant was well developed and at full term, weighing 6¾ pounds; length, 19 inches, with long, black hair and fully developed finger nails.

Surgery, Gynecology and Obstetrics, Chicago

37: 127-206 (Aug.) 1923

*Gastric Syphilis: Report of Two Cases Proved Anatomically. W. A. Brams and K. A. Meyer, Chicago.—p. 127.
*Syphilis of Stomach. J. W. Larimore, St. Louis.—p. 133.
Case of Syphilitic Obstruction of Esophagus. F. B. McMahon, Milwaukee.—p. 141.
Gastro-Enterostomy. J. B. Deaver, Philadelphia.—p. 144.
*Surgical Significance of Mesenteric Lymphadenitis. L. Freeman, Denver.—p. 149.
*Experimental Anatomic Investigation of Blood and Bile Channels of Liver. H. N. Segall, Montreal.—p. 152.
Segmental Resection of Bladder for Neoplasm. J. B. Squier, New York.—p. 179.
Strangulated Diaphragmatic Hernia of Traumatic Origin. Report of Case. J. L. Crook, Jackson, Tenn.—p. 185.
Fractures of Fifth Metatarsal. Report of Six Cases. F. Christopher, Chicago.—p. 190.
Papilloma of Posterior Urethra Cause of Profuse Hemorrhage and Urinary Retention. E. Davis, Omaha.—p. 194.
*Congenital Rectal Stricture as Cause of Infantile Megacolon. V. C. David, Chicago.—p. 197.
*Hysterectomy in Certain Cases of Pulmonary Tuberculosis; Particularly as Alternative for Therapeutic Abortion. J. F. Baldwin, Columbus, Ohio.—p. 201.
*Blood Pressure in the New-Born Following Normal and Pathologic Labor. R. A. Reis and A. J. Chaloupka, Chicago.—p. 206.
Cholecystectomy without Drainage. W. A. Coventry, Duluth.—p. 212.
Technic for Resection of Gastric and Duodenal Ulcers. E. S. Judd and F. W. Rankin, Rochester, Minn.—p. 216.
*Citrate Versus Unmodified Blood Transfusion. M. Lederer, Brooklyn.—p. 221.
Treatment of Dislocated Semilunar Carpal Bones. G. G. Davis, Chicago.—p. 225.
Intestinal Clamp with Detachable Handle. L. Davis, Boston.—p. 230.

Syphilis of Stomach.—The clinical evidence of gastric syphilis, as noted by Brams and Meyer in the two cases cited, consists of pain in the epigastrium, low acidity, marked emaciation, history or evidence of syphlitic infection, and a good result with specific treatment. The patient is often under the usual age for carcinoma and the course often extends over a period of years. The anatomic features are multiple, irregular ulcers; thick submucosa; vascular changes; miliary gummata, and perivascular and diffuse infiltrations in which the predominating element is the lymphocytes.

Syphilis of Stomach.—Eight cases are recorded by Larimore. Consideration of these cases in connection with the previous literature emphasizes the following points: Gastric syphilis manifests a variable symptomatology, a chemistry and roentgen-ray findings that cannot consistently be those of other gastric disease. The presence elsewhere of undoubted signs of syphilis supports the diagnosis of syphilis of the stomach; when such signs are absent, great care must be used in making that diagnosis. Successful medical treatment is diagnostic

only in early gastric syphilis. Restoration to normal gastric motility cannot be expected in well advanced gastric syphilis. Surgery is indicated in late cases with permanent impairment of the gastric motor function. It is indicated by the clinical course and by the roentgen-ray findings. Resection of the prepyloric stomach is the preferred operation. In four of Larimore's cases an operation was performed. In three cases gastric resections yielded excellent clinical results. In the fourth case a resection at a secondary operation gave a good clinical result. This case was the only one of this group which showed good gastric motility by roentgen-ray examination, although showing clinically a food stasis. The microscopic pathologic report in two cases was gumma, and in the two others it was chronic inflammatory disease.

Mesenteric Lymphadenitis.—The form of lymphadenitis discussed by Freeman is characterized by the presence of numerous small, soft nodes in the mesentery of the small intestine, especially of the lower ileum. They seldom are much larger than a large pea, are quite uniformly soft, and without external evidence of acute inflammation. The condition is a common disease of children and young adults. The infecting agent in many instances is the tubercle bacillus, presumably of the bovine type. The most prominent symptoms are: moderate pain, tenderness and rigidity, mostly in the right lower quadrant of the abdomen, often associated with slight fever, headaches, occasional colics, various gastro-intestinal symptoms, and loss of weight and energy. The disease is nearly always confused with appendicitis. Because surgeons are unfamiliar with the trouble, it is seldom recognized during operations. It has a strong tendency toward recovery, at least symptomatically, following laparotomy.

Anatomic Investigation of Blood and Bile Channels in Liver.—The injection technic of Gross, as applied to injecting the blood and bile channels of the liver, is described by Segall. The average normal and some anomalous types of extrahepatic branching of the arteria hepatica are described from the study of fifty-five livers. The distribution of the intrahepatic branches of the rami dexter and sinister, arteria hepatica propria and of the arteria cystica, is fully described from the study of thirty-seven preparations. The anastomoses which form the path of collateral circulation between diaphragmatic and hepatic arteries are described. The intrahepatic and extrahepatic courses of the bile ducts are described from a study of six preparations. Arterial blood is absolutely essential to the nutrition of liver substance. Complete obstruction of either the ramus dexter or ramus sinister, arteriae hepaticae propriae, does not effect any change in the liver substance normally supplied by the blocked vessel. The abundant anastomoses which afford the efficient collateral circulation in such cases are described. The conclusions of Haberer with regard to surgical ligation of the hepatic artery, Segall says, are also true for man because of the close resemblance between the arterial circulation of the human liver and that of the dog and cat.

Congenital Rectal Stricture Causes Megacolon.—The three cases cited by David emphasize the importance of purely mechanical factors in the production of megacolon which in two instances, at least, simulated very closely the clinical picture of Hirschsprung's disease. The relief of this mechanical obstruction by appropriate operative measures resulted in prompt regression of the megacolon.

Hysterectomy in Cases of Pulmonary Tuberculosis.—In properly selected cases of pulmonary tuberculosis with pregnancy as a complication, or relatively too profuse or frequent menstruation, particularly in the presence of traumatism from childbearing, or uterine hyperplasia, a panhysterectomy, with, as a rule, saving of the appendages if the patient is young, Baldwin asserts, will remove a most serious handicap and give the patient the best possible opportunity to attain recovery from the primary disease.

Blood Pressure in the New-Born.—The 100 cases studied by Reis and Chaloupka include 55 cases following normal spontaneous deliveries in normal gravidae: 10 cases of low forceps, 6 cases of midplane forceps, 1 breech delivery, 6 cases of version and extraction, 1 face presentation, 2 cases of abdominal cesarean section, 2 premature infants, 6 sets of twins, and 5 cases showing unusual variations. The average systolic blood pressure during the first day of life in full-term infants following normal spontaneous labor was found to be 43 mm. mercury. The blood pressure increases daily until, on the tenth day of life, the average systolic blood presure is 78 mm. The greatest rise is during the first three days. The blood pressure varies with the birth weight, being higher in heavier infants. Sex, jaundice, pulse rate and temperature and caput succedaneum with no signs of compression, apparently, have no influence on the blood pressure. Infants delivered by abdominal cesarean section have normal blood pressures. Premature infants have low systolic blood pressures corresponding to the length of gestation. Twins have low blood pressure readings proportional to the prematurity and the birth weight. The greatest increase in blood pressure is shown after midplane forceps extraction and version extraction; lesser increases were shown after low forceps extractions, relatively dry labors, prolonged second stages and in infants with large cephalic measurements. The increased blood pressures found seem to be due directly to increased trauma to the fetal head.

Citrate Versus Unmodified Blood Transfusion.—Posttransfusion reaction is defined by Lederer as a sharp rise in temperature, accompanied or unaccompanied by subjective or objective symptoms, not attributable to any cause except the transfusion. Reactions followed in 49.5 per cent. of forty-seven cases transfused by the citrate method, as compared to no reaction after forty-nine unmodified blood transfusions. Mutual testing for incompatibility is regarded as being preferable to blood grouping.

Texas State Journal of Medicine, Fort Worth

19: 211-264 (Aug.) 1923

Weight During Pregnancy. C. R. Hannah, Dallas.—p. 224.
Scopolamin-Morphin Anesthesia in Obstetrics: Its Advantages and Limitations. F. W. Phifer, Wheatland, Wyo.—p. 226.
Alleviation of Pain in Labor. W. B. McKnight, Mansfield.—p. 231.
Indications for Cesarean Section: Podalic Version. J. Gilbert, Austin.—p. 232.
Cesarean Section. L. Mackechney, Wichita Falls.—p. 236.
*Infant Mortality in Cities of Texas. J. H. Davis, Fort Worth.—p. 238.
Nutrition in Early Infancy. R. C. Spence, Dallas.—p. 240.
Few Suggestions in Difficult Feeding Cases. R. C. Ferguson, Eastland.—p. 242.
Circulatory, Respiratory and Nervous Disturbances in New-Born. G. B. McFarland, Dallas.—p. 245.
*Ovarian Cysts in Children. H. T. Wilson, San Antonio.—p. 248.
Anoxemia During Anesthesia. N. Klein, Texarkana.—p. 249.

Infant Mortality and Birth Rate in Texas Cities.—Davis gives the birth rate and infant mortality rate of seventeen cities of Texas, and, apparently, the latter rate is greatly in excess of the former in each of these cities. In reality, however, the reason for this discrepancy is the failure to report all births. Davis urges that all births be recorded; that all midwives be licensed and inspected. To lower the death rate: insist on the proper prenatal care of the mother; foster health centers and medical school inspection; boil the water, if its purity is questioned; have adequate milk inspection, including cows, dairies in general and creameries; educate the mother to prepare the baby's food properly; teach parents how to dress their children. The attending physician must be more careful in his examination, diagnosis and treatment of children.

Cyst of Ovary in Child.—Wilson's patient was 6 years of age. Her sole complaint was of pain in the left lower quadrant of the abdomen. Physical examination was negative, except that the left lower quadrant was more tender than the right. On the third day, the abdomen became slightly distended and tenderness was more marked, though still not localized. On opening the abdomen, the peritoneum was found to contain a small amount of slightly cloudy fluid, definitely blood stained. The small intestine was considerably distended. No inflammatory exudate was noted. The distention of the intestine appeared to be caused by the intestine having been forced through recently made openings in the omentum, the omentum being held in a fixed position by something anchoring its lower edge in the pelvis. These adhesions were found to be posterior to the adnexa on the left side. When these were loosened, the constricting effect of the omentum on the intestine above was relieved. Pelvic exploration revealed a mass about the size of a lemon on the left side. This was gangre-

nous and already becoming necrotic in parts. It was found to be an ovarian cyst, the pedicle of which had become twisted (four times), strangulating the fallopian tube as well as the ovary.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 347-398 (Sept. 1) 1923

2: 347-398 (Sept. 1) 1923. Educational Number

Permeation of Medical Curriculum by Preventive Teaching. G. Newman.—p. 347.

Teaching of Obstetrics and Gynecology. J. S. Fairbairn.—p. 349.

Calcutta Medical Journal

17: 97-144 (March) 1923

Electrometric Determination of Alkali Reserve of Blood and Its Significance in Diabetes. B. C. Roy and H. N. Mukherjee.—p. 97.

*Study of Blood Sugar in Bengalees in Health and in Kala-Azar. D. N. Banerjee and J. C. Saha.—p. 109.

Main Principles of Cardiologic Practice. S. C. Bose.—p. 115.

*Case of Kala-Azar with Fatal Bleeding. M. N. De.—p. 120.

Early Tabes. Neuralgic Type. S. C. Bose.—p. 121.

Low Blood Sugar in Kala-Azar.—The main fact emerging from Banerjee and Saha's work is that there is a fall in blood sugar in kala-azar. It has been found as low as 0.031 per cent. It appears that in Bengalees the blood sugar average is 0.103 per cent.

Cancrum Oris with Kala-Azar with Fatal Hemorrhage.—In De's case there was an intensely foul smelling sloughing ulcer in the mouth between the gum and the tongue involving nearly the whole of the left side. The skin over the area was swollen, indurated and inflamed. The case was one of kala-azar with cancrum oris. The patient as well as the lesion improved under appropriate local treatment. Suddenly on the fifth day of treatment, she began to spit out a little sanious saliva. In a minute or two, it changed into a continuous stream of blood. In spite of treatment—calcium chlorid, horse serum, epinephrin, tamponade, etc—the hemorrhage continued for about twenty-five minutes when exitus took place. The hemorrhage was not from any particular vessel but was a sort of generalized oozing from the whole of the ulcerated surface.

International Journal of Psycho-Analysis, London

6: 1-269 (Jan.-April) 1923

Certain Neurotic Mechanisms in Jealousy, Paranoia and Homosexuality. S. Freud.—p. 1.

Castration Complex in Formation of Character. F. Alexander.—p. 11.

The Tempest. H. Sachs.—p. 43.

Relation of Beating Phantasies to Day-Dream. A. Freud.—p. 89.

Rôle of Exceptional Organ in Neurosis. C. P. Oberndorf.—p. 103.

Case of Affective Inhibition of Intellectual Process. J. C. Flugel.—p. 111.

Urethral Erotism and Obsessional Neurosis. E. Hitschmann.—p. 118.

Anxiety and Birth. E. Jones.—p. 120.

Slip of Tongue. D. Bryan.—p. 121.

Interesting Analytical Hour. A. Stern.—p. 123.

The Automobile Symbol of Male Potency. S. Spielrein.—p. 128.

Dreams and Visions of Shooting Stars. S. Spielrein.—p. 129.

Slips of Tongue in Norse Sagas. C. A. Seyler.—p. 133.

Irish Journal of Medical Science, Dublin

145-192 (June) 1923

Work of Venereal Disease Treatment Center. T. P. C. Kirkpatrick.—p. 145.

Cases of Streptococcal Infection and Carcinoma of Stomach. J. Moore.—p. 155.

*Treatment of Urate Calculi by Therapeutic Immunization. W. M. Crofton.—p. 160.

Case of Intestinal Occlusion in Tuberculous Peritonitis. Wm. Doolin.—p. 165.

*Ascaris Appendicitis. K. Portley.—p. 169.

19: 193-240 (Aug.) 1923

Scleroderma in Child. H. C. Dryry.—p. 193.

Clinical Aspects of Wassermann Reactions. J. H. Pollock.—p. 199.

Recent Research on Uric Acid and Purin Metabolism. W. Fearon.—p. 205.

Treatment of Urate Calculi by Therapeutic Immunization.—Crofton asserts that if ordinary cases of gout are treated with their gastro-intestinal micro-organisms, they react at the site of these lesions, indicating microbial infection, and that by immunization these lesions can be cleared up and the whole condition cured. Gout to him is a rheumatic condition complicated by the formation of an abnormal amount of uric acid with the conversion of the soluble into insoluble urates at the site of rheumatic inflammation. The abnormal production of uric acid can be stopped and the inflammation in the joints and tendons, and so forth, cleared up.

Ascaris Appendicitis.—Portley reports a case in which she found wandering free in the peritoneal cavity a worm about 6 inches in length of the *Ascaris lumbricoides* type. There was no sign of perforation of the intestine, but on closer examination the ascaris was found to have made its exit from the alimentary canal by perforating the tip of the appendix. This organ was inflamed, but not greatly. From the absence of an acute peritonitis it was concluded that the ascaris must have only just arrived in the peritoneal cavity. The patient had previously manifested symptoms on which a diagnosis of appendicitis was based.

Journal of State Medicine, London

31: 351-400 (Aug.) 1923

*Ultramicroscopic Viruses. F. W. Twort.—p. 351.

Industrial Hygiene. L. Macassey.—p. 367.

Prevention of Venereal Disease: Policy of Immediate Self-Disinfection: Its Progress Towards Victory. H. W. Bayly.—p. 379.

Ultramicroscopic Viruses.—Two important points are emphasized by Twort. Experiments with certain lysins show that these may increase in quantity, and may show characters not dissimilar to those presented by an ultramicroscopic virus. The assumption, therefore, that these viruses must be definite living structures of a bacterial nature, because they increase in quantity in the host, has been proved to be unjustifiable. There remains also the important fact that the existence of forms of life more primitive than the bacterium, which theoretically must be considered to exist as particulate bodies, cannot be demonstrated. These two points, in conjunction with many others to which allusion is made, undoubtedly indicate that an ultramicroscopic virus belongs to one or more of those forms of life which in the scale of evolution are situated between the simple enzymes and the bacteria.

Journal of Tropical Medicine and Hygiene, London

26: 251-260 (Aug.) 1923

Common Occurrence of Pseudospirochetes in Blood of Blackwater Fever Cases, and of Normal Human Beings and Animals When Using Technic of Blanchard and Lefrou. J. G. Thomson.—p. 251.

*Intestinal Bilharziasis in West Indies. Snail as Intermediate Host. S. B. Jones.—p. 253.

Intestinal Bilharziasis in West Indies.—Intestinal bilharziasis, according to Jones, is threatening to destroy the vitality of the inhabitants of the West Indies, both white and black. It is present in Guadeloupe, French St. Martin, St. Kitts, probably Antigua, and in Santo Domingo and Porto Rico. The mollusc which serves as the intermediate host in French St. Martin and probably in St. Kitts also is one of the *Planorbidae*, sp. *antiguensis*, Reeve. Wherever West Indian islands contain small streams or rivers which are likely to dry up and become stagnant pools in times of dry weather, and at the same time one or more species of the snail *Planorbidae* is present, the disease, if not now in existence, will be introduced in time through the movement of population from one island to another. The prompt treatment of all infected cases, in conjunction with the eradication of all species of the snails *Planorbidae* from the streams, are public health problems which should engage the attention of all West Indian governments, irrespective of nationality.

Lancet, London

2: 317-370 (Aug. 18) 1923

*Thermal Death Point of Tubercle Bacillus in Milk. F. W. C. Brown.—p. 317.

Antenatal Diagnosis. F. M. Huxley.—p. 321.

Diaplyte Tuberculin. C. Riviers.—p. 324.

Three Cases of Bilateral Renal Calculus. C. Noon.—p. 325.

Duodenal Diverticula. Case of Gangrenous Diverticulitis. G. P. B. Huddy.—p. 327.

Relation of Carcinoma to Infection. W. M. Robertson.—p. 330.

Thermal Death Point of Tubercle Bacillus in Milk.—Brown found that by using twenty-five strains of the tubercle bacillus no wide difference in thermal death point is found. The

thermal death point of this organism is practically similar for human and bovine types. If a temperature of 60 C. be used, it requires twenty minutes' exposure to this degree of heat to prevent milk so treated carrying infection to guinea-pigs. If a temperature of 70 C. be used, it requires five minutes' exposure to ensure the same results. Of these two combinations of time and temperature factors, the former excels the latter, when the food value of the treated milk is also considered. Brown is of opinion that until bovine tuberculosis can be stamped out at its source, proper pasteurization of milk is the only method of rendering milk safe as a diet for human consumption.

Relation of Carcinoma to Infection.—The series examined by Robertson in the present research consists of fifteen cases of malignant disease—six cases of adenocarcinoma of the mamma, three being scirrhus and three being encephaloid in type; one case of primary liver-celled carcinoma (and the discharge from the wound after operation); one case of squamous-celled carcinoma, metastatic in submaxillary lymphatic gland, the primary neoplasm being in the lower lip; one case of carcinoma of the maxillary sinus; one case of sarcoma of the maxilla; one case of adenocarcinoma of the rectum; one case of adenocarcinoma of the ovary, papilliferous in type; one case of squamous-cell carcinoma of the cheek; one case of squamous-cell carcinoma of the glans penis; a swab from a squamous-cell carcinoma of the cheek. From all these fifteen cases an anaerobic diphtheroid bacillus was demonstrated in cultures. In seven cases the bacillus was obtained subsequently in pure cultures. In all fifteen cases a mannite nonfermenting staphylococcus was isolated, and in about two thirds of the series streptococci were present also. In nearly every instance these staphylococci and streptococci were obtained only in anaerobic cultures. Two control cases were examined. In one case subcutaneous fat and, in the other case, muscle of patients who were not the subject of malignant disease, gave negative results for the anaerobic diphtheroid bacillus. The author's father has held that these bacilli are responsible for the proliferation of the cells in which they lie.

Medical Journal of Australia, Sydney

2: 135-160 (Aug. 11) 1923

*Achlorhydria. Its Nature with Suggestions for Its Treatment. F. L. Apperly.—p. 135.
Ocular Emergencies in General Practice. J. C. Douglas.—p. 140.
*Case of Tuberculous Meningitis with Extreme Neutrophil Leukocytosis. H. J. Clayton.—p. 144.

Achlorhydria.—The majority of patients with apparent achlorhydria, Apperly points out, have a normal secretion of gastric acid, but this is neutralized as rapidly as it is secreted, owing to an abnormally large regurgitation of duodenal alkali. While it is as yet impossible to state the exact cause of this increased reflux, there is evidence that it is due to increased intestinal irritability. Although the evidence suggests that absence of free hydrochloric acid in these cases is merely one of the signs of an intestinal indigestion, it is important to treat this sign, since loss of free gastric acidity may lead to intestinal infection with serious consequences. Treatment in these cases should be directed against the cause of the intestinal irritation, and should aim at the prevention of duodenal reflux by allaying this irritability and raising gastric tone. In cases of carcinoma gastrica, true gastritis and some forms of pernicious anemia, the experimental results show a definitely decreased secretion of acid, but in a surprisingly large number of cases of pernicious anemia the experimental results show a definitely decreased secretion of acid; a surprisingly large number of patients with pernicious anemia have a good secretion of acid.

Extreme Neutrophil Leukocytosis in Tuberculous Meningitis.—The extreme neutrophil leukocytosis in the case cited by Clayton and Ross somewhat obscured an otherwise complete picture of tuberculous meningitis. The leukocyte count was 21,000 and 80 per cent. of these were neutrophils with only 15 per cent. of lymphocytes. There was a basal tuberculous meningitis but no evidence whatever of acute involvement of the lung by the tubercle bacillus or any other organism.

Medical Journal of South Africa, Johannesburg

18: 269-290 (June) 1923

Treatment of Fractures of Bones of Extremities. I. W. Bresner.—p. 269.
Treatment of Fractures of Upper Extremity. R. Daly.—p. 272.

18: 291-314 (July) 1923

Ventilation: Problem of Removing Excess Body Heat. E. H. Cluver.—p. 291.
Tubal Pregnancy. Thirty-Two Cases. J. C. Pretorius.—p. 298.
Glioma of Retina. F. H. Robinson.—p. 300.
*Case of Unusual Ectopia Testis. W. F. Skaife.—p. 302.

Ectopic Testis at Anal Margin.—Skaife relates the case of a man, aged 35, with only one testis in the scrotum, which testis was normal in size and shape and situated in the right side. Situated at the posterior anal margin near the middle line was a pedunculated globular tumor, about 1½ inches in diameter, covered by crenated skin resembling that of the scrotum, this skin being freely movable over the tumor. The surface of the tumor was smooth and its consistency hard, and it was found to have a pedicle about the thickness of the spermatic cord. On squeezing the tumor, the man winced and the normal testis was observed to retract in the scrotum. The tumor was removed. It consisted chiefly of fibrous tissue with scattered elements of definite testicular tissue.

Practitioner, London

111: 97-172 (Aug.) 1923

Ear, Nose and Throat Operations in General Practice. J. Dundas-Grant.—p. 97.
Sudden Deaths from Trivial Causes. W. G. A. Robertson.—p. 110.
Insulin. O. Leyton.—p. 125.
Causation and Immediate Treatment of Retention of Urine in Male. W. K. Irwin.—p. 134.
Epilepsy and Chronic Intestinal Stasis. A. W. Robertson.—p. 142.
Transference and Trends. W. J. Jago.—p. 150.
Natural Mental Healing in Relation to Forms of Psychotherapy. J. Kenelm Reid.—p. 154.
Middle Way in Treatment of Functional Nerve Disorders. R. M. Ladell.—p. 162.

South African Medical Record, Cape Town

21: 341-364 (Aug. 11) 1923

Blood Transfusion and Significance of Various Blood Groups. C. DeW. Gibbs.—p. 342.
Cerebrospinal Meningitis. I. Bacteriology and Immunology. S. S. Lister.—p. 347.
Id. II. Pathology. J. H. Harvey, Pierie.—p. 349.
Id. III. Clinical Picture and Diagnosis. A. Bloom.—p. 350.
Id. IV. Serum Treatment. A. I. Girdwood.—p. 351.
Fulguration for Bladder Growths. H. T. Murrell.—p. 355.
*"Vesicalization" of Stump of Cervix Uteri. E. O. Ashe.—p. 357.

Vesicalization of Stump of Uterine Cervix.—Vesicalization is the word used by Ashe to describe the procedure adopted in one case to cure a vesicovaginal fistula which occurred after a subtotal hysterectomy. A tumor, left tube and body of the uterus had been removed, leaving the right ovary, tube and the cervix. The number and density of adhesions and the patient's stoutness made the operation difficult, and silk ligatures were used freely. At first, there was little to note in the healing of the wound, general condition of the patient, etc., but soon she began to complain of frequent and painful micturition. This became severe, and then there occurred a leakage of urine from the vagina. This leakage rapidly increased with much excoriation of the vulva and surrounding skin. All kinds of treatment were tried to stop the leak, acidify the urine and cure the irritation, including continuous drainage of the bladder with Cathcart's apparatus, but nothing helped. Examination under an anesthetic showed that the urine was escaping through the cervical canal, so a further operation was done. There was so much inflammation and thickening of the vaginal fornices that it was impossible to pull the cervix down, peel off the bladder and proceed on conventional lines. The cervix was, therefore, most thoroughly scraped out and "rawed" with sharp spoons, and during this process a thick knotted silk ligature (evidently the cause of all the trouble) was removed from the cervical canal. The cervix was then firmly stitched up and entirely occluded by six deep catgut sutures, passed anteroposteriorly. Part of the cervix was, therefore, "vesicalized" or taken up into the bladder wall.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 717-727 (May 18) 1923

Import of Varicose Thoracic Veins. Chiray and Lebon.—p. 717.
*The Liver in Chronic Enterocolitis. R. Savignac and A. M. de Fossey. —p. 719.
*Methyl Bromid Intoxication. A. Cade and P. Mazel.—p. 722.

Liver Insufficiency in Chronic Enterocolitis.—Savignac and de Fossey report the results of a two years' study of metabolism in chronic enteritis, especially the hepatic inefficiency shown in the urine and the blood. This was evidenced in thirteen of seventeen cases of enterocolitis by hypercholesterinemia, hypercholemia, digestive hemoclasis or a disturbed nitrogen balance; derangement of carbohydrate metabolism was inconstant. Because of the dissociation of the disturbances, it was impossible to measure the degree of hepatic insufficiency. They found no relation between the different signs of liver insufficiency and bowel function. Some patients were constipated and others had diarrhea.

Intoxication by Methyl Bromid.—Cade and Mazel's patient, aged 32, working in a factory where chemicals were manufactured, for a month had been affected by the vapors from methyl bromid distillation before a leak in the tank occurred. He tried to stop the leak with cotton and left the works an hour later feeling normal. Reaching home he ate a little without appetite and lying down felt a sudden pain in the neck, which was relieved by medicine, and he had a good night. Sixteen hours after the inhalation his fingers and legs became useless; he had diplopia with indistinct vision, and he was unable to give his name either orally or in writing. Paresis of the limbs, more marked on the left side, set in with violent pains in the legs, and marked motor incoordination, which was increased by closing the eyes. The authors have collected nine other cases of methyl bromid poisoning, all of occupational origin. The symptoms in all were nervous: staggering, dizziness, sudden headache, and visual disturbances, either singly or in combination. After a remission of a day or two, the symptoms returned, with muscular weakness or incoordination, sometimes with somnolence or lipothymia, and in the graver cases with sensorimotor polyneuritis. In a second case, the man, aged 59, had been engaged at times for thirty-two years in the manufacture of antipyrin; he had had four attacks of mild methyl bromid poisoning, with complete recovery in the intervals. In all the cases, the disturbances from the methyl bromid subsided in from one to fifteen days, or a few weeks in the graver cases, except in the two fatal cases reported in which epileptiform attacks occurred and merged into a terminal coma in a few hours. In all the cases the acute poisoning was the result of the breaking of some part of the apparatus, with consequent escape of the fumes.

47: 769-832 (June 1) 1923

Radiographic Diagnosis of Bronchiectasis. F. Trémolières and Joulia. —p. 769.
*Arsphenamin to Prevent Abortion in Syphilis. M. Pinard.—p. 772.
*Nerve Resection in Angina Pectoris. D. Daniélopolu.—p. 778.
Mixed Immunization Treatment of Acute Lung Diseases. d'Oelsnitz and L. Colle.—p. 790.
*Auscultation Signs of Lung Cavities. P. Ameuille and L. Gally.—p. 802.
*Prolonged Undulatory Fever from Carcinoma. M. Roch and G. Bickel. —p. 806.
*Treatment of Eczema from Anaphylaxis. H. Grenet and R.Clément.— p. 814.
*Treatment of Tuberculous Hemorrhagic Pericarditis. Amaudrut.— p. 816.
Pneumonia of Abnormal Lobe of Lung, Terminating with Meningitis. G. Paisseau and Duchon.—p. 819.
*Nasofacial Reflex in Lung and Nervous Diseases. P. Emile-Weil, Lévy-Franckel and Juster.—p. 824.
Lung Siderosis with Iron in the Sputum. E. Rist and J. Rolland.— p. 828.

Arsphenamin to Prevent Abortion in Syphilis.—Pinard thinks frequent injections of small doses of arsphenamin in syphilitic women are dangerous and do not arrest the feticidal action of syphilis. Of 228 syphilitic women in his service given one to three series (doses up to 0.75 or 0.9 c.c.) of neoarsphenamin intravenously at intervals of three weeks, during pregnancy, 215 gave birth to living infants at term; a few deaths were due to obstetric causes. In the remainder, treatment had been insufficient or started too late. Only thirty-seven of 152 pregnant syphilitic women not treated with arsphenamin preparations gave birth to infants who lived after the second day. Having given 5,000 intravenous injections in pregnant syphilitic women, he feels justified in asserting that arsphenamin even in large doses does not cause abortion.

Resection of Posterior Roots in Angina Pectoris.—Daniélopolu having found that the pain of angina pectoris may be relieved by anesthesia of the spinal nerves, concludes that cardio-aortic pain is always referred while the other cardiac disturbances are perceived in the heart itself. He recommends resection of the left posterior roots or the corresponding left dorsal nerves (these methods do not hurt the important centrifugal fibers) as a surgical treatment of angina pectoris. In one patient, intensely painful attacks of angina pectoris, recurring dozens of times during the twenty-four hours, practically ceased after resection of the left second dorsal nerve. The case is not conclusive as the cardiorenal insufficiency, ascites and enormously enlarged liver soon proved fatal.

Auscultatory Signs of Pulmonary Cavities.—Gally says that many pulmonary cavities are not detected by auscultation. In one case in which radiography showed a cavity occupying nearly half of the left upper lobe, there were no râles, and absence of the breath sounds was the only sign. A cavity located in an inaccessible region may give no audible sign. Bubbling râles and dry and moist crepitations may, and most frequently do, indicate the existence of a cavity. They may be heard over a large area when there is only a small cavity located far from the surface. Cavernous breathing was observed in one case of pulmonary lymphogranulomatosis in which the trachea was drawn over to the margin of the lesion but without evident cavity.

Prolonged Febrile Waves of Carcinomatous Origin.—Roch and Bickel say that fever accompanying carcinoma rarely occurs in such regular waves of from seven to twelve days, as in their patient, aged 44, in whom necropsy showed no septic complications. They believe that each febrile attack corresponded to an invasion of the circulation with carcinoma. Symptomatic anemia was noted in the beginning and became serious. In the third stage the anemia became pernicious and was accompanied by a hematopoietic reaction with 2 per cent. normoblasts and a color index of 1.10.

Wheat Flour Anaphylaxis Cured by Desensitization.—Grenet and Clément's patient, aged 63, had a pruritic eczema for twenty-three years, with periodic acute attacks, which did not yield to treatment. As bread was the only food which had never been excluded from her diet, she was placed on a breadless but otherwise normal diet, and improved greatly. A cutaneous test with fresh wheat flour diluted with sodium chlorid solution gave a negative reaction, but an intracutaneous injection of 0.3 c.c. of this solution was promptly positive. The ingestion of 100 gm. bread caused a hemoclastic crisis in forty-five minutes. For desensitization, 0.5 c.c. of wheat flour mixed cold with physiologic saline (1:6), was injected subcutaneously; six days later another injection of 1 c.c. of the same mixture was given. In another six days the eczema was dry and not itching. During two weeks she ate a piece of bread the size of a nut every third day. During the next two weeks she ate bread every other day in gradually increasing doses. Thereafter bread was allowed with one meal a day. The results so far, for seven months, have been perfect.

Cure of Tuberculous Pericarditis with Bloody Effusion.—Amaudrut's patient, aged 13, had been affected with tuberculous pericarditis with effusion for several months. Paracentesis of the pericardium yielded 150 c.c. of bloody fluid and reduced the pressure from 20 to 10 c.c. of water. Twenty c.c. of a horse serum preparation was injected into the pericardial cavity. Another tapping yielded 150 c.c. and reduced the pressure to 3 c.c. of water. A new injection of 20 c.c. of the serum preparation was given. The child was placed on a salt-free diet for six weeks, 4 gm. of calcium chlorid was administered daily, and he was subjected to intense heliotherapy. Practically complete resorption occurred, and cure has been complete for ten months.

Nasofacial Reflex in Pulmonary and Nervous Affections.—Emile-Weil, Lévy-Frankel and Juster say that excitation of

the mucous membrane of the nose causes changes in the cardiac rhythm and congestion of the face. The superior meatus of the nose is stimulated with cotton and this is followed normally by congestion of the homolateral eyelid and conjunctiva, with secretion of tears and slight mydriasis. In acute and subacute pulmonary affections, the reflex is intense on the side affected. In unilateral chronic pulmonary disease, the congestive reflex is variable but the pupillary mydriasis on the affected side is constant. In neuralgia, the conjunctival and lacrimal reaction is exaggerated, and in liver affections the congestive reflex is very rapid and intense. In tabes with Argyll Robertson pupils, the pupil reflex does not occur, but it is present when these ocular signs are absent.

Paris Médical

13: 1-40 (July 7) 1923

Cardiovascular Disease in 1923. P. Lereboullet and J. Heitz.—p. 1.
Diagnosis of Adhesive Pericarditis. C. Laubry and F. Bordet.—p. 11.
*Angina Pectoris with Valvular Defects. L. Gallavardin.—p. 16.
Pulmonary Insufficiency with Mitral Stenosis. P. Ribierre.—p. 21.
Roentgenography of Extreme Dilatation of the Heart. E. Bordet.—p. 25.
Pathology of the Blood in 1923. M. Leconte and J. Yacoel.—p. 31.
Blood Transfusion. P. Emile-Weil.—p. 36.

Angina Pectoris with Valvular Disease.—Gallavardin has had twenty-five cases of endocardial valvular disease in the last four years in which attacks of angina pectoris formed part of the clinical picture. He gives details of the latest fifteen cases, but has had no opportunity for postmortem examination. Only one in this last series has died. With a mitral defect one seldom thinks of syphilis, but, even with aortic insufficiency, syphilis is not always a factor. The attacks of angina pectoris in two cases were apparently pure and occurred without shortness of breath, and the discovery of signs of severe mitral defect was a surprise. In six other mitral cases, the angina pectoris symptoms developed only at night or in repose, or only while walking. With an aortic defect, the symptoms of angina pectoris generally developed apart from the valvular symptoms, simulating pure angina pectoris. In one case they were very severe, recurring frequently at night or during walking. They were relieved with nitroglycerin. One man aged 30 had an aortic-mitral defect but there was no shortness of breath, no edema, and the liver was of normal size; but the frequently recurring attacks of severe angina pectoris had totally incapacitated him for four years. There was nothing to indicate syphilis. Amyl nitrite relieved the attacks.

Revue de Médecine, Paris

40: 257-319 (May) 1923

The Work of Pasteur. C. Richet.—p. 257. Cont'd.
Psychoses and Pathologic Anatomy. M. de Fleury.—p. 273.
*Orthostatic Albuminuria. A. Hanns.—p. 279. Conc'n, p. 362.
The Cortical Process of Concentration. N. I. Krasnogorsky.—p. 294.
Survey of Recent Works on the Meninges. H. Godlewski.—p. 311.

Orthostatic Albuminuria.—Hanns discusses the volume of the urine, the acidity and the sodium chlorid content, in the course of orthostatic albuminuria. He tabulates the findings in two very pronounced cases and in three mild forms, and also in two cases of intermittent albuminuria, which he classes as an abortive type of orthostatic albuminuria.

Schweizerische medizinische Wochenschrift, Basel

53: 529-548 (May 31) 1923

*Hyperglycemia and Glycosuria in Diabetics. P. Steiner.—p. 529.
Labor Pains and After-Pains. A. Nordmann.—p. 534.
Traumatic Epithelial Cysts. A. v. Beust.—p. 536.
Meningococcus Meningitis. L. Melsanowitsch.—p. 538.

Hyperglycemia and Glycosuria in Diabetics: Development, Variations and Correlations.—Steiner's research was done on twenty slight cases, ten average and eight severe cases of diabetes. He found the threshold of glucose excretion very variable in different individuals. In the majority it ranged between 0.205 and 0.215 per cent. of glucose in the blood. The sugar content of the blood and the glycosuria usually ran parallel. His tables and charts showing the sugar content of the blood, type of dispersion, age, the weeks or years the patient had been under observation and other details allow a curve of averages. Comparison with this enables a better comprehension of the significance of single symptoms in different cases.

53: 549-568 (June 7) 1923

Pituitary Treatment in Obstetrics. J. Mennet.—p. 549.
Importance of the Ion Balance. J. Markwalder.—p. 553.
Histons in Mammalian Organism. K. Felix.—p. 558.
*Occupational Injury from Sulphur Dioxid. J. Strebel.—p. 560.

Sulphur Dioxid Poisoning.—Strebel has seen a number of cases of superficial punctate central keratitis among the spinners and weavers in a local factory. It may be accompanied by ciliary neuralgia, and in two cases there was hemorrhagic gastritis or acute nephritis. The gas reaches the eyes through the lacrimal passages when goggles are worn; Strebel has devised a mask with goggles and a zinc and charcoal filter which is proving effective protection.

53: 569-592 (June 14) 1923

Treatment of Psoriasis. M. R. Gonin.—p. 569.
Case of Lung Fluke Disease in Switzerland. O. Amrein.—p. 576.
*Roentgen-Ray Treatment of Sciatica. M. Steiger.—p. 581.
Experimental Study of Bismuth in Syphilis. H. Ritz.—p. 584.

Roentgen-Ray Treatment of Sciatica.—Steiger remarks that we can assume a neuritic or perineuritic factor when sciatica persists after removal of known causes, or the congested nerve may be too large for the opening in the bone. In these conditions, a single exposure to the roentgen rays may cure recent sciatica; older cases may require from two to four sittings. The roots of the sciatic nerve have to be exposed here, even if there is no pain or tenderness at this point. He describes thirteen cases from his own experience in which bilateral or unilateral sciatica of from one to sixteen years' standing subsided completely under this treatment, with no return during the months to two years since. In one patient, occipital neuralgia subsided with the sciatica, as also neuralgia of the brachial plexus in another case, and pruritus ani in a third.

Policlinico, Rome

30: 889-920 (July 9) 1923

*Isolation of the Pneumococcus. B. Polettini.—p. 889.
*Megacolon. V. Vidal.—p. 891.
*Urobilinuria in Diagnosis of Latent Malaria. I. di Pace.—p. 894.
Symptoms from the Chiasm with Pituitary Lesions. G. Fumarola.—p. 897.

Isolation of the Pneumococcus.—Polettini states that the pneumococcus grows earlier and more profusely than other bacteria on Pergola's culture medium. This is made with 100 c.c. of normal beef serum, 1 egg yolk and 0.02 gm. of potassium tellurite. This mixture is distributed in test tubes and sterilized at 55 C. for an hour on three successive days. Part is used in liquid form and part is solidified by heating for an hour to 80 C. The pneumococcus colonies become distinct by the tenth or twelfth hour. After twenty-four hours, other bacteria crowd them beyond recognition. Cultures obtained on this medium kept their virulence in sealed tubes for three months.

Megacolon.—The sigmoid loop was the one enormously enlarged, and the distal stump slipped out of sight when a segment 30 cm. was resected. It would have been better to have made the side-to-side anastomosis before resecting the loop. The man, aged 27, displayed a tendency to spasm of the lower esophagus and cardia, and the primary factor in the megacolon may have been a similar spasm.

Urobilinuria in Malaria.—Di Pace tested the urine from nearly 200 persons with malaria, and found urobilinuria in all the unmistakable cases of malaria, while it was exceptional in the latent cases and was not uncommon in the healthy. Hence no reliance can be placed on it for the diagnosis of latent malaria.

30: 921-958 (July 16) 1923

*Rupture of Uterus in Cesarean Scar. S. Marinacci.—p. 921.
Sclerosis of Mesocolon with Duodenal Ulcer. M. Francini.—p. 924.
*Enterostomy in Acute Peritonitis. L. Cantalamessa-Carboni.—p. 926.
*Insufflation of Gas in Case of Ileus. C. Catteruccia.—p. 929.
*Influence of Calcium on Complement Fixation. S. Rapisardi.—p. 930.
The Clinical Syndromes of Erythroblastosis. G. Ghedini.—p. 931.

Rupture of Gravid Uterus from Infiltration by Villi.—Marinacci's case confirms the danger of rupture of a cesarean cicatrix when it becomes invaded by chorionic villi. Profuse intestinal hemorrhage was the first symptom to attract atten-

tion, for which no cause was discovered until symptoms of partial obstruction of the bowel followed. Laparotomy revealed that a loop of intestine had become adherent to the cicatrix, and that the uterus had ruptured here and beyond. The uterine wall in this region and the adherent bowel had been undermined and infiltrated by the destructive action of chorionic villi. While the defect in the intestine was being sutured the uterus expelled its contents spontaneously, and the operation was concluded with subtotal hysterectomy. The intestinal hemorrhages had preceded by several days the slow rupture of the uterine wall.

Enterostomy in Acute Peritonitis.—In the case reported, the symptoms unmistakably indicated acute peritonitis from perforation of an ulcer in the small intestine. The perforation was sutured, but the man, aged 57, died on the fourth day. The bowels had moved freely, showing that the peritonitis had been conquered, and the fatal outcome might possibly have been averted by an early enterostomy.

Insufflation of Intestine in Treatment of Ileus.—In Catteruccia's case the symptoms indicated mechanical ileus from obstruction by an inoperable recurring cancer in the left flank. He injected into the intestines 0.5 liter of water containing 18 gm. of tartaric acid, and followed this at once with the same amount of water containing 20 gm. of sodium bicarbonate. The gas generated by the chemical interaction was retained by a cotton pad applied to the anus. There had been no movement of the bowels for a week, but this soon restored intestinal function and the colic pains subsided. No enema could have proved so effectual, he says, while, under the circumstances, an enema would have been more risky.

Influence of Calcium on Complement Fixation.—Rapisardi asserts that it requires 0.5 c.c. of 3 per cent. solution of calcium chlorid to display even the slightest inhibiting action on complement fixation. His findings thus contradict some recent publications in this line.

30: 317-360 (July 1) 1923. Medical Section

Clinical Variety of Acute Leukemia. G. Mario.—p. 317.
Research on Spirochaeta Icterohemorrhagiae. V. Vanni.—p. 330.
Types of Streptococci in Malignant Endocarditis. E. Trenti.—p. 336.
*Reaction in Colon to Gallbladder Disease. U. Baccarani.—p. 353.

Reaction in Colon to Gallbladder Disease.—In addition to the symptoms in the stomach which accompany gallbladder disease, or in place of them, Baccarani has observed a similar secondary disturbance in the bowel. The connection between cholecystitis and certain intestinal disturbances was unmistakable in a number of his cases, as he shows by three typical examples. The gallstone cholecystitis in each case induced at times a sudden attack of a profuse watery pseudodiarrhea. The patients said they felt as if they were urinating from the bowel. These attacks recurred whenever the cholecystitis flared up, and lasted about half an hour. After this there were no symptoms from the bowel until the next attack. He explains them as a kind of angioneurotic edema in the bowel, of sympathetic origin. In his cases it seemed to be restricted to the transverse and descending colon. The distribution of the vasodilating fibers of the sympathetic to this portion of the bowel explains this. At other times, constipation was the rule, and in many cases of disease of the biliary apparatus, rebellious constipation was cured by removal of the gallbladder.

30: 337-388 (July 15) 1923. Surgical Section

*Healing of Fractures. A. Albanese.—p. 337.
*Postoperative Heatstroke. R. Botteselle.—p. 352.
Calculi in Ectopic Kidney. C. Chiaudano.—p. 366.
Congenital Cysts in Neck. L. Gobbi.—p. 372.

Healing of Fractures.—Albanese concludes from his experimental research, with vital staining, on pigeons and guinea-pigs that Wolff's law governs the healing of fractures as well as the development of the bones. All changes in the function of a bone are attended by changes in the internal structure. The trophic action of functional stimulation was confirmed.

Postoperative Heatstroke.—Botteselle relates that during the summer of 1921 there were numerous instances of sunstroke and heatstroke from exposure to the sun. In some of the cases of heatstroke there had been no exposure to the sun. He describes seven cases in detail in which patients apparently smoothly convalescing from some operation suddenly developed convulsions and coma, and necropsy revealed the typical findings of heatstroke. The symptoms were severer the shorter the interval after the operation. Such experiences warn that if operation cannot be postponed until the extreme heat is past, extra efforts must be made to keep the patient cool.

Brazil-Medico, Rio de Janeiro

1: 351-368 (June 30) 1923

*Surgical Treatment of Ozena. M. Ottoni de Rezende and Homero Cordeiro.—p. 351.
The Endocrine-Vegetative Apparatus in Parkinson's Disease. Fernando Villela.—p. 357.

2: 1-20 (July 7) 1923

Idiopathic Keratitis. Hilario de Gouvêa.——p. 1.
Bullet in Sphenoidal Sinus. Ildeu Duarte.—p. 3.
The Food Problem in Northern Brazil. Araujo Lima.—p. 5.

Treatment of Ozena.—This article states that no other treatment of ozena has cured such a large proportion of the patients as Lautenschläger's operative procedure. It was applied in forty cases, supplemented by Seiffert's U silk stitches for fixation of the mobilized walls, and the outcome has been satisfactory in 70 or 80 per cent. of the cases. Hinsberg has also reported 40 cured in 59 cases, the ozena of one or two years' standing in 24.

2: 21-36 (July 14) 1923

*Gonococcus Keratoderma. A. A. da Matta.—p. 21.
*Poisonous Snakes of Brazil. R. Kraus.—p. 24.
French Urology in 1922. de Berne-Lagarde.—p. 28.

2: 37-52 (July 21) 1923

Ptosis of Stomach and Bowel. R. de Souza Lopes.—p. 37.
Bacillary Dysentery in Brazil. Aristides Guimarães, Moacyr de Souza Lima and Alarico de Toledo Pisa.—p. 42.

Gonococcus Keratoderma.—In da Matta's case the gonorrhea was the third attack in six years, and there were joint lesions in addition to the urethritis. The soles presented a number of conical nodules, some of which ulcerated, an actual keratoderma, but all subsided completely under vigorous treatment of the gonorrhea. The soles had healed by the twenty-seventh day and all symptoms had subsided by the thirty-ninth.

Poisonous Snakes in Brazil.—Kraus has been studying the feeding habits of poisonous snakes. He describes certain species that eat birds or other snakes, and experiences with dogs and other animals that eat snakes, apparently unharmed by the snakes' bites. He suggests that by breeding these animals to produce still greater resistance, domesticating them might prove useful in prevention of fatalities from snake bites in Brazil. The animal most useful for this seems to be the *cachorro do matto, Canis vetulus.* He gives an illustration of one as it is devouring a poisonous snake.

Archiv für klinische Chirurgie, Berlin

125: 1-416 (July 31) 1923

*Parotitis in Typhus. P. A. Herzen.—p. 1.
*Drainage of the Pericardium. G. Ellmer.—p. 13.
*Secretion After Resection of Stomach. H. Smidt.—p. 26.
*Operations on Stomach. J. Galpern.—p. 86.
*Gastric and Duodenal Ulcers. E. Nordmann.—p. 92.
*Gallstones and Pregnancy. H. H. Schmid.—p. 121.
Ampulla-Like Enlargement of Cystic Duct. G. Rosenburg.—p. 171.
Nonparasitic Cysts in Liver. W. Schaack.—p. 183.
*Goiter in the Young (Würzburg District). E. Stahnke.—p. 193.
*Conservative Surgery of the Spleen. J. Volkmann.—p. 231.
After-Sterilization of Catgut. F. Konrich.—p. 275.
Variations of the Sigmoid Flexure. Ssoson-Jaroschewitsch.—p. 283.
Incarceration of Bowel in Slit in Mesentery. S. Sofoteroff.—p. 324.
*Action of Ions on Granulation Tissue. H. Fischer.—p. 333.
*Glycosuria with Surgical Infections. W. Rieder.—p. 362.
*Subcutaneous Skin Flaps. H. Ruef.—p. 366.
*Osteoplastic Operations. K. Blond.—p. 378.
Age Changes in Costal Cartilages. W. J. Popow.—p. 392.
*Operative Treatment of Pernicious Anemia. Walterhöfer and Schramm.—p. 407.
Bilateral Hydrocele. F. Kazda.—p. 414.

Parotitis in Typhus.—Herzen says that 2 per cent. of all the many cases of typhus in the Russian pandemic of 1918 and 1921 presented parotitis. Gangrene of the skin and legs was even more common.

Drainage of the Pericardium.—Ellmer resects the fifth and sixth costal cartilages, removes the presenting portion of the muscle below, and draws up to one side the intact pleura.

This exposes the pericardium at its lowest point, which is not the case with other methods.

Gastric Secretion After Resection.—The research was done on dogs with a Pawlow stomach pouch, after resection by the Billroth I or II, or exclusion of the pylorus. Previous work in this line is summarized and the results compared. The detailed findings are given in sixteen tables. They show among other things that the Eiselsberg method of exclusion of the pylorus does not reduce gastric secretion; on the contrary, it tends to exaggerate it. Resection by the Billroth I, with resection of the entire antrum, reduces secretion to the minimum. The chemical phase is done away with entirely, and only the reflex phase is left. The research showed further the advantages of milk in ulcer cases, as milk checks production of acid. Meat and bread should be taken only at the main meals. Small and frequent meals are a disadvantage on account of the psychic gastric secretion.

Results of Operations on the Stomach.—Galpern reports 508 cases of nonmalignant stomach affections requiring operative treatment. In 254 cases traced for one to fourteen years the patients were entirely or nearly cured in all but 19.3 to 25.2 per cent. The mortality after gastro-enterostomy was 3.75 per cent. in 480 cases. This included 5 cases in which the ulcer perforated soon after the operation. He declares that when an ulcer develops after two or three years of perfect health following the operation, the presumption is in favor of a new ulcer rather than recurrence of the old ulcer. The second ulcer was found in an entirely different part of the stomach in some cases. His figures testify strongly in favor of gastro-enterostomy rather than resection as preferable treatment, except with suspicion of cancer and at a relaparotomy.

Gastric and Duodenal Ulcer.—Nordmann analyzes 180 operative cases. The mortality was 4.5 per cent. after resection, and 4.7 per cent. after gastro-enterostomy. In 10 per cent. there were multiple tumors. Peptic ulcer developed later in only 4 cases. The gastric acidity is not a reliable criterion for the diagnosis of ulcer, and he warns against operating on girls and women with a neurotic tendency, as their disturbances are frequently functional. Resection for duodenal ulcers was done in 49 per cent. of the 71 cases, as no essential benefit on the ulcer from gastro-enterostomy was ever noted. On the other hand, with periduodenitis he refrains from both resection and gastro-enterostomy as the symptoms persist after each. The 50 patients treated by resection by the Billroth II method were nearly all free from all disturbances and had gained in weight, while a number of the 24 treated by transverse resection still complained of pains and oppression at the slightest error in diet, but they were not of the same kind as before. The 15 treated by Billroth I were a long time recuperating and had to keep to a restricted diet.

Cholelithiasis and Pregnancy.—Schmid summarizes from the records 46 cases in which an operation for gallstones was done during a pregnancy, 4 during childbirth and 30 during the puerperium. The fluctuations in intra-abdominal pressure, the sudden subsidence of the stasis in the gallbladder after delivery, are liable to mobilize gallstones or cause the gallbladder to rupture. Under conservative treatment, the mortality in 60 cases was 10 per cent. and under operative measures 10.8 per cent. of 83 cases. The great danger is from the far advanced lesions, and as the difficulties of operating are far greater in the latter half of pregnancy, he advises operation early in the pregnancy, when inflammatory phenomena are discovered. With peritonitis impending or already installed, after the sixth month, he advises evacuation of the uterus at the same time the gallbladder is removed, as the lesser of two evils.

Goiter in the Young.—Stahnke compares the clinical finding with the microscopic in fifty resected goiters (seventeen girls and thirty-three boys). Injury from ligation of the four arteries and extensive resection was never observed. He recommends postoperative treatment with the minutest doses of iodin, but says that iodin should not be given before the thyroidectomy when the thyroid is causing symptoms.

Conservative Operations on the Spleen.—Volkmann has compiled seven cases in which conditions prevented the proposed splenectomy, and the splenic artery was merely ligated. Similar operations on guinea-pigs and dogs confirmed the possibility of atrophy of the spleen after ligation of arteries or veins, also the possibility of regeneration of the spleen from the stump after resection of part of the spleen. After splenectomy, accessory spleens enlarge.

Action of Ions on Granulation Tissue.—Fischer discusses the action of the anions iodin, chlorin and SO_4 and the cation sodium on the young cells of healing wounds.

Transient Glycosuria with Surgical Infections.—Rieder found no trace of glycosuria on reexamination later of fifteen patients who had had transient glycosuria during the course of a phlegmon. In three others the transient glycosuria had been higher during the phlegmon, and in two of these glycosuria was found later after test ingestion of glucose. The p_H was also higher in the severer phlegmon cases.

Subcutaneous Skin Transplants.—Ruef gives the details of a number of cases in which the "cutis-subcutis flap" was applied to aid in closing a large defect in the abdominal wall, to substitute a tendon, to corect a flail joint or habitual luxation of the patella, or to close a bladder fistula. The flap of skin can be taken from the vicinity or at a distance, and it is stretched taut and sutured, and then the skin is drawn back over it. It thus is nourished from its two surfaces, and heals perfectly in place. The nineteen cases are described in detail, with illustrations.

Osteoplastic Operations.—Blond illustrates the present findings in two cases in which more than fifteen years ago the humerus was removed. This was on account of sarcoma in one case, and a strip from the tibia, 15 cm. long and 5 mm. in diameter, wrapped in its periosteum, was implanted in place of the humerus. In the other case, there was cyst formation, and the humerus was merely scraped out and a strip 7 or 8 cm. long, from the humerus of a cadaver, was fitted into the cavity These patients were 36 and 16 years of age at the time of the operation, and the functional outcome has been perfect in both. In a third case the young man died from metastasis a year after the osteoplastic operation on the leg, and the necropsy findings are reproduced. The bone implant in this case had been taken from another patient undergoing amputation at the time.

Operative Treatment of Pernicious Anemia.—Among the measures advocated to stimulate the blood producing apparatus in pernicious anemia, Walterhöfer and Schramm claim a place for the removal of bone marrow from long bones. They have applied this *entmarkung* in nineteen cases in the last two years, and report decided benefit in 37 per cent. In three cases the remission was objective as well as subjective. In three others the benefit lasted only for three months.

Deutsche medizinische Wochenschrift, Berlin

49: 667-706 (May 25) 1923

Swine Plague. Uhlenhuth.—p. 667. Conc'n p. 709.
Turpentine Treatment. V. Klingmüller.—p. 669.
Arsphenamin Preparation in Relapsing Fever. D. Pletnew.—p. 671.
Treatment of Nervous Diseases with "205." M. R. Bonsmann.—p. 672.
*The Calcium Content of the Serum in Asthenia. O. Lubowski.—p. 673.
*Diagnosis of Syphilis by the Practitioner. Zinsser.—p. 674.
*Prophylactic Arsphenamin Treatment of Syphilis. H. Hecht.—p. 676.
Remedies for Coughs and Colds. R. Heinz.—p. 677.
Treatment of Local Staphylomycoses. K. Koch.—p. 678.
Diagnosis of Intra-Abdominal Adhesions. W. Teschendorf.—p. 681.
*Sulphur in Treatment of Arthritis Deformans. H. Hayn.—p. 684.
Treatment After Pubiotomy. A. Niedermeyer.—p. 686.
Repeated Tubal Pregnancy. F. Benzel.—p. 687.
Lobelia in Pneumonia. F. Haas.—p. 688.
*Treatment of Migraine. O. Tigges.—p. 689.
*Treatment of Contracted Kidney. A. Mielke.—p. 689.

The Calcium Content of the Blood in Asthenia.—Lubowski quotes Stheeman's statements in regard to the constitutional deficiency in calcium which he regards as a juvenile form of Stiller's asthenia universalis. Lubowski found the calcium content of the serum below normal in seven adults with asthenia universalis and above normal in four of the eleven examined. It seems evident, he says, that cod liver oil and phosphorus are indicated for asthenia in adults as well as in children.

Diagnosis of Syphilis by the General Practitioner.—The main thing, Zinsser remarks, is to think of the possibility of syphilis. Extragenital lesions on the fingers are seldom recog-

nized until secondary manifestations occur, but palpation of glands might have given the clue long before. Especially with slowly developing, painless lesions on fingers, tonsils and lips, the first thought should be syphilis, and the microscope should be employed to establish the diagnosis. The Wassermann reaction is of no use for the primary lesions in syphilis, and at the best merely discloses that the patient has syphilis, without specifying whether the lesion under examination is syphilitic or not. But the finding of spirochetes is unmistakable. Many physicians seem to make it a principle to treat the Wassermann reaction, and this alone, not the syphilis.

Prophylactic Arsphenamin Treatment of Those Exposed to Syphilis.—Four cases are described by Hecht in which preventive treatment was not considered necessary after contact with a syphilitic as there was nothing to suggest infection. But syphilis developed in all, with a malignant course in one case, and Hecht is convinced that arsphenamin treatment when first seen would have warded off the infection. In another group of five cases given an immediate course of neoarsphenamin, 1.35 gm. in ten days, or 1.05 gm. in three weeks, no signs of syphilis have appeared. The exposed patients in these cases were the wives of men recently infected by a prostitute.

Sulphur in Treatment of Arthritis Deformans.—Hayn's eleven cases emphasize the advantages of systematic sulphur treatment in all chronic joint affections that do not yield to the salicylates or to treatment for syphilis. He injected intramuscularly an emulsion of 1 part sulphur depuratum and 20 parts eucalyptol in 80 or 100 parts olive oil. His patients were all severely crippled by their joint disease, and all showed marked improvement. They were given ten, thirteen or sixteen injections in one or two series, at intervals of five or six days. A chill followed the injection in about twelve hours, with fever, headache and pains in the joints most affected. These symptoms all subsided within twenty-four or forty-eight hours. No other by-effects were observed. Massage, passive movements and hot air proved useful adjuvants.

Treatment of Migraine in Women.—Tigges urges others to try the method of treating migraine which he found so useful in three cases. He painted the Fliess' points in the nose with a mixture of 0.5 parts cocain hydrochlorid; epinephrin 1 part (1:1,000) and distilled water to 10 parts. The application was repeated two or three times, using a cotton-wound bayonet-shaped instrument. He generally continued the course for three months. None had any return of the migraine after the first few applications.

Treatment of Contracted Kidney.—A man, now aged 51, has had chronic kidney disease for twenty-three years. He has long made a practice of taking an electric light bath or steam bath every three or four weeks, and Mielke ascribes to this his comparatively favorable condition. After the bath the nonprotein nitrogen was only 0.05 or 0.06 per cent. and the maximal blood pressure 200 or 220. But after three or four weeks the nonprotein nitrogen may rise to 0.1 per cent. and the blood pressure increase, and there may be epistaxis at night. But after the hot bath, conditions right themselves again to a certain extent. This occurs also without the bath when there is a profuse hemorrhoidal hemorrhage.

49: 707-740 (June 1) 1923

*Metritis and Metropathy. H. Sellheim.—p. 707. Conc'n, p. 748.
*Swine Plague. Uhlenhuth.—p. 709. Conc'n.
*The Stomach Channel. K. H. Bauer.—p. 713.
*Rapid Serologic Test for Syphilis. H. Hecht.—p. 715.
Treatment of Heart Disturbances in Pneumonia. R. Stoffel.—p. 716.
Serodiagnosis in Active Tuberculosis. J. Diener.—p. 717.
*Intensive Heliotherapy in Pulmonary Tuberculosis. J. Schürer.—p. 718.
Treatment of Thyroid Tumor Without Resection. L. Ascher.—p. 720.
Drip Irrigation in Puerperal Fever. N. Ellerbroek.—p. 721.
Proposed Legislation to Combat Tuberculosis. Kreuser.—p. 722.
The New Tasks Before the Organized Profession in Prussia. S. Alexander.—p. 723.

Metritis and Metropathy.—Sellheim explains the two groups of endometritis as due to local processes in the uterus in one group, but in the second group great uncertainty prevails as to the etiology, the local findings, the treatment, the outcome and the proper name for the disturbances. Metropathy is perhaps the best term, as this is noncommittal, and the frequent absence of local findings excludes metritis. This metropathy may occur at the onset or at the close of sexual life, with irregular bleeding and profuse and almost continuous discharge, and the variability of the effect of different treatments shows that we are groping in the dark. He is inclined to ascribe it in many cases to the strain of business life for women, the slavery to the time clock, and the repression of the natural child-bearing function. If there is decomposition of menstrual blood in addition, the combination of local irritation and general functional disturbance rapidly induces a characteristic and severe clinical picture. The loss of fluids in the uterine discharge has a weakening action, even if there is not much hemorrhage. He remarks that sexual excitement from novels, plays, dances, cohabitation without conception, all form an unnatural mode of life, and the abnormal conditions in the sexual sphere are reflected in these metropathies.

Seroprevention of Swine Plague.—Uhlenhuth says that Germany is far behind America and Hungary in practical protection of hogs against swine plague. The preventive serotherapy is useful only when applied in time. If many of the hogs are already affected, the antiserum is almost powerless.

The Stomach Channel.—Bauer states that the *magenstrasse* was clearly defined in eleven of twelve cadavers he examined. He resected this stomach channel in seven dogs, and was amazed to see how little effect the loss of it had on the stomach. The shape and the function persisted unimpaired, and a new channel formed again. He explains the channel as a rudimentary survival, and like all surviving organs of the kind it is less resistant than other tissues. It might be wiser to resect this gastric channel in operating for ulcer.

Rapid Serodiagnosis of Syphilis.—Hecht describes a modified technic for his precipitation reaction, and urges others to give this improved rapid, H. F. R. II method a trial.

Intensive Heliotherapy in Pulmonary Tuberculosis.—Schürer queries why it is generally assumed that pulmonary tuberculosis does not respond so favorably to heliotherapy as bone and joint tuberculous lesions. He applied heliotherapy in intensive form on the roof of a Berlin hospital, and none of the sixty-three patients with pulmonary tuberculosis thus treated showed any harm from the exposure to the sun, and many were remarkably improved.

49: 871-904 (July 6) 1923

Histopathology of Nervous System Since Nissl. P. Schröder.—p. 871.
*Physiologic Study of Blood Substitutes. E. Atzler.—p. 873.
*Solution for Intravenous Injection. G. Lehmann.—p. 874.
*Formation of Sugar in Animal Body. E. J. Lesser.—p. 875.
Causes for Constitutional Anomalies. A. Greil.—p. 877. Reply. Roux. —p. 878.
Cholagogues and Indications. Lepehne.—p. 878.
*Diabetes and Carcinoma. A. Braunstein.—p. 880.
*Fatal Meningitis After Lumbar Puncture. C. Sonnenschein.—p. 881.
Alleged Tardy Traumatic Cerebral Hemorrhage. L. Jankovich.—p. 882.
Local Anesthesia. J. Fessler.—p. 882.
Treatment of Warts. K. Laemmle.—p. 885.
False Economy in Limiting Necropsies. L. Aschoff.—p. 886.

Substitutes for Blood.—Atzler discusses the subject from the physiologic and Lehmann from the physical and chemical standpoints. The research was done at the institute devoted to occupational physiology at Berlin. The fluid they advocate to serve as a substitute for blood is a mixture of 8 gm. sodium chlorid; 0.2 gm. potassium chlorid; 0.2 gm. calcium chlorid; 0.1 gm. magnesium chlorid; 70 gm. of gum acaeia; 1.2 gm. of sodium bicarbonate (to maintain the neutral reaction), and distilled water to 1,000 gm. This solution, they say, corresponds to a physiologic solution in respect to osmotic pressure, colloidal osmotic pressure, ions and other requirements, although differing from blood in viscosity.

Sugar Production in Animal Body.—Lesser explains the mechanism of production of sugar from glycogen in the liver. Recent research has thrown light on this, but has raised other questions still more baffling, which he enumerates.

Diabetes and Cancer.—Braunstein relates that in his nine cases of cancer of the pancreas in the last ten years there was no glycosuria, although necropsy in five in this group revealed that the entire pancreas was involved in the cancer. His test tube experiments with cancer tissue in 0.5-1 per cent. solution of glucose, showed that nearly or fully 50 per cent. of the glucose was destroyed by the cancer tissue. Control experiments with normal tissues were always negative.

He found further a similar glycolytic action in the blood of pneumonia patients; he ascribes it to the glycolytic ferment released by disintegration of leukocytes. This confirmed his observation that the glycosuria often disappeared during pneumonia in diabetics. We know that hyperleukocytosis is common in pneumonia. One practical conclusion from his research is that glycosuria must not be expected as a symptom of cancer in the pancreas, and also that subsidence of the glycosuria in a diabetic when cancer develops, must not be accepted as a sign that the diabetes is improving.

Fatal Meningitis After Lumbar Puncture.—Sonnenschein reports what he thinks is the first case to be published in which a robust young man, a few hours after lumbar puncture, which had revealed clear fluid, developed symptoms of acute suppurative meningitis, fatal the eleventh day. The fluid during life and after death showed only *Bacillus pyocyaneus,* and agglutination tests for this alone were positive. No primary source for the infection could be discovered.

Medizinische Klinik, Berlin

19: 597-634 (May 6) 1923

*Renal Tuberculosis. L. Casper.—p. 597.
*The Blood Pressure Curve in Hypertension. K. Fahrenkamp.—p. 600.
*The Death Rate in Germany Since the War. C. Hamburger.—p. 602.
*Amnesia After Attempt to Hang Oneself. P. Schilder.—p. 604.
Treatment of Cardiac Failure in Shock. F. v. Delbrück.—p. 606.
*Sedimentation in Diagnosis. S. Joseph and M. Marcus.—p. 607.
Anesthesia for Tonsillectomy. A. Cemach.—p. 607.
Fever with Gastric Ulcer. E. Jacobs.—p. 609. Cont'd.
Indications for Radium Treatment. M. Heiner.—p. 612.
Reacting Capacity in Asthenia. E. Baráth.—p. 615.
To Determine Specific Gravity of Small Amounts of Urine and Lumbar Puncture Fluid. A. Kirch.—p. 616.
Torsion of Intestines. H. Engel.—p. 616.
Obstetric Tears of the Perineum. E. Runge.—p. 618.
Recent Literature on Hygiene. H. Ziemann.—p. 620.

Tuberculosis of the Kidneys.—Casper declares that the kidney is the starting point for urogenital tuberculosis in 95 per cent. of the cases, and in a large proportion is the only localization in this system. He regards pus in the urine as the only dependable symptom of renal tuberculosis, and says that inoculation of animals should be done early. The mortality in his last fifty cases of nephrectomy for tuberculosis was only 2 per cent. The process is almost inevitably progressive, untreated or under medical measures alone. Tuberculous lesions in the bladder are an additional argument in favor of nephrectomy unless both kidneys are involved. Bilateral renal tuberculosis usually contraindicates nephrectomy, but exceptionally it might be considered.

The Blood Pressure Curve with Hypertension.—Fahrenkamp has the curves obtained by repeatedly recording the blood pressure three or four times a day for one to three months in 260 persons with hypertension. The type of curve thus revealed throws light on the pathogenesis, diagnosis, prognosis and treatment, as he explains with concrete examples. With malignant nephrosclerosis, the blood pressure keeps at the same high level, never going below 200 mm. mercury even under rest and dieting. All his twelve patients in this group died in a few months. In the second group, the systolic pressure keeps at 220 mm. mercury for a week or two, but under rest and freedom from worry the hypertension drops at times, possibly to 160 mm., and the subjective symptoms are relieved. In one case of this kind a period of continuous high pressure has occurred at times, followed by great fluctuations, during the last four years. The extensive remissions exclude the malignant form of nephrosclerosis. The curve in patients with essential hypertension shows high rises under emotional stress, exertion, nicotin and syphilis, but the blood pressure drops rapidly nearly or quite to normal under rest. Every unfavorable influence is reflected in the rising tension, and the effect of treatment can be estimated with precision. Two patients presented a reversal of the usual curve; the pressure was lowest at evening and highest in the morning. Both of these patients had a secondarily contracted kidney after an inflammatory process.

Death Rate in Germany Since the War.—Hamburger states that the 1913 death rate of 15.8 per thousand inhabitants was the lowest ever recorded in Germany. After the war it jumped to the figure of twenty-five years before, namely, 25.2. But since then it has been improving until, in 1921, with 14.7 per thousand it surpassed even the 1913 record. He ascribes this paradoxical lowering of the death rate under the prevailing financial depression in part to the eight-hour day and vacations, but mainly to the change in the make-up of the population, the dwindling number of children.

Partial Amnesia Cured by Hypnosis.—The man had tried to hang himself, and retrograde amnesia followed his resuscitation by artificial respiration. The amnesia was corrected by several sittings of hypnosis.

Differential Import of Speed of Sedimentation of Erythrocytes.—Joseph and Marcus found the sedimentation test normal in acute appendicitis, but pathologic with acute adnexitis. Other experiences seem to confirm that the test is positive when larger surfaces are involved, as in adnexitis in comparison with appendicitis.

Münchener medizinische Wochenschrift, Munich

70: 659-692 (May 25) 1923

*Isotopic Tuberculin Treatment. W. Stoeltzner.—p. 659.
Treatment of Bone and Joint Tuberculosis with Hydrolysates of Animal Albumin and Animal Organs. R. Haff.—p. 661.
*The Physical Strain of Athletics. Bürkle-de la Camp.—p. 664.
*Morphology of Duodenal Juice. J. Loeber.—p. 666.
Correlation Between Thyroid and Female Genital Organs. Knaus. p. 669.
*The Spleen Irradiation Question. E. Zweifel.—p. 670.
Roentgen Examination of the Stomach. F. Hoffmann.—p. 671.
Operative Treatment of Hypertrophied Mamma. H. Kraske.—p. 672.
Formaldehyd Control of Meinicke Test. C. Sonnenschein.—p. 672.
*An Arsphenamin Fatality. E. Woenckhaus.—p. 673.
Torsion of Ovarian Tumor in Child. W. Mittelstaedt.—p. 674.
History of Discovery of Circulation of the Blood. F. Lejeune.—p. 675.
How Should We Treat Uterine Cancer? O. v. Franqué.—p. 676.
Necessity for Aseptic Departments in Surgical Hospitals. A. Sippel. —p. 678.
Plans for Welfare Work for the Young. W. v. Brunn.—p. 679.

Isotopic Tuberculin Treatment.—Stoeltzner applies the tuberculin test repeatedly to the same spot at intervals. This isotopic repetition of the inoculation produces a local field of immunization, an actual tuberculous focus, in which focal reactions can be induced at will without harm. Each healing tuberculous focus generates antibodies. By this repeated isotopic inoculation, we induce a series of alternately active and healing foci at will, the healing foci generating antibodies each time as the focus retrogresses. The phase of retrogression is thus the main element in this isotopic treatment of tuberculosis. He applied it only by the skin and percutaneous routes, generally between the scapulae, and was favorably impressed with the results. This isotopic principle might be applied to other diseases. It seems paradoxic to try to cure a disease by making new foci, but he says it is merely carrying Koch's work a step farther.

Influence of Athletic Exertion on Kidney Function.—De la Camp reports that 88 per cent. of 84 competing in ski races had albumin in the urine; 83.3 per cent., tube-casts; 41.6 per cent., erythrocytes, and 58.3 per cent., leukocytes. These pathologic findings were more pronounced in the men competing in short races than in the long ones.

Morphology of Duodenal Juice.—Loeber found practically no cells in the duodenal juice of 123 healthy persons, not even after injection into the duodenum of 100 c.c. of a 25 per cent. solution of magnesium sulphate. In persons with catarrhal jaundice, evidences of severe inflammatory desquamation of the mucosa were always found, as also colon bacilli, and occasionally streptococci and staphylococci. In 19 with symptoms of cholecystitis, there was always pronounced leukocytosis in the gallbladder bile, and many colon bacilli. Injection of magnesium sulphate seems to induce reflex contraction of the gallbladder. A typhoid bacilli carrier had typhoid bacilli in the duodenal contents although none had been found in the stools for six months. The gallbladder was consequently removed, but typhoid bacilli were found in the duodenal contents six weeks later. One man aged 30 had long complained of pain in the right upper abdomen, fever and tenderness in the gallbladder region, and the blood showed 11 per cent. of eosinophils. The duodenal contents showed numerous lively specimens of *Lamblia intestinalis* while none could be found in the stools. Catarrhal jaundice was very favorably influenced by rinsing the duodenum with magnesium

sulphate solution every day or second day. Its effect seems to be mainly in forcing open the passage by the bile squeezed out of the gallbladder under its influence. The beneficial effect of magnesium sulphate solution to rinse out the duodenum was particularly pronounced with cholecystitis. The pains and jaundice in two cases rapidly subsided. In two others, gallstones had evidently been forced out of the gallbladder by the contractions, but after this there were no further disturbances. With severe empyema of the gallbladder, caution is necessary.

Irradiation of the Spleen in Gynecology.—Eleven were promptly or completely cured of the thirty-four women treated by mild irradiation of the spleen for uterine hemorrhages, and the others in the group were probably cured likewise. The hemorrhages with chlorosis and general debility seem particularly amenable to this treatment. It may also prove especially useful in preclimacteric hemorrhages.

Arsphenamin Fatality.—The robust, previously healthy man began treatment as soon as the first syphilitic lesion became apparent. He was given 4.35 gm. of neo-arsphenamin by the vein in four weeks. There was a slight rise in temperature after the fourth injection (0.45 gm.) and he complained of headache after the sixth, with general malaise, but this was transient, and for seventeen days he felt perfectly well. Three days after the ninth injection, hemorrhagic encephalitis developed and proved rapidly fatal. The patient had been given mercury rubs at the same time. Is it possible, Woenckhaus queries, that the mercury could have injured the kidneys and thus hindered elimination of the arsphenamin?

Zentralblatt für Chirurgie, Leipzig

50: 1081-1120 (July 14) 1923

Palpation of Diastasis of Rectus Muscles. F. Schoening.—p. 1082.
Intestinal Occlusion by Barium Sulphate Stone. Lemperg.—p. 1083.
*Operation for Acute Cholecystitis. Krüger.—p. 1085.
Secondary Cysto-Urethrorectal Fistula Following Transvesical Prostatectomy. C. Bayer.—p. 1088.
Technic of Arthrodesis of the Ankle Joint. Makai.—p. 1089.

Modified Incision in Operation for Acute Cholecystitis.—Krüger describes his modification of the Riedel incision for all interventions on the biliary tracts. His incision begins 1 cm. below the ensiform process and extends downward, a fingerbreadth to the right of the midline, for 8 or 10 cm. After division of the rectus sheath, the fibers of the muscle are separated in the direction of the skin incision, and retracted. The posterior rectus sheath and the transversalis fascia are now divided extramedially, at the margin of the external portion of the rectus drawn over to the right; the peritoneum is opened on both sides of the falciform ligament, so that the falciform ligament and the round ligament are freely exposed. A two-bladed abdominal speculum is then inserted which produces an almost square opening. The gallbladder may be found from 5 to 10 cm. beneath the lower end of the incision. After division of the round ligament, between two clamps, the gallbladder is loosened from its moorings. At first sight, it may appear difficult to pull a large, low gallbladder up into this small incision far above. The flat left hand is passed across the right lobe of the liver, and placed along the external surface of the gallbladder which it presses toward the midline, until the fundus is on a level with the lower end of the incision. This pushes the right lobe of the liver toward the midline, away from the right thorax wall. The left hand is then replaced by the right, and the gallbladder, now lying approximately transverse, is pushed over to the right, which allows the liver to lapse back to the thorax wall. This brings the fundus to the inner edge of the incision, and usually only a slight jerk is required to cause the gallbladder to spring up through the incision, usually bringing its bands of adhesion with it.

Zentralblatt für Gynäkologie, Leipzig

47: 1073-1120 (July 7) 1923

Sensation of Pressure on Rectum Sign of Separation of Placenta from Body of Uterus. F. von Mikulicz-Radecki.—p. 1090.
*Accumulation of Blood in Uterine Cervix. Meyer-Rüegg.—p. 1095.
New Instrument for Decapitation. K. Blond.—p. 1097.
Instrument for Active Intervention in Abortion. Guggenberger.—p. 1100.
Painlessness of Labor Early Symptom of Tabes. Haselhorst.—p. 1102.
Intermittent Pyometra. O. Gerich.—p. 1108.

Haematometra Cervicalis.—Meyer-Rüegg describes under this head his fifth case of a special type of climacteric hemorrhage. A woman aged 51 stated that for the past twelve months the menses had been coming on every two or three weeks but lasted only two days, while the blood flow was slight. She had been losing a little blood constantly for three weeks. The portio vaginalis, though somewhat short and thick, was otherwise normal as also the anteflexed body of the uterus. A bloody thread of mucus projected. The sound was scarcely able to penetrate the narrow os uteri, but with slender forceps a path was opened, and about 15 c.c. of blood clots and mucus flowed out. Six weeks after the evacuation regular menstruation began again. Meyer-Rüegg suggests that this condition be borne in mind in connection with climacteric hemorrhages, since possibly a mere dilation of the external os uteri will obviate the necessity of employing radiotherapy.

Acta Medica Scandinavica, Stockholm

58: 109-312 (May 22) 1923

Location of the Umbilicus in Abdominal Paresis. W. Örn.—p. 109.
*Variations in the Wassermann Reaction. J. R. Mörch and T. E. H. Thaysen.—p. 111.
*Speed of Sedimentation Blood Tests. H. Pribram and O. Klein.—p. 132.
Sino-Auricular Heart-Block. M. S. Andersen.—p. 151.
*Diagnosis of Glycosuria. S. Jörgensen and T. Plum.—p. 161.
*Diphtheria Bacilli Carriers. M. Christiansen.—p. 201.
*Arsenic Poisoning from Articles in Domestic Use. K. Petrén.—p. 217.
*The Capillaries in Disease. E. Hisinger-Jägerskiöld.—p. 231.

Spontaneous Variations in the Wassermann Reaction.—Mörch and Thaysen present charts of tests which show that the Wassermann reaction is never constant in untreated patients or those treated a long time before. Blood from one patient (treated forty-seven years ago) taken every other day and sent in for examination under different fictitious names, showed a rise in the amount of active substance from 0.0.40.100 to 0.0.0.0.20.100 from the middle of August to the middle of September, and it again declined to its original value at the end of October. Of 185 tests, 36 showed variation beyond the maximum error of Boas and Thomsen. Of 24 with partial inhibition, 10 became negative later, and of 24 with hemolysis 0 with 0.2 c.c. serum, 7 showed negative reactions later. The variations were more frequently found in weak than in strong reactions. They also investigated a number of serum samples by the sigma reaction—the antigen (alcoholic extract of calf's heart) and the reacting serum being the only substances used—and found that in this test none of the patients showed alterations in the amount of reacting substance. They believe that the sigma reaction gives the correct values, and that the variations of the Wassermann are due to changes in the patient's serum which are foreign to the syphilitic process. The sigma reaction is at present undergoing a thorough investigation at the State Serum Institute of Denmark. (It was described in THE JOURNAL, June 11, 1921, p. 1709.)

Speed of Sedimentation of Erythrocytes and Its Dependence on the Breaking Down of Albumin.—Pribram and Klein give charts of seventy-one tests of the sedimentation speed of blood in normal and various pathologic conditions. They show the sedimentation degree at the end of one hour, the maximum degree and the total time, and the speed in relation to normal in various diseases. Fevers, malignant growths, decrease of total albumin content or of the number of erythrocytes in the blood, increased viscosity, cholesterin content and content in albumin end-products speed sedimentation, while increased albumin content, polycythemia, hypercholesterolemia and cyanosis retard it. In some instances the average speed and that of certain periods are influenced independently. The majority of kidney diseases showed high speed, the maximum sedimentatation in two cases being reached within an hour. Neither diagnosis nor prognosis can be deduced from the speed of sedimentation of the erythrocytes alone.

Differential Diagnosis Between Benign and Malignant Glycosuria by Means of Intravenous Injections of Small Quantities of Glucose.—Jörgensen and Plum injected 18 cardiac patients with 20 to 30 gm. of glucose in a 30 per cent. solution, with improvement in the attacks of pains in two of

four who had received ten injections. They also made a parenteral "loading test" in 17 nondiabetics, 15 diabetics and 4 patients with benign glycosuria, injecting intravenously 20 gm. of glucose dissolved in 50 c.c. water. The blood sugar in normal subjects rose to about 0.300 per cent. at the end of the injection, then rapidly declined, reaching fasting level in ninety minutes, while diabetics required two hours to reach this level. Four patients with arterial hypertension gave normal blood sugar curves. Four boys, weighing from 30 to 45 kg., gave normal curves in response to the test, indicating that the tolerance for carbohydrates is not, or is inversely, proportional to the body weight, and seems to decrease with the progress of age. Excretion of sugar by the kidneys plays an insignificant part in the regulation of blood sugar. This regulation is due to distribution of sugar between the blood and the tissue fluids and its transformation into glycogen. They extol the advantages of this parenteral test over the peroral technic. It apparently establishes the nondiabetic nature of mild glycosurias.

Diphtheria Bacilli Carriers. — Christiansen reiterates that negative findings as to diphtheria bacilli in the nose and pharynx are not dependable. In 100 individuals selected at random he found positive reactions in the fourth test after three preceding negative in 40, and in the third test after two preceding negative in 46. In some instances he has found positive reactions in the eighth test after seven preceding negatives. Among 201 patients with scarlatinal otitis he found diphtheria bacilli in the discharge from the ear in 28, and among 66 diphtheria patients with ordinary acute otitis, in 32. He says there is a primary diphtheria of the ear without nose and pharynx symptoms. Many diphtheria convalescents leave the hospitals with diphtheria bacilli notwithstanding two or three negative cultures, and still more numerous are those who have never had the disease but are carriers of the germs. He calls attention to the Behring method of vaccination of Schick positives.

Etiology and Symptoms of Arsenic Poisoning from Dwellings or Articles in Domestic Use.—Petrén was appointed by the Swedish government member of a commission to investigate this form of poisoning. He reviews the literature of several countries for a century but has found no extensive poisoning of this nature. At Hyères, France, 400 cases of poisoning from wine mixed with arsenic, by mistake for plaster, occurred in 1888. The symptoms of poisoning from arsenic content in wall paper and paint or domestic objects consist of fatigue, headache, vertigo and frequently irritation of the eyes, pharynx and the digestive tract. Even in case of poisoning by inhalation, little arsenic was found in the lungs. Diagnosis from examination of the urine is difficult since the normal arsenic content varies in different individuals from day to day and may increase considerably after eating fish. The commission found only 8 apparently authentic cases in German literature, 36 in Anglosaxon records, and 17 in the older Swedish literature.

Clinical Studies of the Capillaries in Diseases of the Blood and Circulatory Disturbances. — Hisinger-Jägerskiöld began his study of the capillaries in 1919. He has examined 42 healthy individuals, aged 14-30, and 69 patients with various diseases, giving charts and descriptions of results. In some cases of anemia he found the circulation of the smallest capillaries extremely rapid, but slow in the other capillaries, with absence of contraction and other forms of peristalsis. Under compression to arrest the venous circulation, while the arterial inflow remained unhindered—which occurred at 60-100 mm. of mercury in serious cases of pernicious anemia —the capillaries behaved as in the normal. In lymphatic leukemia, the venous capillaries were no larger than the arterial, both fine as a hair, and the circulation was rapid. In examination of 17 patients with valvular defects, 11 with myocardial disease and 6 with aortitis or aneurism of the aorta, he found normal capillaries in cases with full, or slightly impaired, compensation. Conditions of the capillary circulation are determined mainly by abnormal peripheral blood supply, abnormal blood distribution and the volume of the blood. Hence it is possible to estimate the volume, to some extent, from the behavior of the capillaries.

Ugeskrift for Læger, Copenhagen

85: 247-262 (April 12) 1923

*Treatment of Syphilis in Pregnancy. S. A. Gammeltoft.—p. 247.
*Wassermann Test in Prognosis of Syphilis. E. Hess Thaysen.—p. 247.

Treatment of Syphilitic Women During Pregnancy.—Gammeltoft found that frequently syphilitic women do not speak of their pregnancy to their physicians, and when the condition becomes apparent, treatment for syphilis comes too late. He asks physicians to question syphilitic women about their menstruation and, if pregnancy is possible, to examine them with this in view.

Prognostic Value of the Wassermann Reaction in Tardy Syphilitic Disease.—Thaysen found syphilitic aortitis in 38 per cent. of 150 necropsies. Among sixty cases of aortitis, twenty-two had been without subjective symptoms. He thinks that in treatment of syphilis, the emotional shock should be taken into consideration. The psychic shock to the patient on being informed that his disease is syphilis, that it is still uncured, is frequently so great that the etiology should be hidden if possible. The degree of the Wassermann reaction is not parallel with syphilitic aortitis and is of no value in prognosis.

85: 301-324 (May 3) 1923

*Cutaneous Protein Reactions in Asthma. K. Baagøe.—p. 301.
Child Strangled by Supporting Belt. J. Fog.—p. 305.
First Three Months of Child Life. F. Thalwitzer.—p. 306.

Protein Skin Reactions in Bronchial Asthma.—Baagøe by cutaneous tests with thirty-eight different proteins in a girl, aged 9, with asthma of a year's standing, discovered its cause to be cat's hair, all other substances being negative. She had no attack during three weeks at the hospital until playing with a kitten, when an attack followed in seven hours. In asthma of animal origin, he believes that subcutaneous injections of the causative substance in minute, gradually increasing doses is the best treatment. In asthma due to food proteins, he advises ingestion of the substance in minute and increasing amounts.

85: 325-348 (May 10) 1923

*Dyspepsia from Gall-Stones. E. Meulengracht.—p. 325.
Mercuric Chlorid Tablets in Attempts at Suicide. L. Nielsen.—p. 336.
*Antianaphylaxis in Treatment of Hay-Fever. J. Kragh.—p. 339.

Differential Diagnosis Between Dyspepsia from Gallstones and of Gastro-Intestinal Origin.—Meulengracht called 230 patients operated on for gallstones at the Bispebjerg Hospital during the years 1913-1922 for reexamination. Of the 143 who responded, 15 had complicating diseases and were excluded. Of 128 whose gallstone diagnosis had been verified by operation, 31 had been diagnosed correctly at the end of the first attack, 63 had for a long period, in some instances for ten to twenty years, had their affection diagnosed as a gastro-intestinal disease, mostly catarrh, while in others it had been considered nerve, heart or kidney disease, and from 24 no reliable information could be obtained because they had not consulted physicians for a number of years after beginning of symptoms. Of the 128 reexamined, 101 had entered the surgical division under the diagnosis of cholelithiasis, and the remainder under the diagnosis of appendicitis, gastric perforating ulcer, abdominal or renal colic, etc. He concludes that the elements of the subjective symptoms of dyspepsia due to gallstones are similar to those of other forms of dyspepsia, but that they differ from the others in their inconsistent and irregular appearance. Dyspepsia from gallstones is characterized by its sudden changes with apparently motiveless improvements and aggravations. It is not influenced by dieting. Examination for manifest and occult jaundice, for bile pigment in the blood and urobilin in the urine, at once after an attack of pain, is a valuable aid in the differential diagnosis. Achylia is an indicatory symptom in advanced stages, but it appears also in other diseases, and should be considered in connection with cardialgia, and tenderness in the center of the epigastrium.

Importance of Counteracting Anaphylaxis in Hay-Fever.—Kragh, from peptone treatment of three cases of vasomotor rhinitis, confirms the possibility of influencing this disease by counteracting an anaphylactic condition. His results were not permanent in all instances, but he attributes this to the method used. One patient has been free from symptoms for six months and another for six weeks.

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FRACTURES OF THE NECK OF THE FEMUR *

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The principles and routine treatment of fractures of the neck of the femur are so well understood and intelligently carried out by members of this section that it was with much hesitancy that I selected the subject for this occasion; but as the statement has been repeatedly made, during the past year, that bony union does not occur, or that bony union rarely occurs, which is contrary to the opinion of observers worthy of consideration, a careful investigation was instituted to determine the process of repair in central or intracapsular fractures of the neck of the femur.

In 1919, in an article [1] on fractures of the neck of the femur, in which 116 cases were analyzed, I stated, concerning twenty-nine central fractures, that twenty-four gave excellent functional results, by which is meant that the patient was able to walk without support, pain or discomfort, and with every evidence of bony union; four failed, and in one the result was unknown. A slight limp persisted in a majority, though quite a number walked perfectly. A roentgen-ray study was made in every case, when possible, for at least one year.

In this series, which was begun in 1910, we depended, in many of the cases, on the physical findings, which could not be corroborated by roentgenograms on account of the difficulty to induce elderly persons to return for roentgen-ray observations, after a good functional result had been obtained. From a practical point of view, the deductions were obviously correct.

So far as can be found, no more definite data have been published; consequently, it was decided to make a clinical and roentgen-ray study of as many cases as possible one or more years after the occurrence of the fracture to determine and to demonstrate the nature of union acquired.

In order that there may be a complete conception of the subject, I shall first discuss fractures occurring in this region:

1. Fractures of the trochanter, intertrochanteric and subtrochanteric probably unite more readily than in any other portion of the skeletal system, as there is obliquity of the fragments, with comminution, presenting large areas of raw bony surfaces for the production of callus.

2. Impacted fractures, though more frequently intracapsular or central, may unite by rest in bed or any simple method of fixation. Diagnosis is often impossible without the roentgen ray, as function may not be materially impaired. Many patients will give a history of walking after the injury, and several have walked into the office without support, thinking that some trivial muscle strain existed. It is also probable that weight bearing may bring about dissolution with separation of fragments, producing a complete central or intracapsular fracture with permanent disability, as has been seen in several medicolegal cases, in which the fracture was not discovered. Such unpleasant and disastrous results could be avoided by roentgenograms of all hip injuries in those past middle life.

3. Capital fractures (of the head proper) are of rare occurrence, but they may cause serious mechanical impairment of joint function, requiring radical operative procedures.

4. Central or intracapsular fractures are more frequent and of more serious consequence, as it is well known that nonunion occurs more often than in any other portion of the osseous system. Consequently, it is most important that the exact location be known, not alone from the standpoint of prognosis, but also from that of accurate statistics, for one is not infrequently confronted with claims of excellent results by methods known to be unsuccessful. In all probability, such cases are impacted or trochanteric and not complete fractures of the anatomic neck, and may give good functional results by any splint that restores alinement. It is also possible to have good function without union if the distal fragment is within the acetabulum, as solid support is given the upper extremity of the femur with gradual absorption of the head.

In 1919, as mentioned above, there were reported 116 fractures in the region of the neck of the femur; since then we have had 111, making a total of 227. Of these, sixty-seven were ununited central fractures of several months' or years' duration, not one nonunion being found in the region of the trochanter. These cases had been treated by various inefficient methods, as Buck's extension and Hodgen's splint, and are mentioned, as it is desired to discuss the possibility of bony union after atrophic changes with a permanent status of nonunion existing.

The remaining 160 were fresh fractures, having been seen immediately or within a few days after the occurrence of the injury, and were thus distributed: complete central or intracapsular, seventy-five; impacted, nineteen; trochanteric, fifty-nine; impacted trochanteric, two; capital, five.

* Chairman's address, read before the Section on Orthopedic Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Campbell, W. C.: Ann. Surg. **70**: 600 (Nov.) 1919.

If location is considered, ninety-four were central or intracapsular, and sixty-one trochanteric, from which it is quite evident that trauma of the hip region causes central or intracapsular fractures about 30 per cent. more frequently than in the trochanter. In three patients the opposite hip was fractured one or



Fig. 1.—Complete bony union, eight months after central fracture of neck of the femur.

more years later, and in one the two hips were fractured at the same time. In five there was a coincident displacement or injury of the coccyx, with persistent coccygodynia.

The abduction method as described by Whitman has been employed as a routine in all central fractures, with the addition, recently, of artificial impaction as advocated by Cotton, which is regulated by a series of roentgenograms on the operating table. The details of the method and after-treatment have been described in previous contributions. The main feature in the procedure is perfect reduction and approximation of the fragments. Any retentive apparatus that constantly maintains the position of abduction and internal rotation is efficient, though I have not been able to accomplish this otherwise than by a plaster-of-Paris cast. It is often stated that the mortality is high in the aged, when so treated, but we have found this to be the reverse, as we have applied plaster-of-Paris casts to 205 elderly patients with only ten deaths.

Bony union of the neck of the femur is a very slow process in the aged, as there is no external callus. In consequence, the roentgen ray will only define position and relation of fragments under eight months, and, in a majority of cases, one year elapses before one can actually determine with absolute certainty the result, though it is often possible, by a change in the relation of the fragments, to demonstrate at a much earlier date that nonunion exists. It is also possible that the roentgen ray may define the fragments in perfect apposition at the end of six months, in conjunction with every clinical evidence of solid bony union; but later, as weight is borne, there may be a gradual bending of the neck, coxa vara, disintegration and separation of fragments, typical nonunion and total disability. One patient persisted in too early weight bearing, discarding all crutches, and was able to walk without limp, which subsequently caused the changes mentioned above, with complete separation of the fragments.

Roentgenograms may define, as early as three months, areas of increased density throughout the head, alternating with areas of atrophy. Along the line of fracture there is a mottled increase in density and evident callus activity from within, more apparent in the distal fragment; but this may not extend across the line of fracture, but organize on the fragments with an increasing space between their surfaces, which may be filled with fibrous tissue, holding the fragments in close approximation, a fibrous union; or the bony fragments may gradually separate, causing a typical ununited fracture. Under favorable circumstances, the callus will span the defect, which will gradually be transformed to bone trabecula until there is a complete bony restoration—a solid bony union. In many, the evolution of this process may require as long as eighteen months, during which time the type of union secured is a conjecture.

Clinically, there is no evidence by which the type of union can be determined with any degree of accuracy. When the patient reclines on a flat surface and is able to flex the hip with the knee extended, union is said to be firm; but this might be easily accomplished if the distal fragment is in the acetabulum or by a complex play of muscles in fixing the distal fragment. By roentgen ray and by open incision, nonunion has been



Fig. 2.—Complete absorption of the graft with solid bony union, two years after operation.

found in individuals able to carry out this movement quite forcibly.

In order to determine the nature of union, it was decided to make a survey of as many cases as possible after one to five years had elapsed. No case was accepted that did not show, at the onset, a typical complete central or intracapsular fracture of the neck

of the femur, demonstrated by roentgen ray. No reports by mail or otherwise were considered; only those cases in which there was personal observation, with satisfactory roentgenograms under our supervision, form a basis of this investigation. Unfortunately, only twenty-one complied with requirements, but a sufficient number to give substantial evidence, which is as follows: nonunion, one; fibrous union, two; doubtful, two; solid bony union, sixteen. In the two classed as doubtful there was good function, the normal angle was restored, and no space existed between the fragments; but there was a definite line of cleavage, which might have been due to imperfect approximation from rotation of the proximal fragment. Bony union is probable in both, as there is no change in the angle at the end of fifteen months.

Of the two with fibrous union, one patient walked with only a very slight limp and had no disability; the other was unable to walk without crutches.

Of the sixteen with solid bony union, eight walked perfectly, without the slightest limp; five had a slight limp, and three walked with one crutch at the end of fifteen months, which should be discarded within the next six months.

More than 75 per cent. give solid bony union, but more than 90 per cent. excellent functional result, which is about the same conclusion as reached in the first report. Nonunion occurs in 10 per cent. In addition to the well-known causes of pseudarthrosis there are certain local factors:

1. Rotation of the head with imperfect approximation, which cannot always be avoided without open reduction.

2. Overabduction, causing a mechanical strain at the point of fracture and a separation of fragments when the limb is adducted to normal position after removal of apparatus.

3. A severance of the arterial blood supply to the head, causing bony atrophy and feeble callus output from the proximal fragment.

It was also thought that a discussion of ununited fractures of this region, in which operative procedures had been instituted, might give evidence of the type of union it is possible to induce, under unfavorable conditions. I [2] described the method employed in 1919. At this time, "in twenty the tibial graft was inserted through the neck and head; of these, fourteen were successful, two failed, one improved, and in three it is too early to reach conclusions." In these cases we were able to follow the patients more closely, as they realized the necessity of observing the fate of the graft. Union cannot be produced after extreme atrophy has supervened, but success has been attained in practically all cases in which the fracture has existed less than one year.

We were able to make a careful survey of only twelve out of forty-nine cases in which operation had been performed for nonunion. Eight were treated within less than one year after the occurrence of the fracture. Of these, seven (from three to five years after operation) walked perfectly, the roentgenograms showing firm bony union. In one, in which only one year had elapsed since the operation, there was a definite limp but solid bony union. Four patients were operated on from eighteen months to two years after the occurrence of the fracture. Of these, two walk with a limp, but solid bony union; in two, pain was relieved, but union fibrous, with inability to walk without crutches.

The graft is usually absorbed by the end of two years. In one there has been no diminution in the size of graft, after five years, though bony union is evident, the patient being able to do gymnastics, dancing and swimming, with perfect function of the hip joint.



Fig. 3.—Solid bony union but no absorption of graft, five years after operation.

CONCLUSION

The careful survey of twenty-one fresh and twelve ununited central or intracapsular fractures clearly demonstrates that solid bony union may be secured in a high percentage of fresh fractures of the anatomic neck, and also in ununited fractures under one year. It is quite evident that statements to the contrary, such as "Bony union does not occur" or "Bony union rarely occurs" are open admissions of inadequate and inefficient treatment, to which these unfortunate victims should not be innocently condemned.

869 Madison Avenue.

2. Campbell, W. C.: South. M. J. **8**: 585-589 (Aug.) 1920.

Proceedings of World's Dairy Congress.—The World's Dairy Congress, which began its session at Washington, D. C., October 2, is the first international meeting of dairy interests held in the United States and is the only international conference of this kind that has been held since the beginning of the World War. The present meeting was authorized by the act of Congress of 1921, in accordance with which the President invited the nations of the world to send delegates. The Congress has the cooperation of federal, state and municipal governments, of welfare organizations, of scientific and educational institutions and in particular the International Dairy Association, which has headquarters at Brussels, Belgium. Forty nations have sent representatives to the Congress and several hundred delegates attended. The proceedings of the Congress will be published by the U. S. Department of Agriculture, an appropriation for that purpose having been made by Congress. The proceedings will doubtless constitute the most comprehensive source of information available on dairying and allied interests.

THE TREATMENT OF DIABETES WITH INSULIN *

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Within the limits of a brief paper it is possible to give only a brief summary of our methods and results to date, and refer to our former publications [1] for details. Many statements are intentionally phrased as opinions or beliefs, because the experiences are still too brief to be conclusive, and time will be necessary for a final decision.

METHODS

Purpose.—The purpose of insulin treatment is to improve the nutrition of patients with severe diabetes, and to add a safeguard against downward progress. Mild cases, which can be kept symptom-free on adequate diets, ordinarily do not require insulin. Insulin does not offer a cure of diabetes or a license for carelessness. We understand as part of the purpose that every patient is to be kept sugar-free. The question, Why should this be done? can be partly met by the counterquery, Why should it not be done? since others as well as ourselves have proved that this result is feasible, and any advantage of glycosuria to offset the probable danger has yet to be demonstrated.

Administration. — Insulin, which is manufactured commercially only by the Connaught Laboratories in Canada and by Eli Lilly & Co. in this country, is given by subcutaneous or occasionally by intravenous injection. Reliable investigators agree that it is inert when given by mouth or by rectum. Imitations bearing similar names and recommended to be taken by mouth have gained a surprising acceptance among physicians. The claims in their behalf seem to be supported only by such poorly controlled observations as have served heretofore for testimonials for all sorts of diabetic nostrums. The facts demonstrated concerning insulin complete the discredit of some proprietary preparations long ranked as frauds; and, if the enormous sales of the past continue, the medical profession will be morally responsible for such ignorance.

Institutional Treatment.—Now that there is an abundant supply of insulin and sufficient experience in its use, we find that from two to four weeks is about the average duration of institutional treatment required for uncomplicated cases. This institutional care, comprising the study of the individual needs of diet and dosage and the training of the patient in both these phases, is somewhat more important with insulin than under the former treatment by diet alone. Few patients do as well in the long run without this initial period of instruction. We doubt that thorough results can generally be obtained in a shorter time than that mentioned, and we believe that the endeavor should be for thoroughness rather than haste.



Fig. 1 (Case 1).—Appearance of patient: *A*, Aug. 20, 1922, before insulin treatment; *B*, June 20, 1923, ten months after insulin treatment.

Initial Procedures.—Broadly speaking, two extremes are open in beginning treatment. The first diet may be one that will conduce to the quickest control of glycosuria and acidosis with the least demand for insulin; or what is considered theoretically as the ideal diet may be given immediately, and dependence placed on insulin for controlling symptoms. Likewise, with either plan of diet, the insulin may be begun with minimal doses and increased cautiously according to need, or the dosage may be pushed immediately so as to clear up all symptoms the first day, dependence being placed on glucose to antidote any possible overdose. Only a certain minimum of speed is attainable by either method, because the insulin requirement and other conditions change somewhat with time. We have adopted an intermediate course, in that we generally give fair quantities of protein and carbohydrate, perhaps from 50 to 75 gm. of each, and eliminate most of the fat from the diet for the first few days. If a case needs insulin at all, we seldom give less than 4 or 6 units the first day, and in severe uncomplicated cases we may begin with as much as 20 units.

Final Diets.—We aim, as heretofore, to give balanced diets. For example, if a patient is to receive 2,000 calories, this ration will include something like 100 gm. of protein and 100 gm. of carbohydrate. Diets overbalanced with fat are less agreeable and more dangerous, and the ultimate difference in insulin requirement is unimportant. On the other hand, more than 100 gm. of protein or 150 gm. of carbohydrate is generally unnecessary and undesirable because of the higher insulin dosage demanded.

We follow no arbitrary rule for establishing the total diet for a patient. It may appear scientific to determine the basal metabolism and then guess at the requirements for active life, but it is as well to guess at the whole diet in the first place. Some approximation can be based on the patient's height and weight, but persons who are of similar size sometimes require very different rations. In the long run, a maintenance diet is one on which the patient holds weight, an insufficient diet is one on which he loses weight, and a surplus diet is one on which he gains weight. There need be nothing abstruse in these reckonings.

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* From the Physiatric Institute.

* Read before the Section on Pharmacology and Therapeutics at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Allen, F. M., and Sherrill, J. W.: The Treatment of Diabetes with Insulin, J. Metabol. Res. **2**: 803-985 (Nov.-Dec.) 1922. Sherrill, J. W.: The Influence of Carbohydrate and Protein on Diabetes and the Insulin Requirement, ibid. **3**: 13-59, 1923. Allen, F. M.: The Influence of Fat and Total Calories on Diabetes and the Insulin Requirement, ibid. **3**: 61-176, 1923.

Final Insulin Dosage.—From a table already published, our average dosage in eighty-six cases is found to be 22 units daily. With experimental diets we have given as high as 100 units, but the highest dosage given regularly in any uncomplicated diabetes has been 80 units in one case and 60 units in three cases. The smallest doses are those of from 4 to 12 units a day, given in youthful cases still in the mild stage as a prophylactic against downward progress. There seems to be no need for extreme parsimony in the use of insulin; but, on the other hand, the difficulties and dangers increase when extremely high doses are used. We believe that making patients fat with huge doses of insulin while allowing them to show glycosuria on careless diets is reprehensible.

Distribution of Doses and Meals.—The ideal administration would imitate the action of the normal pancreas in providing a continuous supply of insulin with increases at times of special need. According to the Toronto and all other investigations, the direct effect of an insulin injection is ended within a few hours—perhaps from three to six. In general, if cases are severe enough to require insulin, we never treat them with a single injection daily. The theory that all food in excess of the patient's tolerance can be added to a single meal, and the insulin given in one dose before this meal, seems fallacious, because only a small part of the food is actually utilized during digestion. The greater part of it is stored, and the burden of its utilization then falls on the patient's pancreas at a time when there is no support from insulin. What happens with a single dose is probably that the pancreas has complete rest for a few hours and must carry the load unaided through the remainder of the day. Two doses a day, namely, before the morning and evening meals, are what we find advisable in the milder cases for providing the necessary tolerance without glycosuria or extreme hyperglycemia. When the daily dosage rises to 18 units or more, we generally divide it into three injections, one before each meal, in order to prevent extreme fluctuations of the blood sugar in either direction. In all ordinary cases the patient's own pancreatic function is adequate to bridge the intervals. In a few cases of unusual severity, it has been necessary to divide the daily dosage into four injections at six hour intervals. Otherwise, evening hypoglycemia and morning hyperglycemia or glycosuria have been troublesome. The midnight or late evening doses, with or without food, have not proved dangerous. Our basic plan is to make all meals and all insulin doses equal. If there are special tendencies in some cases to hypoglycemia at certain hours of the day and glycosuria at other hours, adjustments can be made by giving the largest meals and the smallest insulin doses at the periods of hypoglycemic tendency, and vice versa; but the possibilities of this method are limited, and the main conditions are fixed by the total daily diet and dosage.

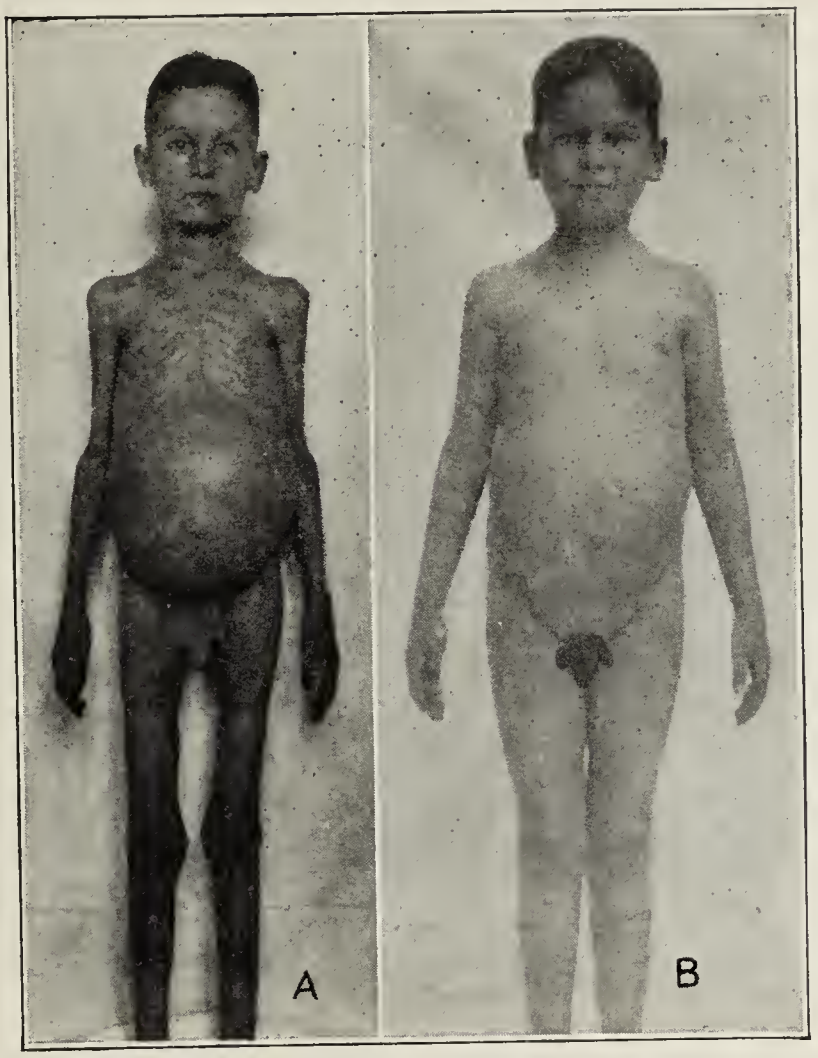


Fig. 2 (Case 1).—Appearance of patient: *A*, Aug. 20, 1922, before insulin treatment; *B*, June 20, 1923, ten months after insulin treatment.

Home Treatment.—Insulin must nearly always be injected by the patient or some member of the household, since the physician can seldom spare the time, and few persons can afford the continuous service of a nurse. Patients have experienced no difficulty in learning the hypodermic technic, and, somewhat to our surprise, not a single one, even among the ignorant, has produced an abscess. The frequency of the injections, which at first thought seems formidable, has likewise proved a trivial price to pay for the improvement of health. Hypoglycemia is ordinarily emphasized as the chief danger and the reason for allowing more or less glycosuria; but properly prepared patients can readily avoid both these extremes, or can take a little orange juice or sugar if they ever experience the warning symptoms of weakness, tremulousness and perspiration. The dangers that will probably prove most serious with time are the familiar ones of infection and acidosis. Especially patients accustomed to high dosage may develop sudden acidosis from the cutting off of their insulin supply for a few days or other trivial accidents; and, as the symptoms are sometimes atypical, deaths may occur without diagnosis unless there is laboratory control with both blood and urine tests. Patients should be taught to eliminate most of the fat from their diet if there is a temporary stoppage of their insulin supply or if they develop an infection when away from medical observation.

CLINICAL RESULTS

Statistical Results.—In an experience beginning in August, 1922, and covering now about 250 cases with a high proportion of severe ones, we have had no deaths in uncomplicated cases of diabetes in which instructions were followed. One boy died who broke diet recklessly and failed to report. This case is exceptional because the standard of fidelity is higher now that a more nearly normal life is made possible. Only one uncomplicated case developed a fatal complication under treatment. This seemed to be an infection of some kind, but the exact diagnosis remained uncertain for lack of a necropsy. Otherwise the only deaths have been those from dangerous complications present at admission, as mentioned below.

Results as to Weight and Strength.—Broadly speaking, it seems possible to increase the weight to any desired level in any case. In general, however, we have held to a policy of undernutrition to the extent of keeping the average patient from 5 to 10 pounds (2 to 5 kg.) below standard normal weight. Much less insulin is thus required than when patients are fattened, and we believe that the greatest convenience, safety and benefit are thus afforded. On the other hand, we aim to allow sufficient food for every adult to have the strength to do his regular work and for every child to grow and develop normally. Exercise does not increase the insulin requirement, but tends rather to reduce it and sometimes even to cause hypoglycemia.

Influence on Tolerance.—As patients frequently gain tolerance with diet treatment alone, the influence of insulin can be gaged only in cases which have been under long observation and in which diet has already accomplished its utmost. A minority of such cases show a definite and sometimes considerable improvement of true tolerance with insulin, but such improvement has never amounted to anything like a cure. We are using intensive insulin treatment in some very early cases of juvenile diabetes, in the rather feeble hope of enabling these children to outgrow their diabetes. On the other hand, downward progress has not been observed in any patients thoroughly treated with insulin, and the need for increasing the dosage has arisen only in connection with increases of diet and body weight.

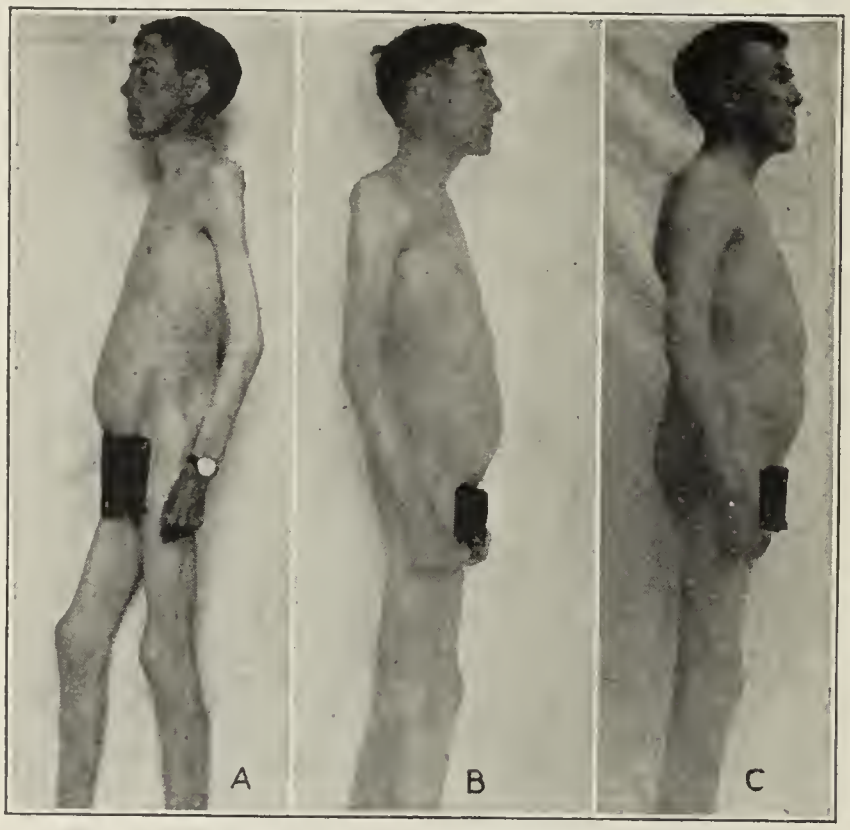


Fig. 3 (Case 2).—Appearance of patient: *A*, Aug. 20, 1922, before insulin treatment; *B*, April 10, 1923, five months after insulin treatment; June 20, 1923, seven months after insulin treatment.

INFECTIOUS COMPLICATIONS

Approximately twenty patients at admission have had infectious conditions sufficiently serious to be classed as complications. There has been a total of five deaths. The cases may be grouped broadly in three divisions: general infections, local infections and tuberculosis.

General Infections.—Conditions such as pneumonia and general septicemia scarcely require discussion, as the prognosis is governed largely by the severity of the infection. Insulin treatment may sometimes be of great assistance or even life-saving, by enabling the assimilation of a strengthening diet, increasing resistance, and warding off coma.

Local Infections.—Local abscesses, middle ear and mastoid infections, and gangrene of the feet have terminated favorably, except for one death from advanced gangrene of both feet with septicemia. Superficial gangrene has healed without operation, but involvement of bones and tendons has required amputation of the leg. These results are entirely similar to those obtained with efficient diet treatment. The chief advantage of insulin is in bringing the diabetes more quickly and radically under control. We have not observed any instance of unusual healing power conferred by insulin, but the more powerful control of sugar and acetone is a great advantage and should decidedly raise the general average of success.

Tuberculosis.—This is still one of the most dangerous complications. It is also the one that can be most directly combated by insulin, which should remove the specific diabetic susceptibility to this infection and which certainly permits the assimilation of a liberal diet and the building up of weight and strength thereby. This is the only condition in which we regularly allow diets as high as 3,500 or 4,000 calories and push the insulin dosage accordingly. Such diets, including 150 gm. each of carbohydrate and protein, have sometimes required as high as 100 units of insulin daily for their assimilation. Even here, we doubt the benefit of obesity, and favor reducing both diet and dosage when a fully normal weight has been attained. Of four patients with merely suspicious cough and pulmonary signs and without positive diagnosis of an active lesion, one discarded all treatment and died within a month of his diabetes; the other three have regained health to such an extent that they seem thoroughly safe. Of five cases showing bacilli in the sputum and more or less advanced lesions in both lungs, one proved fatal in the same manner that might have been expected had there been no diabetes, in two the patients have doubtful fighting chances, and two patients are regaining weight and apparent health at a remarkable rate. The possibilities of the insulin treatment are so great that all tuberculosis sanatoriums should carefully segregate their diabetic cases, and should either provide efficient means for the diet and insulin administration under laboratory control, or should send these patients to some place offering these facilities.

Dosage.—The insulin requirements with infection are generally high. If the infection is severe, 100 units or more of insulin daily may be required to control glycosuria, while after recovery from the infection a fraction of this dosage may suffice. Part of this requirement is doubtless explained by the acidosis that so often accompanies infection. To some extent, however, the requirement seems to be increased by gangrene and other local infections without acidosis or obvious systemic intoxication.

General Considerations.—The incidence of infections among diabetic patients is not reduced by insulin as compared with thorough treatment by diet. We believe that the tendency to minor infections is actually somewhat greater than among the patients whose blood sugar has been kept strictly normal by undernutrition. Our few overnourished patients have shown by far the greatest susceptibility to colds, sore throats, etc., and

one of them had an abscess from insulin while under a nurse's care at home. Other experiences have convinced us of the benefit of moderate undernutrition in the treatment of all infections except tuberculosis. One of the strongest considerations against allowing patients to show glycosuria is found in the danger that they may be subject to the well known complications of diabetes. It seems reasonable that sugar freedom should be as important for the prophylaxis as for the treatment of infections.

ACIDOSIS

Insulin Dosage.—In any case of existing or impending coma, we take a blood sample the very first thing, and inject 25 units of insulin into the vein before the needle is withdrawn. An additional 25 or 50 units is immediately injected subcutaneously. Further injections are then given subcutaneously every one to three hours, according to clinical and laboratory indications. The doses should be heroic. Less than 100 units for the first day is seldom advisable in any dangerous coma case, and our highest dosage in twenty-four hours was 485 units in a fatal case.

Carbohydrate. — No food is given except carbohydrate. Fruit drinks are most convenient for supplying fluid, and additions of glucose or sometimes starch are allowed more liberally than before, so as to make a total of from 100 to 200 gm. of carbohydrate in the first twenty-four hours. This carbohydrate is given from the beginning of treatment until danger seems to be past, no matter what glycosuria and hyperglycemia may be already present, for a double reason; first, increase of the glucose supply increases glucose combustion with a given insulin supply and thus aids in getting rid of acetone; second, it furnishes an additional safeguard against hypoglycemia with the high insulin dosage.

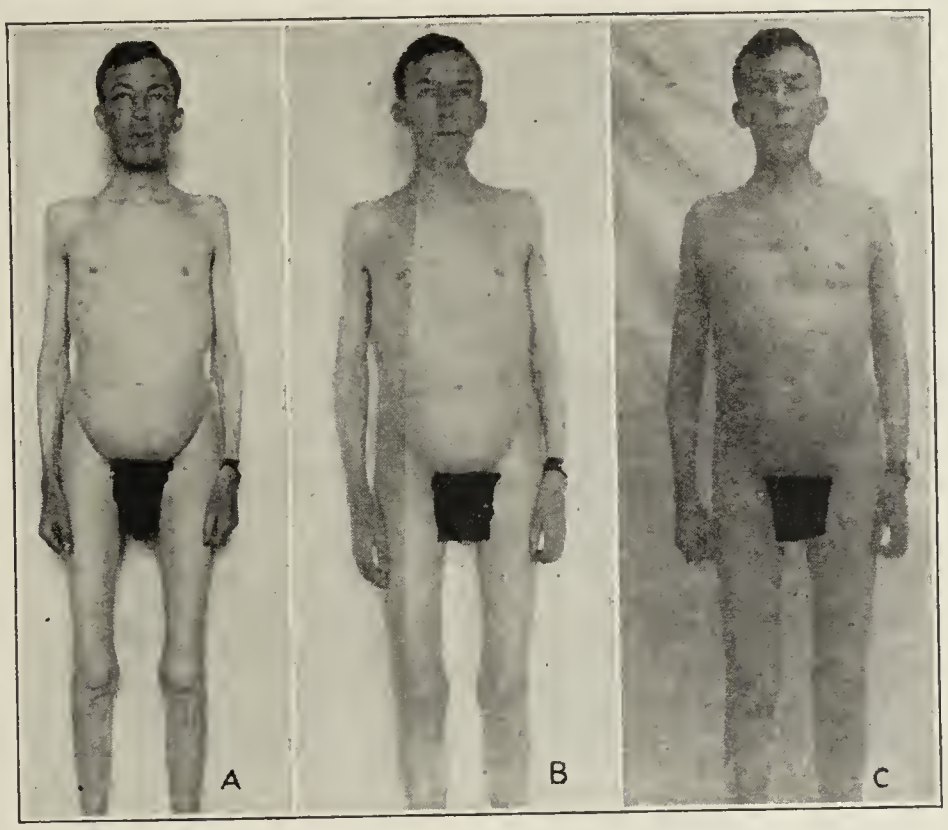


Fig. 4 (Case 2).—Appearance of patient: *A*, Aug. 20, 1922, before insulin treatment; *B*, April 10, 1923, five months after insulin treatment; *C*, June 20, 1923, seven months after insulin treatment.

Alkali.—We have observed benefit from moderate doses of sodium bicarbonate, perhaps from 10 to 40 gm. in twenty-four hours, given by mouth if possible, or by rectum, vein or hypodermoclysis if there is persistent vomiting. It is less important than formerly, but nevertheless often highly valuable for making up the alkali deficit. The dosage should be limited more cautiously than formerly, because large quantities, in connection with the rapid clearing up of acetone bodies, may leave the patient with an alkalosis.

Fluids.—Besides fruit drinks, plain or carbonated water, soup, coffee, etc., by mouth, saline solution may be introduced by rectum, vein or hypodermic infusion. This forcing of fluids should start with the beginning of treatment; and, notwithstanding vomiting, the patient should in some manner receive and retain 4 or more liters of fluid in twenty-four hours. This fluid is necessary for overcoming the usual dryness of the tissues and for diuresis, which eliminates both acids when these are in excess and alkali when too large doses of soda have been given.

Other Adjuvants.—Catharsis, gastric lavage, bed rest, warmth, cardiac stimulation and other measures are used as indicated, but are of minor importance.

Results.—Statistical reports will be governed largely by the standard for distinguishing coma from precoma. Our published series comprises nine coma cases, with four recoveries and five deaths. If coma means complete unconsciousness, the proportion of deaths will be found high, even with insulin. This definition is not a just one, because the clinical picture of extreme acidosis varies, unconsciousness being more early and marked in some cases and dyspnea in others. Some moribund patients die before insulin has time to clear up their acetone, and others who have been freed from sugar and acetone die nevertheless from obscure causes. On the whole, the benefits of insulin in coma and precoma cases are miraculous.

THEORETICAL SIGNIFICANCE

Etiology of Diabetes.—The discovery of insulin completes the proof of the pancreatic island theory of diabetes. Only the slowness of the development of this proof has enabled various false doctrines of the etiology to make headway. Total pancreatectomy causes acutely fatal diabetes. Partial pancreatectomy produces a chronic diabetes in which progressiveness, acidosis, lipemia, and every detail of the clinical disease can be accurately reproduced. Lesions of the pancreas and its islands are demonstrable in the vast majority of necropsies of patients dying of diabetes. By setting up acute inflammation in the dog's pancreas under suitable conditions, diabetes can be produced which will progress in the usual manner to death; and at necropsy the healed scars of the original injury may resemble those in the typical human case, or may have disappeared altogether, as in rare human cases.[2] Hydropic degeneration of island cells is similar in the clinical and experimental forms, and has the same significance of an anatomic breakdown due to severe functional overstrain.[2] Insulin is an extract of the pancreatic islands, and among the thousands of diabetic patients treated with it not a single refractory case has been reported. No lesions of any other organs hold any place in the pathology of diabetes, unless as chance complications.

2. Allen, F. M.: The Pathology of Diabetes, J. Metabol. Res. **1**, January and February, 1922.

No experimental interferences with any other organs create anything resembling true diabetes, for the glycosuria from piqûre, epinephrin, etc., is merely a brief discharge of sugar by rapid glycogenolysis and altogether lacks the central feature of diabetes: namely, the inability to use sugar. For the same reason, epinephrin should not be loosely spoken of as an antagonist of insulin, any more than asphyxia and other causes of glycogenolysis. Not only does epinephrin not inhibit the essential function of insulin, namely, the utilization of sugar, but it is even uncertain that epinephrin has any natural function of causing either glycogenolysis or hyperglycemia.

Progressiveness of Diabetes.—Insulin is not a cure of diabetes, because it is inconceivable that a pancreatic extract should be able to restore a damaged pancreas. It can, however, relieve the strain on the patient's pancreatic islands more easily and thoroughly than has been the rule heretofore. Our previous studies [3] have convinced us that, apart from occasional infections, functional overstrain by diet is the essential cause of the progressiveness of human diabetes, and that sufficiently careful avoidance of such overstrain can prevent such progressiveness in clinical cases just as in experimental animals. This view will probably find wider acceptance, now that insulin has been found apparently to halt the progressiveness of all cases in which it has been thoroughly used to date. We must again point out that the progressiveness observed heretofore has generally been due to disregard of basic dietary principles, particularly that of undernutrition.

The records of Geyelin [4] show that diabetic children were frequently nourished so as to weigh more than before the onset of their diabetes. The frequent infections in these children are typical of patients with high diets and high blood sugars, and are in contrast to the practical immunity of our patients. Both the overnutrition and the infections are direct causes of progressiveness. Therefore, the actual result of the high diets was a far more extreme degree of emaciation and weakness than found in any corresponding cases in our series treated by restriction of total calories and body weight from the outset.

So many misstatements, some of them intentional, have been made concerning the degree to which I have "starved" diabetic patients that I must again call attention to the published detailed statistics [5] of both the mortality and the diets of patients in this institute. In this and other publications we have furnished evidence that thorough control of the diabetes by undernutrition conserves the tolerance so as not only to prolong life but also maintain strength, comfort and nutrition to a higher degree than any other plan. Those who have professed to keep diabetic patients fat and strong with high diets are again invited to publish their results in similar detail. The average severity of our cases has been unusually high, as is natural in an institute of this kind. We have had to undernourish many patients to an unfortunate degree, and the regrettable number of invalids and semi-invalids with the severest diabetes has been freely acknowledged. But, except for eight cases that were hopelessly severe when admitted, not one of our patients who was faithful to diet has died, and not one has progressed from an incipient to an extreme stage. They have not only been kept alive to receive the benefits of insulin, but, furthermore, they have remained at least able to be up and to walk about. I challenge any opponent of undernutrition to duplicate this record, or to justify the numerous deaths that have resulted from the policy of overfeeding for deceptive transitory benefits.

3. Allen, F. M., and Sherrill, J. W.: Clinical Observations on Treatment and Progress in Diabetes, J. Metabol. Res. **1**: 377-434 (March) 1922. Allen, F. M.: Observations on the Progressiveness of Diabetes, M. Clin. N. Am. **6**: 465-474 (Nov.) 1922.

4. Geyelin, H. R.; Harrop, G.; Murray, M. F., and Corwin, C.: The Use of Insulin in Juvenile Diabetes, J. Metabol. Res. **2**: 767-791, 1922.

5. Allen and Sherrill (Footnote 3).

Influence of Total Calories on Glycosuria and the Insulin Requirement *

Date	Diet: Protein, Gm.	Diet: Fat, Gm.	Diet: Carbohydrate, Gm.	Diet: Calories	Glycosuria, Gm.	Plasma Sugar, Mg. per 100 C.c.	Weight, Pounds	Insulin Units
9/ 1/22	60	115	30	1,400	++	312	..	7
9/ 2/22	60	115	30	1,400	+	200	36	7
9/ 3/22	60	115	30	1,400	0	...	..	7
9/ 4/22	60	115	30	1,400	6.0	306	36	7
9/ 5/22	60	15	40	535	5.3	306	..	7
9/ 6/22	60	15	40	535	1.9	...	36	7
9/ 7/22	60	15	40	535	3.3	283	..	7
9/ 8/22	60	15	40	535	4.0	...	36	7
9/ 9/22	60	15	40	535	4.8	250	..	7
9/10/22	60	15	40	535	4.8	...	36	7
9/11/22	60	15	40	535	0	195	..	7
9/12/22	60	15	40	535	0	...	36	7
9/13/22	60	15	40	535	0	157	..	7
9/14/22	60	15	40	535	0	...	36	7
9/15/22	60	15	40	535	0	...	36	7
9/16/22	60	15	40	535	0	203	36	7
9/17-18/22	60	15	40	535	0	...	..	7
9/19/22	60	15	40	535	0	126	36	7
9/20/22	60	15	40	535	0	...	..	7
9/21/22	60	15	40	535	0	139	36	6
9/22-23/22	60	15	40	535	0	...	..	6
9/24/22	60	15	40	535	0	137	36	6
9/25/22	60	115	30	1,400	0	...	..	6
9/26/22	60	115	30	1,400	0	...	36	6
9/27/22	60	115	30	1,400	0	...	..	6
9/28/22	60	115	30	1,400	1.4	226	36	10
9/29/22	60	115	30	1,400	+	...	..	12
9/30/22	60	115	30	1,400	0	...	36	14
10/ 1/22	60	115	30	1,400	+	...	..	16
10/ 2/22	60	115	30	1,400	0	...	36	16
10/ 3/22	60	115	30	1,400	0	...	..	18
10/ 4/22	60	115	30	1,400	0	164	36	18
10/ 5/22	60	115	30	1,400	0	...	..	18
10/ 6/22	60	115	30	1,400	0	...	37	18
10/ 7/22	60	115	30	1,400	0	...	37	18

* A prolonged regimen of 1,400 calories had gradually brought on glycosuria. Withdrawal of 100 gm. of fat and addition of 10 gm. of carbohydrate then reduced the total calories to 535 without changing the supposed glucose value of the diet. The usual benefits of undernutrition are seen in the urine and blood sugar. With a return to 1,400 calories, an increase of insulin from 7 to 18 units was insufficient to prevent hyperglycemia, so that the insulin requirement was approximately three times as great with the high as with the low fat ration.

Relation of Insulin to Different Foods.—When equal numbers of calories are given in the form of different foodstuffs, it is found that the greatest requirement of or consumption of insulin is created by carbohydrate, the next greatest by protein, and the least by fat. Also, in our experience, it is not possible to base comparisons on any theoretical glucose values of foods. Protein seems to have less influence than its equivalent of preformed carbohydrate, provided the caloric value of the diet is kept equal; while fat, though slow in its action, gradually produces a sugar excretion or a demand for insulin out of all proportion to any quantities of sugar known to be derivable from it. Such experiments are convenient for giving a mathematical expression to the fact, demonstrated some years ago as the basis of the undernutrition treatment, that not merely glucose but all components of the diet are somehow related to the pancreatic function and have an influence on diabetes. Unfortunate misconceptions regarding high fat diets have recently caused much harm. From one standpoint, all diabetic diets have been composed chiefly of fat. Also, the leading advocates of high fat diets in

this country have not employed actually high fat allowances as used in Europe, but have kept to a distinct undernutrition level in order to control symptoms in cases of any real severity. On the other hand, the claim that fat feeding clears up either glycosuria or acidosis as effectively as fasting or semifasting was never proved, and is easily shown to be false by experiments with or without insulin. Campbell,[6] an unbiased observer, contributed a useful demonstration that even low or "basal" diets act in a radically different manner than fasting, in causing not only glycosuria but also coma. I have recently reported numerous experiments[7] expressing numerically in terms of insulin the very powerful influence of fat additions to the diet in diabetes. The accompanying table gives one illustration. There is no certainty as yet whether insulin is concerned directly in the utilization of all foods, or whether it serves specifically for the metabolism of glucose while the non-glucose-forming foods play a part only by affecting this metabolism in some indirect way. The essential fact can be confirmed, however, by any physician who will compare high and low caloric diets for a sufficient length of time, especially in severe cases, and it should be duly noted by theoretical and laboratory workers who are prone to link insulin with glucose alone.

CONCLUSION

The insulin treatment should be carried out in conjunction with accurate diets under laboratory control to assure that patients remain sugar-free. It involves the inconvenience of frequent subcutaneous injections and other disadvantages, does not simplify diabetic treatment or justify careless methods, and is not the final step in diabetic research. Nevertheless, this discovery of Banting and his associates is the first replacement of negative by positive therapy in diabetes. It affords the possibility of relegating emaciation, progressiveness, acidosis, and most of the disabilities and fatalities of diabetes, to the past. It therefore stands as one of the greatest achievements of medicine for the relief of human suffering. Its theoretical and indirect consequences may ultimately outweigh the immediate and practical ones.

ABSTRACT OF DISCUSSION

DR. W. D. SANSUM, Santa Barbara, Calif.: I should like to ask Dr. Allen to tell us what his estimate is of the sugar burning power of the Lilly unit and whether, in their experience, this unit has had a constant value. The unit in the beginning was defined as the amount of insulin necessary to produce a convulsion in a rabbit weighing 1 kg. It is now defined as one third of the amount of insulin necessary to produce a convulsion in a rabbit weighing 2 kg. based on the belief that the convulsion producing dose varies not with the weight but with the square of the weight. We have found that the convulsion dose is proportional to the weight. We have used larger doses of insulin averaging from 60 to 70 units per patient daily, but ninety out of our 150 insulin patients have had food tolerances below 1,000 calories. We have noted only small gains in tolerances in the patients who have had careful dietetic care, and marked gains in many of the patients whose diets have previously been neglected. I have had seven coma cases. Three of these patients were in deep coma and died. The other four are living.

DR. SEALE HARRIS, Birmingham, Ala.: Had it not been for Allen's work in pointing out the values of the low diet, and for what Woodyatt has taught us regarding the ratio of carbohydrate to fats, insulin would not have been of a great deal of value. Much has been said regarding the use of insulin and allowing patients to eat what they please. In one city the use of insulin was discredited because an important citizen was told to eat what he pleased while taking insulin, and he came very near having serious consequences. The important thing in treating diabetes, with or without insulin, is to teach the patient how to live—to teach him the arithmetic of carbohydrates and fats and proteins. But that is not sufficient. In many cases the predisposing cause, and sometimes the direct cause, of diabetes is a pancreatitis. Pancreatitis is a very much more frequent condition than is generally supposed. Of course, the great majority of patients who have pancreatitis recover without having diabetes; but the essential factor in the production of diabetes is a damaged pancreas. The source of this pancreatitis is, of course, important. Banting believes that focal infections have something to do with it. One of the greatest pieces of work done is that by McCarrison, feeding animals on a high carbohydrate diet and with no vitamins. Those animals had intestinal lesions, and as a result of that there were focal infections in all parts of the body. Naturally, the pancreas, the liver and the other abdominal viscera are the ones to suffer most. One great fault of our present treatment of diabetes is sometimes failing to consider other phases of handling the diabetic patient. A patient may have diabetes and something else too. We must look for focal infections, and for tuberculosis. Many of these patients who have been on a low diet for a long time have developed tuberculosis; and I believe that the reason they have developed tuberculosis is our failure to consider the vitamin content of the diet, along with the carbohydrate values.

DR. CHARLES W. MCGAVRAN, Columbus, Ohio: I should like to add one word: and that is as to the economic value of insulin. Time after time we hear a man say that he would rather spend seven of his fifteen dollars a week for insulin and eat, than not to work and starve. So we must consider insulin from the economic standpoint. In reference to undernutrition: We must be careful not to overfeed. Joslin said that 75 per cent. of these cases are due to overweight. Let us be careful not to overfeed our patients simply because insulin will enable them to eat, but feed only enough to make them efficient citizens.

DR. FREDERICK M. ALLEN, Morristown, N. J.: The Lilly unit based on rabbit tests was not constant at first for various reasons; chiefly, deterioration after standardizing. Recently it has become sufficiently satisfactory, so that for clinical purposes we find little difficulty in using the Lilly unit according to label. The question as to the sugar equivalent per unit of insulin opens up a deeper problem and includes our general point of view of diabetes. Various workers have reported a sugar equivalent of from 1 to 4 gm. per unit. It seems to me that these discrepancies will be explained partly by variations in the cases, and so forth, but chiefly in the method of testing. We ourselves do not believe in any sugar unit; we do not believe that insulin is related solely to sugar. That is contrary to the views of the majority. We shall soon publish a paper in support of our views and a criticism of the suggested ratios. It seems to me that any clinician can find that if he uses a low calory diet and a certain amount of glucose in that diet, he can get along with low insulin doses; and if he uses a high calory diet he may have to use three or four times as much insulin. That is the main reason why we take the view that an arbitrary relation between insulin and glucose is erroneous. The work of those who have determined the changes of insulin requirement with additions or subtractions of carbohydrate has been useful, because it is a means of standardizing insulin under those conditions, and it can be said that, under the conditions mentioned, insulin does have a certain ratio to carbohydrate value. But our point is that if we keep the carbohydrate and other factors constant and vary only the fat of the diet, great changes of insulin requirement can likewise be found in relation to fat, total calories and body weight.

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6. Campbell, W. R.: Ketosis, Acidosis and Coma Treated by Insulin, J. Metabol. Res. **2**: 605-635, 1922 (Cases W. M., p. 617, and M. T., p. 618).
7. Allen (Footnote 1, third reference).

POSITIVE IDENTIFICATION OF SPHENOID AND ETHMOID SINUSES *

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NEW ORLEANS

I admit frankly that if the otolaryngologist had been satisfied with the results obtained from the roentgenographic examinations of the paranasal sinuses, I would never have carried out the experiments which form the basis of this paper. And I feel deeply indebted to my colleagues, the otolaryngologists of New Orleans, for the incentive to undertake this work, and when the experiments were under way, for valuable suggestions and assistance. Later, when the results obtained with dried skulls had to be confirmed on living heads, with and without diseased sinuses, their cooperation and advice became invaluable.



Fig. 1.—Head rest designed by author.

I had become thoroughly convinced of the inadequacy and inaccuracy of the findings in roentgenograms intended to show the sphenoid and the ethmoids. I knew of no definite and positive landmarks by which the sphenoid sinus could be identified, and I not only found it difficult and almost impossible when roentgenographing the heads of different subjects to obtain roentgenograms that were similar in appearance and in which the same landmarks could be seen, but I experienced nearly as much difficulty when roentgenographing the same subject a second time.

At the outset of the experiments, I fortunately avoided what I believe to have been the two chief causes for the small amount of success obtained heretofore in this work; namely, making use of the nose as one of the points of support for the head, and studying the sphenoid sinus without at the same time studying the ethmoid cells, which lie practically in the same plane and bear a close anatomic and clinical relation to it.

The first of these causes was eliminated by making use of the head rest illustrated in Figure 1, which consists of a sheet of bakelite, in which an aperture for the nose has been cut, attached to a frame one-half inch thick and three-fourths inch wide, the whole surrounded by a strip one-fourth inch thick and one-fourth inch deep. By these means this bakelite sheet, which serves as a support for the skulls and heads, can be held securely over a cassette or film holder, and at the same time kept one-half inch away from them. When the nose is placed in the aperture cut in the bakelite sheet—the size and position of this aperture having been carefully predetermined—the head is automatically centered over the same part of the film, the soft tissues of the nose can be compressed without pain or discomfort, and the head can be made to rest on the same two points—the alveola-glabella—on which all dried skulls rest when placed on this head rest with their nasal bones inserted in the aperture made to receive them. These two points, which bear a very constant relation to each other even in heads of different shapes and sizes, now afford a firm support for the head, doing away with the tendency to pivot in the direction of either its longitudinal or its transverse diameter, a tendency always present when the nose is one of the points on which the head rests.



Fig. 5.—Skulls D (white female), B (white male) and C (negro male).

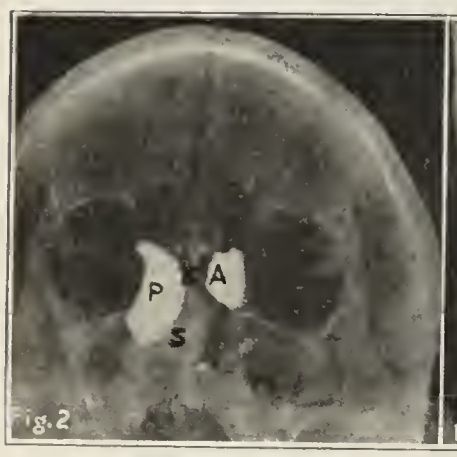


Fig. 2.



Fig. 3.

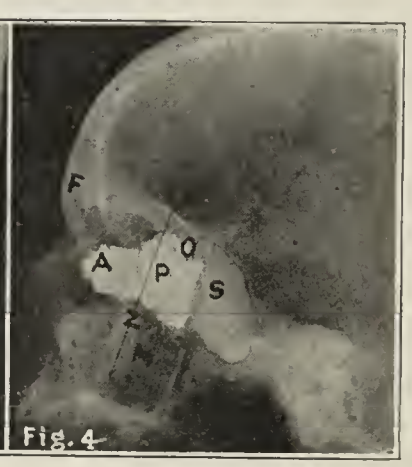


Fig. 4.

Fig. 2.—Postero-anterior, 23 degree angle view of Skull A.
Fig. 3.—Postero-anterior, 107 degree angle view of Skull A.
Fig. 4.—Lateral view of Skull A. Abbreviations used in the illustrations: *A*, anterior ethmoid cells; *F*, frontal sinus; *G*, *G* line, upper boundary of the sphenoid sinus in the 107 degree angle view; *C*, upper boundary of the posterior ethmoid cells in the 107 degree angle view; *M*, maxillary sinus; *O*, anterior boundary of the sphenoid sinus in the lateral view; *P*, posterior ethmoid cells; *S*, sphenoid sinus; *X*, upper boundary of the sphenoid sinus in the 23 degree angle view.

The second cause of failure was readily avoided by sawing a dried skull through the sagittal plane just to one side of the nasal septum, thus exposing to full view the sphenoid sinus and the ethmoid cells. On the right side, the sphenoid sinus was filled with plaster of Paris, and the posterior ethmoid cells were filled with Mellotte's metal, and on the left side, the anterior ethmoid cells were filled with amalgam. The two halves of the skull were then glued together. The filled and glued skull was held on the head rest with the nasal bones in the aperture cut to receive them, and with the nasal spine projecting within and resting against the lower edge of this aperture, the skull resting on the alveolar point and on the glabella. The very distinct advantage of this new position lay in the fact that if, as a result of our experiments with the

* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

dried skulls, any new and more positive landsmarks were brought to light, we could with a reasonable degree of confidence expect to find the same landmarks on roentgenograms of heads made while resting in this position—the alveola-glabella.

Roentgenograms were made at various angles, the object sought being to cause as great a disassociation of the superimposed shadows of the filled sphenoid and ethmoids as possible. After many trials, in which the angle was varied 0.5 degree at a time, it was found that the best results were obtained with a 23 degree angle when the shadow of the sphenoid was projected the farthest down, and with a 107 degree angle, when it was projected the farthest up.

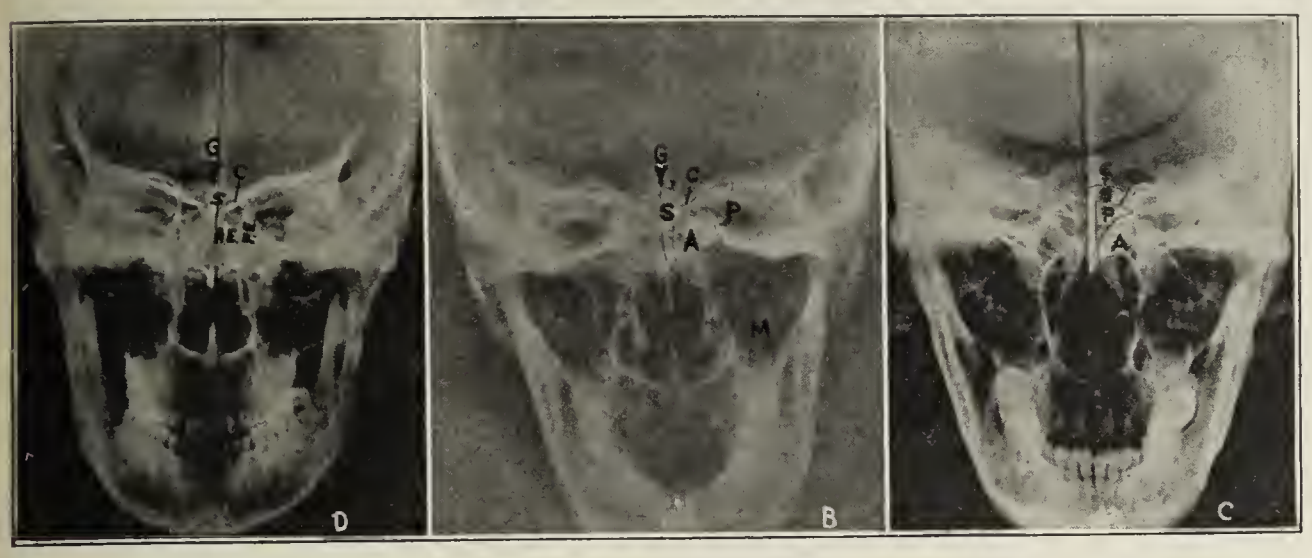


Fig. 6.—Postero-anterior, 107 degree angle view of Skulls D, B and C before the sphenoid sinus and the ethmoid cells had been filled with opaque substances.

LANDMARKS

Figure 2 is a postero-anterior, 23 degree angle view of Skull A, the shadows cast by the filled sphenoid sinus and the ethmoid cells all clearly brought out. The sphenoid shadow is bounded above by the line *X*. This line is formed by the posterior edge of the floor of the anterior cerebral fossa. The shadows of the lesser wings of the sphenoid can be seen passing outward through the orbits. As is nearly always the case, one sphenoid sinus (the right sinus in this skull) is larger than the other. The anterior ethmoid cells are located just below the frontal sinuses.

Figure 3, a postero-anterior, 107 degree angle view of Skull A, shows the sphenoid sinus and the two groups of ethmoid cells appropriately marked and clearly outlined by the different densities of the opaque substances with which they are filled. The sphenoid shadow is bounded above by the curved line *G*. This line, which I consider the most valuable landmark, is formed by that portion of the bony wall of the sphenoid called the optic groove. It curves downward on each side toward the shadow of the anterior clinoid processes to reach the optic foramen.

By means of the head rest, so that the skulls could be held firmly in the alveola-glabella position, and of a 17-degree angle block placed so as to give the skull an inclination of 107 degrees, no difficulty whatever was experienced in making postero-anterior roentgenograms which showed this very important landmark.

It will be observed, further, that the shadow of the filled ethmoids is bounded above by the line *C*, formed by the inner or cerebral plate of the orbital or horizontal portion of the frontal bone, and that its inner boundary is indicated by the vertical shadow of the superior turbinate bones. The posterior cells lie above, and the anterior cells lie below the shadow of the middle turbinate bones.

In Figure 4, a lateral view of Skull A, the shadow of the filled sphenoid is bounded anteriorly by the curved line *O* formed by the shadow of the greater wing of the sphenoid. This line, recognized as the anterior boundary of the middle cerebral fossa, becomes a readily seen and very accurate anterior boundary for the sphenoid sinus also.

Three more skulls were secured—Skulls D, B and C, and it can be seen from Figure 5 that they varied greatly in shape and size. These three skulls were also sawed in the sagittal plane, but this time it was decided to fill the sphenoid sinus and the two groups of ethmoid cells on the same side if three substances opaque to the roentgen rays could be obtained which would produce shadows of different densities so that these could be differentiated on the roentgenograms.

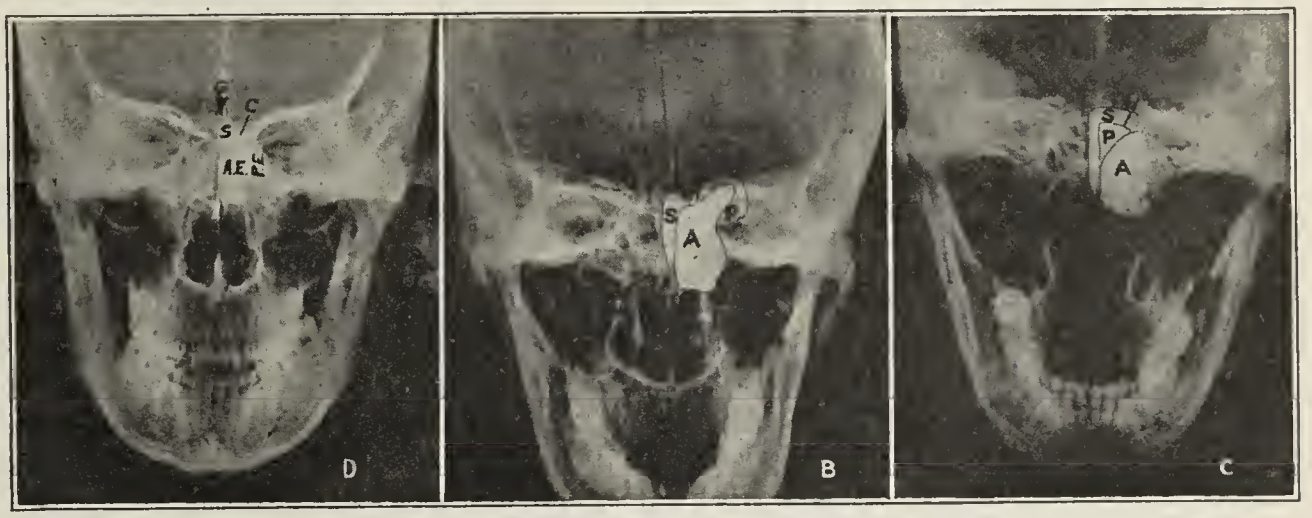


Fig. 7.—Postero-anterior, 107 degree angle view of Skulls D, B and C after the sphenoid sinus and the ethmoid cells had been filled with opaque substances.

After many trials, this was done by filling the sphenoid sinus with plaster of Paris, the posterior ethmoid cells with a thick paste of an aluminum paint, and the anterior ethmoid cells with zinc oxid powder worked into a paste with oil of cloves.

A study of Figures 6 and 7, postero-anterior 107 degree angle views of Skulls D, B and C before and after the sphenoid sinus and the ethmoid cells had been filled with the opaque substances, and of Figures 8 and 9, postero-anterior 23 degree angle views of Skulls D, B and C before and after the sphenoid sinus and the ethmoid cells had been filled with the opaque

substances, demonstrates conclusively that: (1) by making use of the technic recommended, it was possible to duplicate the roentgenograms of the same skull with great exactitude; (2) the roentgenograms of these three skulls made in the same position and angle are strikingly similar, whereas their photographs are very unlike in appearance; (3) the important landmarks which have been described can be readily seen and identified in the roentgenograms of all three skulls.

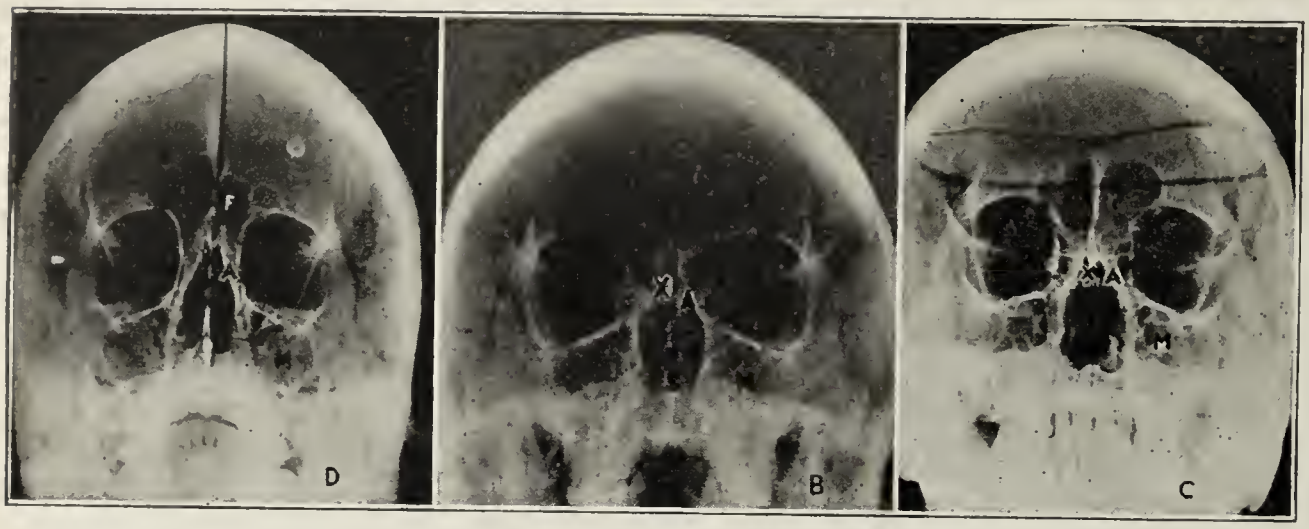


Fig. 8.—Postero-anterior, 23 degree angle view of Skulls D, B and C before the sphenoid sinus and the ethmoid cells had been filled with opaque substances.

Figure 10, a set of roentgenograms of the head of a subject who had no disease of the paranasal sinuses, shows very clearly all the landmarks described.

Figure 11, a set of roentgenograms of the head of a patient on whom a radical operation for frontal, ethmoid and sphenoid sinusitis was performed several months ago, and in whose sphenoid sinus a thick paste of bismuth was packed through an unusually large opening resulting from that radical operation, is most interesting because it proves on the living head the accuracy of the landmarks obtainable with the technic recommended.

It must be noted that the shadow produced by the bismuth lies below the line *G* in the 107 degree angle view; below the line *X* in the 23 degree angle view; and behind the line *O* in the lateral view. It must be further noted that this opaque shadow does not reach the lines *G* and *X* because the hyperplastic changes in the mucous membrane lining the sphenoid sinus prevented the bismuth paste from getting closer to its bony walls.

INTERPRETATION AND DIAGNOSIS

When studying the filled skulls (Figs. 7 and 9), it must be carefully noted that the shadows of the filled sinuses occupy the following order from above downward: sphenoid, posterior ethmoids, anterior ethmoids in the 107 degree angle view, and anterior ethmoids, posterior ethmoids, sphenoid in the 23 degree angle view, as this knowledge is of great importance for the correct interpretation of these roentgenograms.

A convincing explanation for the specific arrangement of the shadows just described will be found in Figure 12, which illustrates the projection of the shadows of the filled sphenoid and ethmoids of a skull on postero-anterior roentgenograms made in the 23 degree angle position and in the 107 degree angle position.

It must also be noted that whereas the curved line *G* is plainly seen in its entirety in roentgenograms of the unfilled skulls, it is not visible on the filled side in roentgenograms of the filled skulls, as its shadow blends with that of the opaque material filling the sphenoid sinus, but it remains distinctly visible on the side that has not been filled. As will be shown later, this observation is of the greatest diagnostic value.

I completed my work with the dried skulls a little more than a year ago, and since that time I have had many opportunities to test the value of the head rest and of the position here described when making roentgenograms of the heads of patients known to have, or suspected of having, disease of the paranasal sinuses in my private and hospital practice.

The work done at the Charity Hospital is especially convincing, because in that state institution with 1,200 beds, located in the city of New Orleans with its large cosmopolitan population, including some 150,000 negroes and foreigners, I had to deal with a very ignorant class of patients, some of whom hardly understood English. The great variety of sizes, types and shapes of heads that had to be roentgenographed would delight anthropologists.

In spite of all these difficulties, it was possible by making use of the head rest and of the alveola-glabella position of the head to obtain postero-anterior views of

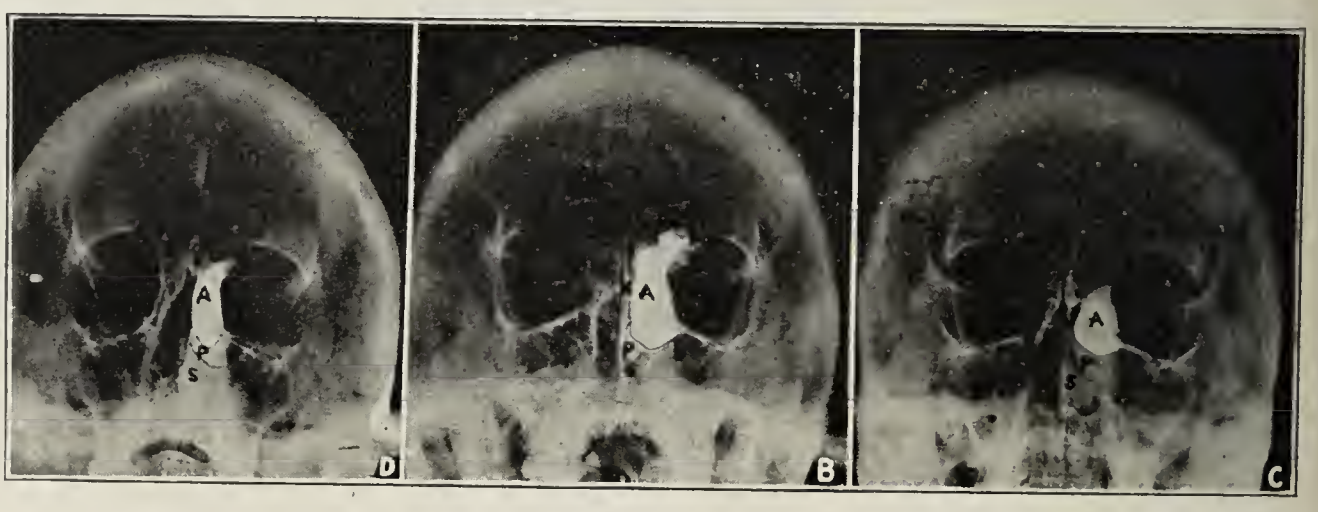


Fig. 9.—Postero-anterior, 23 degree angle view of Skulls D, B and C after the sphenoid sinus and the ethmoid cells had been filled with opaque substances.

107 and 23 degree angles that are strikingly similar in appearance and which show plainly in every case the important sphenoid and ethmoid landmarks already described.

I was afforded at the same time many opportunities to test the value of the landmarks and the accuracy of the plate readings.

As a result of this experience, I have learned to attach the greater importance to the 107 degree angle view, using the 23 degree angle view to confirm the

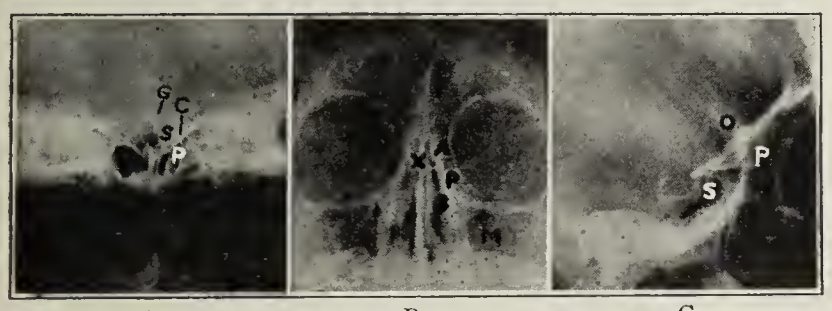
findings obtained from the former view, and to show the frontal sinuses.

The importance of the *G* line, which forms the upper boundary of the sphenoid sinus in the postero-anterior 107 degree angle view, has been fully and conclusively demonstrated. I was able repeatedly, by a careful study of that line and of the density of the shadow of the sphenoid region which lies immediately below it, to make diagnoses confirmed at operation of acute sphenoiditis (when there was pus in the sinus); polypoid sphenoiditis, and chronic suppurative sphenoiditis with osteoplastic changes.

In several cases of unilateral optic neuritis in which the teeth, the tonsils, the sinuses (maxillary, frontal, ethmoids), and other anatomic locations that are usual sources of infection had been excluded, and the cause was still undiscovered, and in one case of attacks of severe hemicrania recurring at irregular intervals during a period of several years, I made a diagnosis of hyperplastic sphenoiditis on the affected side based on alterations of the *G* line to be described in detail later.



Fig. 11.—Filled sphenoid sinus of subject who had had frontal, ethmoidal and sphenoidal operations.



A B C

Fig. 10—Normal sphenoid and ethmoids in a living subject: *A*, postero-anterior view, 107 degree angle; *B*, postero-anterior view, 23 degree angle; *C*, lateral view.

Unfortunately, not one of these patients would submit to operation; and although it can hardly be a coincidence that, in these twelve or more cases, definite evidence of disease was found only in the sphenoid sinus on the same side as the optic neuritis and the hemicrania, these diagnoses still remain to be corroborated by the opening of the sphenoid sinus.

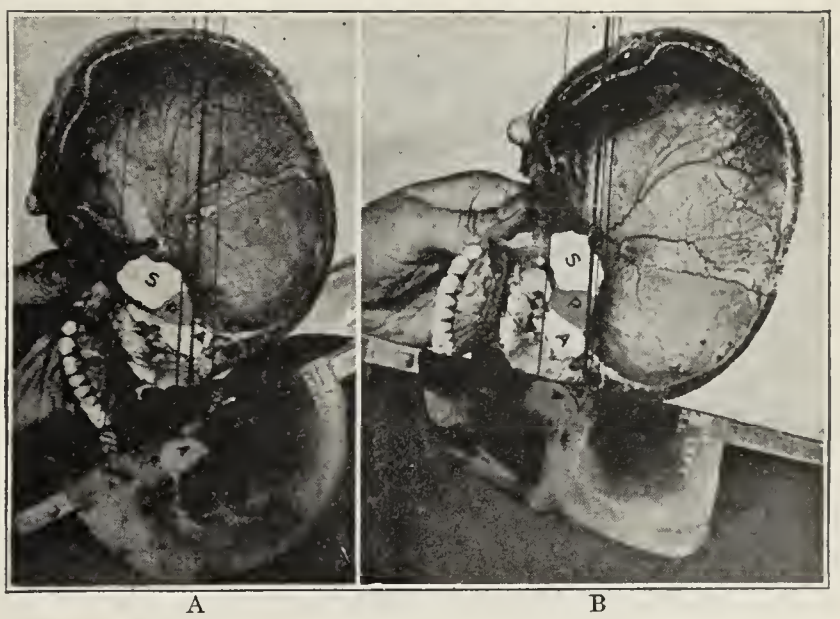
DIAGNOSIS OF SPHENOIDITIS

Acute Sphenoiditis (left side).—The *G* line is absent on the left side (Fig. 13 *A*), and the shadow of the region (sphenoid sinus) below the *G* line and above the *C* line is slightly increased in density. If both sphenoid sinuses contained pus, the *G* line would be absent or very indistinct on both sides, and the shadows of both sphenoid regions (space directly below the normal site of the *G* line) would be slightly increased in density. If both sphenoid sinuses were filled with thick pus, the *G* line would be absent and the sphenoid regions would be seen as a dense shadow with a distinct upper convex outline corresponding to the course of the *G* line in normal sphenoids.

Polypoid Sphenoiditis (right side).—The *G* line is absent on the right side (Fig. 13 *B*), and the shadow of the sphenoid region shows a marked increase in density with the convex upper border corresponding to the course of the *G* line in normal sphenoids. The shadow of the right ethmoid region also shows a marked increase in density. If both sphenoids are involved, these changes are seen on both sides.

The history of the patient and a careful rhinologic examination will readily differentiate the roentgenologic picture of this condition from that of an acute empyema of the sphenoid complicating an acute or chronic ethmoiditis which it may resemble.

Hyperplastic Sphenoiditis (right side).—The *G* line is thicker on the right side (Fig. 13 *C*), but it is less sharply defined than in normal sphenoids or in chronic sphenoiditis with osteoplastic changes. In some cases, the *G* line, besides being less sharply defined, is both thicker and denser on the diseased side. In still other cases, the *G* line is broken, less sharply defined, and shows here and there areas of increased density and thickness on the diseased side. In all the cases of this type which came under my observation, the *G* line showed alterations on one side only, and little or no



A B

Fig. 12.—Projection of shadows of filled sphenoid and ethmoids of a skull on postero-anterior roentgenograms made in the: *A*, 23 degree angle position; *B*, 107 degree angle position.

changes in density were seen in the subjacent region (sphenoid sinus), and in the ethmoid regions.

Chronic Sphenoiditis with Osteoplastic Changes (right side).—The *G* line is more distinct and thicker on the right side (Fig. 13 *D*), and the subjacent region (sphenoid sinus) is denser than normal. In the cases of this type which I saw, the ethmoid cells were denser

than normal, and their trabeculae and walls were thicker.

When the *G* line showed none of the alterations described above and was clearly outlined (Fig. 10 *A*), I reported that there was no disease of the sphenoid sinus. These negative sphenoid findings were confirmed in all the patients suffering from diseased ethmoids who

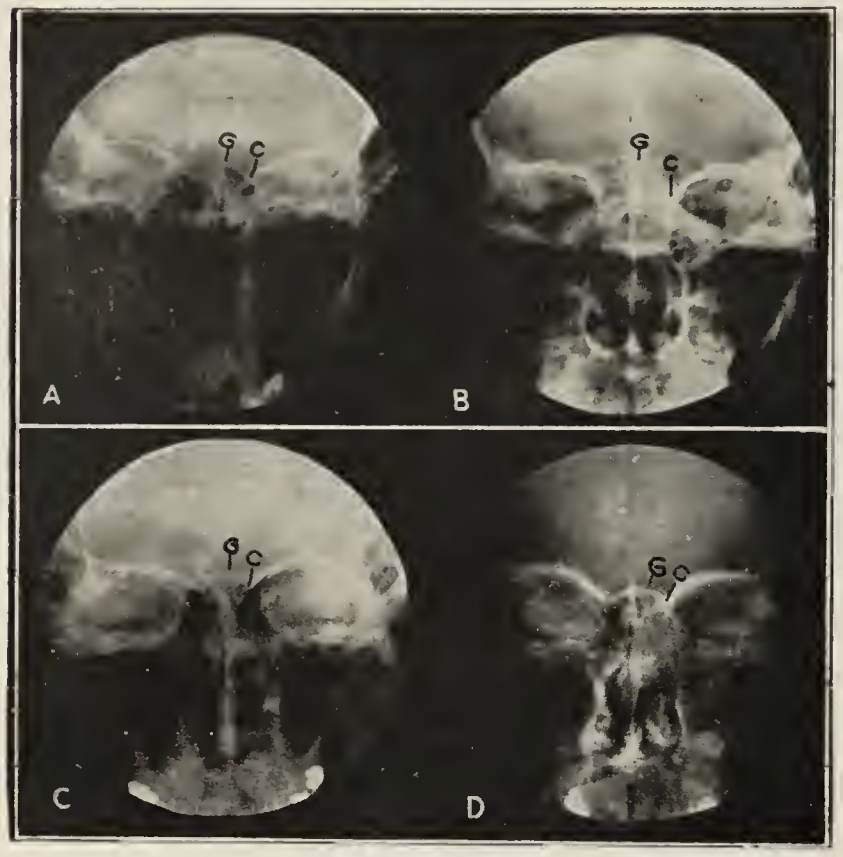


Fig. 13.—Typical postero-anterior views, 107 degree angle, of heads showing the alteration of or absence of the *G* line, and the density of the sphenoid region in: *A*, acute sphenoiditis; *B*, polypoid sphenoiditis; *C*, hyperplastic sphenoiditis, and *D*, chronic suppurative sphenoiditis.

were operated on, and in all the patients with or without diseased ethmoids who were kept under observation and treatment.

I have discontinued the use of the lateral view for the diagnosis of disease of the sphenoid and ethmoids because I have become convinced that it helped little, if at all, in determining the presence of increased density of those regions. But I am certain that it is useful to determine the size of the sphenoid sinus, its depth and length, the presence of adventitious septums, and the distance from the subnasal point (base of the nasal spine) to the anterior sphenoid wall.

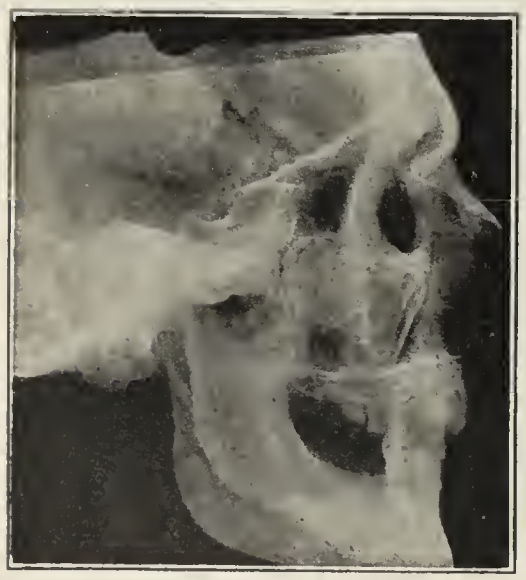


Fig. 14.—Lateral view of Skull E.

The sphenoid sinus in Skull E (Fig. 14) is of unusual length, extending beneath and beyond the floor of the sella turcica. In a patient with such a sphenoid sinus, if the operator was not aware of the true condition, he would have cause for worry because of the great depth to which his instrument would penetrate.

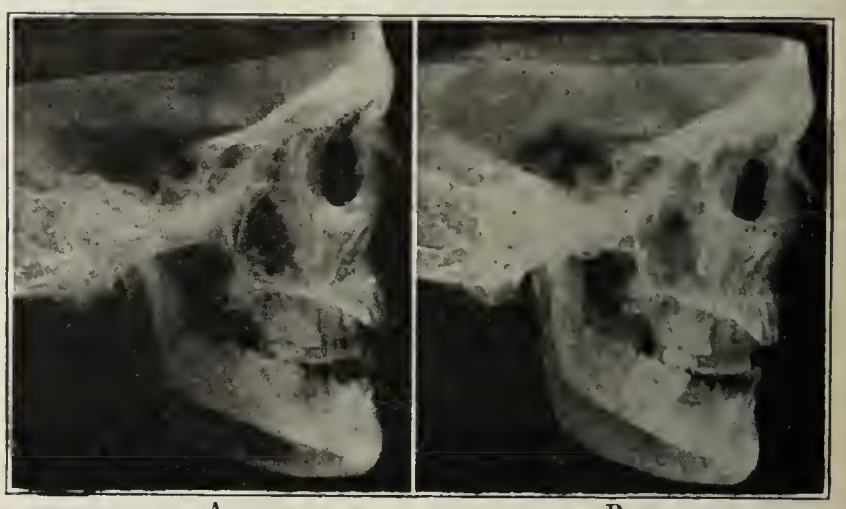
Skull F is unusual because the sphenoid is subdivided by several septums. Figure 15 shows clearly one of these septums as thick as the normal perpendicular septum which separates the right from the left sphenoid sinus, lying horizontally and dividing both these sinuses into two large cells, an upper and a lower. These adventitious septums would in all likelihood be detected by the careful study of a good lateral view; and although this information might be of little value so far as the operation itself is concerned, it would be of unquestionable assistance in making a prognosis, as the chances of a successful operation on such a sphenoid, if diseased, would be doubtful indeed.

For these reasons, I believe that a lateral view of every case of diseased sphenoid going to operation should be made, and after careful study of the negative, a detailed report of the findings should be sent to the otolaryngologist; or, what would be still better, the negative should be studied by the otolaryngologist and the roentgenologist before the patient goes to operation.

1212 Maison Blanche Building.

ABSTRACT OF DISCUSSION

DR. M. P. BURNHAM, San Francisco: From time to time, roentgen-ray investigation of the sphenoid and ethmoid sinuses is brought into prominence. I think we can state,



A B

Fig. 15.—Lateral views of Skull F before (*A*) and after (*B*) the removal of adventitious septums of the sphenoid sinus.

however, that up to the present, at least, roentgen-ray studies of either the sphenoid or the ethmoid sinuses have not been of very great value. Dr. Granger's paper, however, is a radical departure from anything that has been done heretofore by roentgenologists. I wish to call attention to two points. The first is the position of the patient's head, which is quite different from the angle at which plates are taken. He has discovered a position which is so radical in its change from any others that it seems to be one that will get us out of our long difficulty in the investigation of these sinuses. Next to that is the angle at which the sinuses are taken. In fact, he uses two angles, both of which are greater than 107 degrees. He has shown to my satisfaction that it is now possible to project the proof of the sphenoid clear of any other anatomic structures so it can be seen readily and repeated plates taken. Heretofore, the plates have been very doubtful, so many structures overlapping that one could not say at all what one was seeing. Dr. Granger has had a small experience clinically with the method, but in his hands it seems to be 100 per cent. perfect. If it proves out, it will be of great advantage in the diagnosis of these cases of sinus trouble.

DR. AMÉDÉE GRANGER, New Orleans: I use a special head rest by means of which the patient's head can be made to rest firmly on the alveolar point and on the glabella without discomfort, at the same time doing away entirely with the tendency of the head to pivot in the direction of either its longitudinal or its transverse diameter when the nose is one of the points on which it rests. Many of our patients are negroes and foreigners, the majority of whom are very

ignorant and afraid of manipulation and instrumentation of any sort. Even under these adverse conditions, satisfactory roentgenograms are made with little or no trouble, and what is much more important and interesting, these roentgenograms made of heads which vary greatly in size and shape are strikingly similar in appearance and all show clearly the positive landmarks described.

THE FALLACY OF SAHLI "DESMOID REACTION"

JACOB BUCKSTEIN, M.D.

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NEW YORK

Various methods have been devised for determining secretory derangements of the stomach, without the use of the stomach tube. One of the most interesting and generally accepted, through the prestige of authority, is the desmoid reaction of Herman Sahli.[1] This test is based on the assertion of Adolf Schmidt that connective tissue is digested only in the stomach, and never in the small intestine. Sahli made use of this, by enclosing pills containing methylene blue in a small piece of rubber tissue, and tying this with catgut. This is swallowed by the patient. If the catgut is digested, the methylene blue is liberated and absorbed. Its



Fig. 1.—The end of the rubber bulb has passed beyond the stomach, into the small intestine. The metal tip is still attached, having been sewed on with catgut.

excretion is noted in the urine. Presumably, this will occur only in the presence of gastric digestion and for no other reason.

If it can be demonstrated that the intestinal secretion also may play a part in the digestion of the catgut, the method loses its value. I have been able repeatedly to demonstrate this fact, as exemplified in the following procedure. Figure 1 represents a rubber tube, the end of which has passed into the small intestine. The metal tip has been sewed on with untreated catgut. Figure 2 represents the condition eighteen hours later. The end of the tube is in the duodenum. The arrow points to

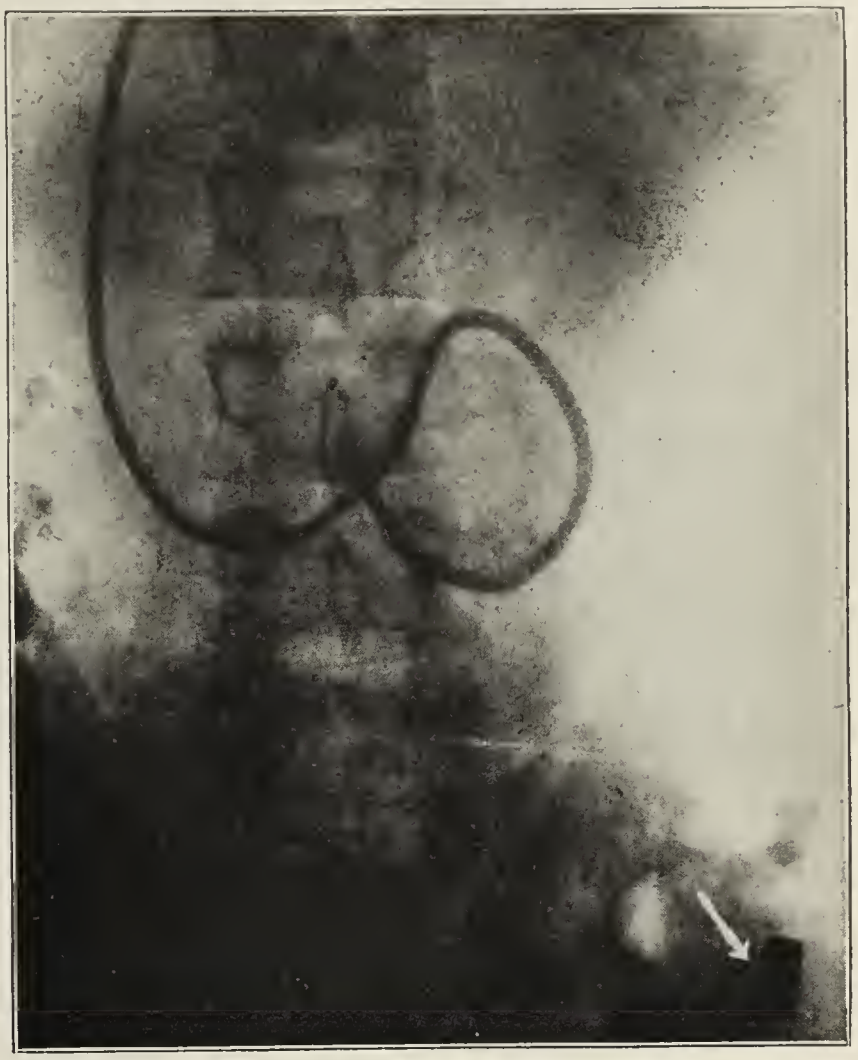


Fig. 2 (eighteen hours later).—The end of the tube is still in the small intestine; but the metal tip has become detached, indicating the disintegration of the catgut. Arrow points to detached metal tip.

the metal tip, which has become detached. The conclusion is that the catgut suture has become digested, permitting the escape of the bulb. In a similar manner, the presumption would appear justified that the catgut ligature of a Sahli "bag," as described above, might similarly, on escaping digestion in the stomach, be affected by the intestinal ferments. In that event, the appearance of methylene blue in the urine would be no criterion as to the effectiveness of gastric digestion, since in part, at least, the small intestine may partake in the process.

1 West Eighty-Fifth Street.

1. Sahli, Herman: Diagnostic Methods of Examination, Eglish translation, edited by N. B. Potter, Philadelphia, W. B. Saunders Company, 1911, p. 433.

Intellectual Weakness and Crime.—States of general intellectual weakness are, beyond question, of great importance in the causation of crime. Mental deficiency, together with natural dulness not amounting to definite deficiency, stands among the commonest of all the major factors. Of the delinquent boys nearly 10 per cent. owe their delinquency primarily to one or other of these conditions; and, in a further 25 per cent., dulness or deficiency appears as a subordinate factor. Nevertheless, the defectives alone form no very large proportion; and the coefficient of association is much higher between crime and educational backwardness than between crime and mere deficiency. Specific intellectual disabilities seem quite unimportant; indeed, they are perhaps as often the consequence as the cause of youthful laxity.—Cyril Burt: *Brit J. M. Psychol.* **3**:28, 1923.

ADAMS-STOKES' SYNDROME, HEART BLOCK, IN ASSOCIATION WITH DIABETES MELLITUS *

HENRY K. MOHLER, M.D.
PHILADELPHIA

Adams-Stokes' syndrome is a term that has been applied to conditions characterized by a slow pulse with transient attacks of vertigo, syncope and epileptiform seizures. These symptoms are due to cerebral anemia induced by the slow action or temporary stoppage of the ventricles. Experiments on animals have confirmed the views held previously by clinicians that convulsions may be produced by a marked lessening or temporary shutting off of the blood supply to the brain.

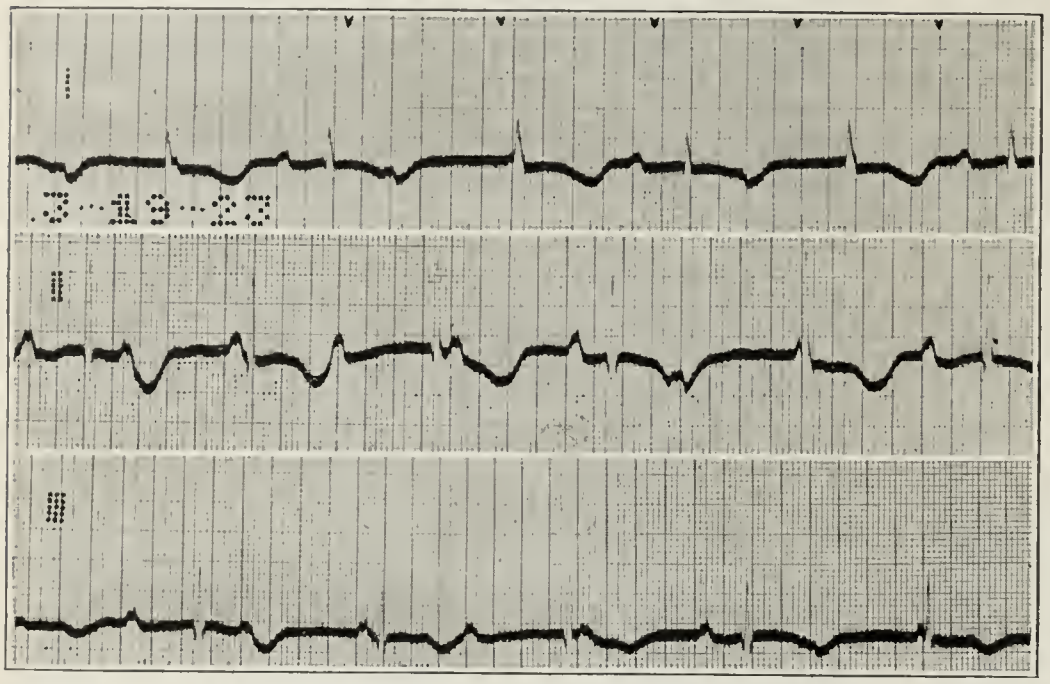


Fig. 1.—Complete heart block, with an auricular rate of 75 a minute and a ventricular rate of 48, March 19, 1923, the day following the occurrence of Adams-Stokes' syndrome.

Adams-Stokes' syndrome and heart block are not synonymous terms, the former being descriptive of a clinical symptom complex, and the latter describing a condition in which there is a partial or complete failure of the auricular impulse to reach the ventricle. Heart block frequently does not present any symptoms.

Adams-Stokes' syndrome is usually associated with some form of heart block. Conditions other than heart block, in which the pulse rate is infrequent, or in which there is temporary cessation of the heart, may cause Adams-Stokes' syndrome.

The frequency of occurrence of Adams-Stokes' syndrome in cases of heart block is not very great, and may occur at two stages:

1. When a complete block develops suddenly, or, during the transitional stage, when a partial block develops into a complete block, either temporarily or permanently. In partial heart block the contraction of the ventricles is dependent on the impulse escaping by way of the auriculoventricular bundle from the auricle. During the transitional periods, that is, when the ventricle no longer receives these impulses from the auricle and before the ventricle has taken on its inherent rhythm, the symptoms of Adams-Stokes' syndrome may become manifest. This explanation is applicable to the greatest number of cases of Adams-Stokes' syndrome. Cardiac syncope is frequent in patients who show high grades of partial block.

2. After complete block has been permanently established and the pulse rate has been reduced to 30 or less. Lewis [1] summarizes the knowledge of the fits of heart block by saying that "in partial heart block they depend on alterations of conductivity and in dissociation their appearance or nonappearance is consequent on the influences which affect the pacemaker of the ventricle. In rare instances this pacemaker may be affected by vagal influences; in others equally rare it is affected by the interpolation of a series of extrasystoles." The rarer instances, when the pacemaker of the ventricle may be affected by vagal influences, will explain the slowing of the pulse in complete block.

Endogenous poisons and the toxins developed during acute infections are capable of stimulating the vagus under these conditions.

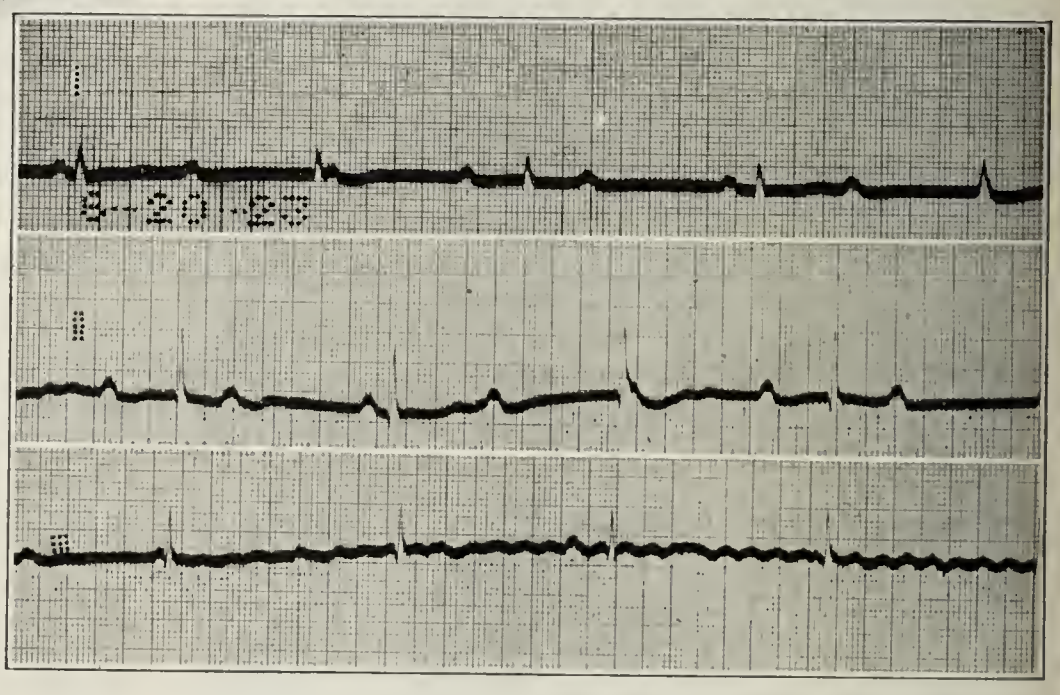


Fig. 2.—Persistence of complete heart block, June 20, 1923, with an auricular rate of 72 and a ventricular rate of 42. The patient is symptom-free and is enjoying good health.

ETIOLOGY

Since the greater number of cases of Adams-Stokes' syndrome occur during heart block, the etiology of the syndrome is practically that of the heart block. Heart block occurs more frequently in the male than in the female. It occurs in the young who have had a rheumatic infection of the heart. The elderly manifest symptoms of the Adams-Stokes' syndrome when there is an association with poisons affecting a damaged myocardium which already has undergone degeneration.

High degrees of heart block have been produced by giving full doses of the digitalis group preparations to patients with already damaged conduction systems.

* From the Department of Medicine, Jefferson Medical College.

1. Lewis, Thomas: The Mechanism and Graphic Registration of the Heart Beat, London, Shaw & Sons, 1920, p. 362.

Many patients with Adams-Stokes' syndrome and heart block give a history of syphilis, arteriosclerosis, chronic interstitial nephritis, overeating or gout. It is highly probably that these conditions, rather than being capable of producing the Adams-Stokes' syndrome, have a common etiology and thus are associated.

Milder degrees of heart block, in which Adams-Stokes' syndrome does occasionally occur, may develop in patients suffering from influenza, tonsillitis, diphtheria and pneumonia.

SYMPTOMATOLOGY

Patients suffering from heart block very frequently are symptom-free, and relatively few develop symptoms of Adams-Stokes' syndrome. Symptoms of valvular or myocardial lesions may be associated with Adams-Stokes' syndrome; the most common of these are dyspnea, palpitation, fatigue, and precordial pain on exertion. In Adams-Stokes' syndrome, the patient usually has no knowledge of an impending attack. During the seizure, consciousness is lost, with twitching of the muscles or even convulsions. The patient may have very frequent attacks. Observations indicate that when the ventricular standstill is greater than from sixteen to eighteen seconds, convulsions occur. Stertorous breathing, with pallor or cyanosis, is usually present during the attack. The convulsions are more often confined to the face and upper limbs. Control of the bowels and bladder is maintained during a seizure, and the tongue is not bitten.

DIAGNOSIS

Adams-Stokes' syndrome is easily recognized; marked infrequency of the pulse rate associated with rapid pulsations in the jugular veins, and the symptoms described furnish a clinical picture which is characteristic and easily diagnosed. The graphic methods, electrocardiographic and polygraphic examinations, yield true information of the conductive system of the heart.

TREATMENT

It is doubtful whether there is any drug known that will be of material help in the treatment of Adams-Stokes' syndrome, except when the disturbance is vagal in origin, in which case atropin sulphate is the drug indicated for use. During the attack the patient may be allowed to inhale oxygen and should be watched so that he does not fall or suffer any injury. Epinephrin, ether, camphor, strychnin, caffein and digitalis have been administered subcutaneously, during the attacks, with doubtful value. Between the attacks, if syphilis is the etiologic factor, antisyphilitic treatment should be used vigorously. Thyroid extract has been used in the intervals between attacks in some cases of Adams-Stokes' syndrome of unknown cause, with variable results.

The use of digitalis is indicated in patients subject to attacks of Adams-Stokes' syndrome if symptoms of failure of the myocardium are present. Complete heart block has been benefited by digitalis judiciously used.

REPORT OF CASE

History.—K. F., a woman, aged 29, married, seen March 16, 1923, complained of increased thirst, polyuria, increased appetite and loss of weight and of strength. The patient was one of nine children. Two sisters died shortly after birth, having been "blue babies." A family history of obesity existed, but none of diabetes mellitus or heart disease was obtainable. The patient had never been very strong. During childhood she had had measles and chickenpox. Four years ago she had had a mild attack of dry pleurisy. No history of rheumatic fever, tonsillitis or chorea was obtainable. The patient "took cold" very readily, which usually developed into attacks of acute bronchitis. She had been married eight years and had not been pregnant. The patient always had been nervous and more or less high strung. For the past thirteen years she had complained of dyspnea on exertion. No other history of symptoms of cardiac decompensation was obtainable. The appetite always had been excellent, more so since the previous December. The bowels were regular. The best weight was 123 pounds (56 kg.) in December, 1922, the patient, since adult life, never having weighed less than 118 pounds (53.5 kg.). Since the attack of acute bronchitis, from which the patient suffered in December, 1922, up to the time of examination, she had lost 16 pounds (7.3 kg.), and her strength had failed. Her appetite and thirst had increased to an abnormal degree. The output of urine and the frequency of voiding had also increased.

March 11, 1923, she voided 5 liters of urine. Three days before this record was made the patient and her family were informed that she had diabetes mellitus.

Examination.—The patient showed signs of having lost in weight, and appeared to be very weak; otherwise the physical examination was negative, except for the fact that there was an odor of acetone on the breath and the tongue was dry and red. There was no pulsation visible in the neck. The apex beat of the heart was palpable 2.5 cm. to the left of the midclavicular line in the fifth interspace. The first sound of the heart was accompanied by a soft systolic murmur, heard faintly in the axilla. The pulse rate was regular, 60 a minute, and the temperature was 98 F. The blood pressure was: systolic, 110; diastolic, 80.

An examination of a single specimen of urine showed a specific gravity of 1.030, with a strongly positive reaction for sugar, diacetic acid and acetone. The Wassermann test was subsequently reported to be negative.

Course.—The patient was advised to go promptly to the hospital for treatment, but her circumstances were such that she had to postpone going for four days. Under these conditions, she was advised not to change her diet except to eliminate all fat. She was cautioned to rest in bed. On the day prior to coming to the hospital, three days after the preceding examination was made, she suffered four epileptiform attacks, occurring at 12:30, 2:30, 4:30 and 7 p. m. The attacks varied from five to ten minutes in duration. The first attack came on while the patient was resting in an easy chair. For twenty-four hours prior to the attack the patient had complained of feeling rather dull and heavy, with an abnormal appetite for cream, which she stated she did not gratify. Immediately prior to each attack, the patient noticed that her eyes became "heavy," in association with numbness in her extremities and generalized "hot flashes."

During the attack the patient was unconscious, and had generalized clonic convulsions, with a moderate degree of cyanosis. The clonic movements were present during approximately the first half of the attack, to recur for brief intervals throughout the latter part of the attack. During these attacks the pulse rate varied from 5 to 8 a minute. The respirations were stertorous in character. There was no frothing at the mouth or biting of the tongue. There was no incontinence of the bowels or of the bladder. The patient felt very much exhausted following the attacks. She vomited after the second seizure and complained of dimness of vision, which remained, to a degree, for two weeks following the day of seizures. During this period the patient was unable to read the print in newspapers.

The symptoms complained of, on the day after the attacks, were weakness, insomnia, slight precordial pains and dimness of vision. The patient was most apprehensive, and lived in constant fear of the recurrence of the convulsions.

Treatment.—The patient was brought to the hospital after the second attack, and laboratory examinations were made of the blood and the urine. These results furnished the evidence for our plan of treatment. It was evident from our examinations and from the laboratory findings that the patient required

prompt treatment for the acidosis complicating the diabetes mellitus, and also for the epileptiform attacks. During the third and fourth attacks, which occurred under our observation in the hospital, the patient was given a hypodermic injection of $\frac{1}{30}$ grain of strychnin sulphate and $\frac{1}{150}$ grain of atropin sulphate, and oxygen inhalations. To combat the acidosis, she was immediately placed on continuous enteroclysis, consisting of a 5 per cent. solution of glucose and a 1 per cent. solution of sodium bicarbonate in physiologic sodium chlorid solution. One ounce of oatmeal and 4 ounces of skimmed milk were given by mouth every three hours. Atropin sulphate, $\frac{1}{100}$ grain, was administered by mouth three times daily for thirteen days, while the patient was confined to bed. Rest in bed for the heart muscle was strongly indicated. The accompanying table shows the plan of further treatment by diet and with insulin, and presents the laboratory findings.

During the examination of the patient three days prior to the occurrence of the epileptiform attacks, I noted a pulse rate of 60. It was decided that in all probability the bradycardia was due to the weakness and the loss of strength and weight through, or only at long intervals and before the ventricle developed its regular independent rhythm.

The possible causes for the development of complete heart block from the partial heart block are: (1) progressive sclerosis as a result of previous respiratory infections affecting primarily or secondarily the endocardium and myocardium; (2) the diabetic condition with the attendant exhaustion and malnutrition, interfering with the proper nutrition of the heart muscle and consequently its impulse conduction system, and (3) the acidosis complicating the diabetic condition which, while not of an extreme degree, may have aggravated an already damaged auriculoventricular conduction system.

The physician attending the patient during her attack of rather severe bronchitis, in December, 1922 (from the effects of which the patient never entirely recovered and from which she dated the beginning of her symptoms of loss of weight and weakness), states that a specimen of a twenty-four hour collection of urine, examined at that time, was negative for sugar. No other symptoms of diabetes were present.

The family history for diabetes mellitus was negative. There was a family history but not a personal history of

Results of Daily Laboratory Examinations, Composition of Diet, Amount of Insulin Used, and Weight During Patient's Stay in Hospital

							24 Hour Diet					Insulin				
Date	C.c. Urine in 24 Hrs.	Per-centage Glucose Present	Grams Glucose Excreted in 24 Hrs.	Specific Gravity, Urine	Ace-tone	Acid, Diacetic	Carbohy-drate-Gm.	Pro-tein, Gm.	Fat, Gm.	Per-centage of Sugar in Blood	CO_2 Blood, per Cent. by Volume	24 Hour Dosage Units	Inter-vals	Serial Num-ber	Patient's Weight at 8 p. m.	Total Calories, 24 Hours	Comment
3/19	1,600	1.8	28.8	1.025	+	+	95	62	20	0.31	40	10	Twice	..	?	808	Confined to bed
3/20	1,700	1.5	25.5	1.040	+	—	95	62	20	....	..	10	Twice	..	...	808	Confined to bed
3/21	3,800	2.7	102.6	1.020	+	—	125	62	30	0.29	48	10	Twice	..	...	1,118	Confined to bed
3/22	2,750	0.75	20.6	1.008	+	—	95	62	30	....	..	10	Twice	..	...	898	Confined to bed
3/23	2,800	1.3	36.4	1.015	—	—	95	62	30	0.28	50	10	Twice	..	...	898	Confined to bed
3/24	2,800	0.8	22.4	1.011	—	—	95	62	30	....	..	Discontinued			...	898	Confined to bed
3/25	3,200	Neg.	Neg.	1.012	—	—	52	39	12	....	..	.....			...	472	Confined to bed
3/26	2,500	Neg.	Neg.	QNS	—	—	60	45	40	....	..	.....			...	780	Confined to bed
3/27	2,300	Neg.	Neg.	1.008	—	—	60	45	40	....	..	.....			...	780	Confined to bed
3/28	3,200	Neg.	Neg.	1.009	—	—	70	60	60	....	..	.....			...	1,060	Confined to bed
3/29	2,200	Neg.	Neg.	1.010	—	—	70	60	70	....	..	.....			...	1,150	Confined to bed
3/30	2,900	Neg.	Neg.	1.006	—	—	70	60	95	....	..	.....			...	1,375	Confined to bed
3/31	2,400	Neg.	Neg.	1.010	—	—	76	60	95	....	..	.....			...	1,375	Confined to bed
4/ 1	2,150	Neg.	Neg.	1.008	—	—	76	60	126	....	..	.....			105	1,678	Out of bed
4/ 2	1,920	Neg.	Neg.	QNS	—	—	76	55	126	....	..	.....			...	1,658	Out of bed
4/ 3	2,150	Neg.	Neg.	1.004	—	—	76	57	126	0.125	65	.....			...	1,666	Out of bed
4/ 4	2,920	Neg.	Neg.	1.015	—	—	76	57	126	....	..	.....			105	1,666	Out of bed
4/ 5	2,550	Neg.	Neg.	1.011	—	—	76	57	126	....	..	.....			...	1,666	Out of bed
4/ 6	1,850	Neg.	Neg.	1.004	—	—	76	57	126	....	..	.....			...	1,666	Out of bed
4/ 7	2,100	Neg.	Neg.	1.005	—	—	76	57	126	....	..	.....			106½	1,666	Out of bed
4/ 8	1,830	Neg.	Neg.	1.009	—	—	76	57	126	....	..	.....			...	1,666	Out of bed
4/ 9	1,730	Neg.	Neg.	1.008	—	—	76	57	126	....	..	.....			...	1,666	Out of bed
4/10	1,700	Neg.	Neg.	1.010	—	—	76	57	126	....	..	.....			105	1,666	Out of bed
4/11	1,850	Neg.	Neg.	1.015	—	—	76	57	126	....	..	.....			...	1,666	Out of bed
4/12	1,620	Neg.	Neg.	1.014	—	—	76	57	126	....	..	.....			...	1,666	Out of bed
4/13	1,400	Neg.	Neg.	1.015	—	—	76	57	126	....	..	.....			...	1,666	Out of bed
6/23	1,000	Neg.	Neg.	1.018	—	—	76	57	126	0.11	Last visit to hospital				108	1,882	Discharged from hospital

of which the patient complained since the attack of bronchitis in December, 1922. The pulse rate of the patient during her stay in the hospital, when not in an attack of Adams-Stokes' syndrome, ranged from 32 to 56, with an average rate of 40 a minute. This latter rate of 40 has been present since the patient's discharge from the hospital. The enlargement of the heart, with mitral systolic murmur transmitted to the axilla, could be accounted for only as the result of chronic endocarditis caused by repeated infections (colds) contracted through the patient's life. The dyspnea on exertion, which had been present for thirteen years, was indicative of impaired cardiac function existing for a number of years. The family history of the death of two sisters as "blue babies" suggested a possibility of congenital heart disease, but could not be verified by the physical findings. The chronic inflammation of the endocardium, especially in the region of the mitral area, may have involved the auriculoventricular bundle and interfered with the conduction of the auriculoventricular impulse, which accounted for the complete heart block (Fig. 1).

A second tracing, showing that complete heart block still existed, April 20, 1923, is shown in Figure 2.

It is now to be assumed that the slow heart rate of 60, present three days prior to the Adams-Stokes' syndrome, was due to a partial heart block; and in the transitional period from the partial to the complete heart block, as explained in this article, the ventricular standstill, or slowing, took place in the intermittent periods when the impulse no longer came

obesity. It would seem that the diabetes was more or less acute in form, with all the cardinal symptoms present. Is it not possible that the injury to the pancreas and heart may have resulted from a common cause; namely, the repeated infections of the respiratory tract? One of the results of the severe attack of acute bronchitis suffered by the patient in December, 1922, was to render the pancreas (the islands of Langerhans) unable to supply the body with sufficient insulin to utilize sufficient carbohydrate to maintain the normal body metabolism.

The patient responded very readily to 10 units of insulin over a period of five days, and subsequent to diet regulation. The acidosis disappeared. She gained in weight and in strength, and the symptoms of diabetes have disappeared.

SUMMARY

This history of a patient with Adams-Stokes' syndrome and heart block indicates that the heart had not functioned normally for a number of years. The onset of the diabetes mellitus dated from the attack of severe bronchitis in December, 1922. The electrocardiograms showed that the patient now had complete heart block, and it is reasonable to assume that the epileptiform attacks were due to the ventricular slowing and standstill occasioned at the periods when the partial heart

block passed into a complete block. The part, if any, that the diabetes played in bringing about this disturbance is not definitely known. The failure of the auriculoventricular bundle to transmit impulses in this case may have been due to any one, or a combination, of the following causes: (1) the toxic effects of the acidosis on the auriculoventricular bundle; (2) the effects of the generalized malnutrition accompanying the diabetes mellitus with its resultant effects on the bundle, or (3) the progressive sclerotic changes in the heart muscle as a result of the repeated superimposed infections on a chronic endocarditis.

The patient made an excellent recovery by the regulation of diet, the use of insulin, and rest.

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NEONATAL MORTALITY ASSOCIATED WITH SYPHILIS AND OTHER MATERNAL INFECTIONS *

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My purpose is to estimate the relative incidence of various maternal infections associated with fetal death, and to discuss the possible utilization of such information to improve the routine care of pregnant patients in the prenatal clinic.

This report of our experience at Stanford is probably a fair presentation of what is being done in the average women's clinic to reduce fetal mortality. Also, as in similar institutions, our work is restricted and in many phases incomplete, owing to an inadequate budget.

About 1,000 new patients are treated each year in the Stanford Women's Clinic, with a total annual attendance that varies from 6,000 to 8,000 visits. The pregnant patients are segregated and given special care in the prenatal clinic. The clinic cooperates not only with the routine and special laboratories of the medical school, and with special departments, such as roentgen-ray and hydrotherapy, but also with the social service department. In conjunction with the social service department, instruction is given in prenatal care to both

TABLE 1.—*Routine Wassermann Reports: Hospital Obstetrics*

Year	Number of Diagnoses	Negative	Positive	Per Cent. Positive
1919	289	280	9	3.1
1920	297	287	10	3.3
1921	243	232	11	4.5
1922	217	208	9	4.1
1923 (6 months)	107	103	4	3.7
Total	1,153	1,110	43	3.7

graduate and undergraduate medical students. Graduate nurses and nurses in training are given instruction in the outpatient obstetric service, while plans are being formulated by the social service department for the utilization of the prenatal clinic as part of the training of public health nurses and social service workers. For these reasons, every effort has been made to ascertain practical facts on which to base a rational routine for the care of the pregnant patient. This information is used, moreover, not only to determine measures for the prevention of infant mortality, but also to train students and nurses whose future life is to be devoted to such service.

The placenta and cord of every baby born in the hospital in the series covered by this report have been studied microscopically, as well as all tissue removed at operation, such as the appendix, uterus, tube, ovary and curettings. A Wassermann test has been made as a routine since 1919 of all patients registering in the women's clinic. A summary of the Wassermann reports of patients entering the hospital from the clinic is given in Tables 1, 2 and 3. Because of lack of funds and for other practical reasons, the testing of the father's blood has been negligible; and because of lack of funds, the testing of the new-born baby's blood has been given up unless for some clinical reason such a test seems to be indicated. Fifty-three and five-tenths per cent. of the babies who died at term or in the later months of pregnancy have been examined post mortem

TABLE 2.—*Routine Wassermann Reports: Abortion and Ectopic Pregnancy*

	Abortion				Ectopic Pregnancy			
	No. of Diagnoses			Per Cent.	No. of Diagnoses			Per Cent.
Year	Total	Negative	Positive	Positive	Total	Negative	Positive	Positive
1919	26	22	4	15.3	2	2	0	0.0
1920	16	16	0	0.0	6	5	1	16.6
1921	16	15	1	6.2	2	2	0	0.0
1922	21	18	3	14.2	3	3	0	0.0
1923 (6 mos.)	16	16	0	0.0	0	0	0	0.0
Total	95	87	8	8.4	13	12	1	7.7

TABLE 3.—*Routine Wassermann Reports: Hospital Gynecology*

Year	Number of Diagnoses	Negative	Positive	Per Cent. Positive
1919	191	177	14	7.3
1920	196	185	11	5.6
1921	174	161	13	7.4
1922	217	199	18	8.2
1923 (6 months)	104	100	4	3.8
Total	882	822	60	6.6

by the department of pathology, and particular attention has been given to pathologic lesions suggesting fetal syphilis, although only a few have been studied for spirochetes. Unfortunately, because of lack of funds, very little investigation has so far been made of the earlier embryos. For these reasons the incidence of fetal syphilis is probably more underestimated than overestimated in the present investigation. In the clinic, fairly complete bacteriologic study has been made of all secretions from Skene's and Bartholin's glands as well as from the cervix in patients with leukorrhea, thanks to the grant of funds by the government during the war period; but for the past year this work has been greatly handicapped because of the action of Congress in withdrawing funds for the study of the prevention and treatment of venereal disease.

The histories of 1,934 consecutive pregnancies in women admitted either to the obstetric or to the gynecologic wards of Lane Hospital have been reviewed, and a detailed study has been made of 335 fetal deaths occurring in this group. The group of pregnancies includes 1,762 patients delivered in the obstetric ward, together with twenty-five patients with extra-uterine

* Read before the joint meeting of the Section on Diseases of Children and the Section on Preventive Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

pregnancy and 147 patients with abortion treated in the gynecologic ward.

This gives a gross fetal mortality of 17 per cent., which at first glance may seem exceptionally high. The reason for this is that very few complete fetal mortality statistics can be found in the literature, and the usual report states merely what occurs with the viable child; that is, in pregnancies advanced to at least the seventh month. The reported mortality for such a group is about 7 per cent. For instance, Williams, in 1915, reported 705, or 7 per cent., fetal deaths in 10,000 confinements occurring in the indoor and outdoor service of the Johns Hopkins Hospital; but all the babies weighed more than 1,500 gm., and were delivered some time after the seventh month of pregnancy.

Table 4.—*Causes of Fetal Death in Healthy Mothers, from One to Sixteen Weeks*

Criminal abortion	32
Spontaneous abortion (cause ?)	29
Retroverted uterus	8
Accidental (operation)	3
Ectopic pregnancy	2
Laceration of cervix	2
Fibroid of uterus	1
Placenta praevia	1
Previous operation	1
Total mortality	79

Table 5.—*Causes of Fetal Death in Healthy Mothers, from Sixteen to Twenty-Eight Weeks*

Spontaneous abortion (cause ?)	5
Hydatidiform mole	2
Prolapsed cord	2
Postpartum death (cause ?)	2
Retroverted uterus	1
Accidental (operation)	1
Fibroid of uterus	1
Placenta praevia	1
Carcinoma of breast	1
Hemorrhage ante partum	1
Amputation of cervix	1
Automobile ride	1
Total mortality	19

Table 6.—*Causes of Fetal Death in Healthy Mothers, from Twenty-Eight Weeks to Term*

Spontaneous delivery (cause ?)	3
Placenta praevia	3
Prolapsed cord	2
Macerated	2
Hemorrhage ante partum	1
Hypertension	1
Hydramnios	1
Brain hemorrhage	1
Total mortality	14

With the pregnancies discussed in this paper, 181 fetal deaths occurred in the first sixteen weeks; thirty-nine from the sixteenth to the twenty-eighth week; sixty from the twenty-eighth week to term, and fifty-five died at term or during the time post partum that the mother remained in the hospital. This gives a fetal mortality for the obstetric ward of 6.5 per cent., which corresponds closely to Williams' statistics. However, this figure states only a little more than one-third the total fetal mortality for the entire period of pregnancy that is reported in the present investigation.

Of the 335 fetal deaths, 131 infants were delivered from healthy mothers, while the histories of 204 patients, or 60 per cent., showed that the mothers at the time of delivery were suffering from some form of either local or general infection.

The causes of fetal death in the group of 131 healthy mothers is given in Tables 4, 5, 6 and 7. These tables show that, aside from infections, the most frequent danger to the fetus during the first sixteen weeks is criminal abortion (thirty-two fetal deaths). Moreover, while it is possible that, in spite of the routine study of

Table 7.—*Causes of Fetal Death in Healthy Mothers, from Term to First Fourteen Days Post Partum*

Forceps delivery	4
Version	4
Spontaneous delivery (cause ?)	2
Breech	2
Placenta praevia	1
Prolapsed cord	1
Craniotomy	1
Rigid cervix	1
Overdue	1
Monster	1
Fetal intestinal obstruction	1
Total mortality	19

curettings, some cases of cystic degeneration of the chorion have been undiagnosed, it is nevertheless probable that criminal abortion, automobiling, coitus and uterine displacements were instrumental in producing many of the additional twenty-nine fetal deaths designated as spontaneous abortions. As the present paper is limited to a discussion of maternal infections, no attempt has been made to estimate the total incidence of pelvic contraction, although in Table 7 can be found the number of fetal deaths associated with operations (seven fetal deaths).

Table 8 gives the number of maternal infections, with the percentage of relative incidence, noted in 101 records of fetal death from the first to the sixteenth week. Sixty-eight per cent. of the fatalities occurred with patients suffering with some form of pelvic inflammatory disease, including eleven cases that were found to be complicated with chronic appendicitis, as proved by laboratory findings. Chronic appendicitis

Table 8.—*Fetal Mortalities with Maternal Infections, from One to Sixteen Weeks*

Infections	Complications: Pelvic Inflammatory Disease*	Syphilis	Nephritis	Influenza	Tuberculosis	Endocarditis	Pyelitis	Totals: Complicated†	Uncomplicated	Mortalities
Pelvic inflammatory*	..	5	6	2	1	4	2	13	55	68
Syphilis	..	..	1	1	..	..	..	2	7	9
Tuberculosis	1	..	..	1	..	..	..	2	8	10
Pyelitis	..	..	..	..	..	..	..	0	1	1
Influenza	..	..	..	..	..	..	..	0	11	11
Endocarditis	..	..	..	..	..	..	..	0	1	1
Nephritis	..	..	..	..	..	..	..	0	1	1
Infections	1	5	7	4	1	4	2	17	84	101
Mortalities	68	9	1	11	10	1	1	..	..	..
Totals	69	14	8	15	11	5	3	..	..	..
Percentages	68.3	13.8	7.9	14.8	10.9	4.9	2.9	..	..	..

* Including appendicitis and gonorrhea.
† The number designated as complicated is less than the totals on the same line, owing to the fact that some were multiple infections.

has undoubtedly influenced to some extent the number of ectopic pregnancies (twenty-three in this group). The epidemic of influenza, the need for therapeutic abortion with patients suffering with tuberculosis, and patients showing positive Wassermann reactions, each accounted for approximately 10 per cent. of the deaths. A very minor number had either nephritis, endocarditis or pyelitis.

Table 9 shows the incidence of maternal infections among twenty fetal deaths occurring from the sixteenth to the twenty-eighth week. Of these patients, more than half suffered from syphilis, 20 per cent. from nephritis,[1] and the remaining deaths occurred among patients with pelvic inflammatory disease, influenza or tuberculosis.

Table 10 gives the incidence of maternal infection with forty-six fetal deaths occurring from the twenty-eighth week to term, and here we find a much larger incidence of syphilis, nearly 70 per cent.; 21 per cent. with nephritis, and a small group of patients suffering with pelvic inflammatory disease, influenza, endocarditis, or appendicitis.

Table 11, with thirty-seven fetal deaths occurring at term or during their postpartum stay in the hospital, shows that among these thirty-seven fetal deaths syphilis still has a majority incidence; namelyfi 67.5 per cent. Nephritis gives 16 per cent., while the remaining histories show that patients suffered from appendicitis, pelvic inflammatory disease, influenza, pyelitis, endocarditis or tuberculosis.

TABLE 9.—*Fetal Mortalities with Maternal Infections, from Sixteen to Twenty-Eight Weeks*

Infections	Complications							Totals		
	Pelvic Inflammatory Disease*	Syphilis	Nephritis	Influenza	Tuberculosis	Endocarditis	Pyelitis	Complicated	Uncomplicated	Mortalities
Syphilis	3	..	..	..	..	1	..	4	7	11
Nephritis	1	..	..	..	..	..	..	1	3	4
Pelvic inflammatory*	..	..	..	..	..	..	..	0	1	1
Influenza	1	..	..	..	..	..	..	1	1	2
Tuberculosis	..	..	..	..	..	..	..	0	2	2
Infections	5	..	..	..	..	1	..	6	14	20
Mortalities	1	11	4	2	2	0	0	..	..	..
Totals	6	11	4	2	2	1	0	..	..	..
Percentages	3.0	55.0	20.0	10.0	10.0	5.0	0.0	..	..	..

* Including appendicitis and gonorrhea.

In studying the relative incidence of maternal infections as found among the 204 fetal deaths, Table 12 shows that eighty-eight, or 43 per cent., were associated with pelvic inflammatory disease or appendicitis; eighty-two, or 40 per cent., with syphilis, and twenty-eight, or 13.5 per cent., with chronic nephritis, while the remainder were associated with influenza, tuberculosis, endocarditis or pyelitis.

These figures, I believe, present new facts that are at present not to be found in the American literature, because they can be obtained only in those few American clinics where obstetrics and gynecology are combined under one head. They are worth considering, in that they may point the way to more practical methods for conserving fetal life among patients who attend prenatal clinics or who are under the care of regular physicians.

Prenatal clinics will not necessarily always be located in teaching centers, but probably will be extended so as to meet the needs of all pregnant women, even in remote rural districts. That they have proved of value in the past and that there is need for extending the service rendered by physicians and public health nurses, with the aid of public health laboratories in a similar way, is evidenced by the fact that the national government and many state governments have recently passed laws for their financial support. The tables included in this paper demonstrate to me that the welfare of the unborn child is of greater moment than even the extensive baby welfare work carried on at present for the conservation of the health of the born child.

1. Throughout the paper, pregnancy nephrosis is included with chronic nephritis.

TABLE 10.—*Fetal Mortalities with Maternal Infections, from Twenty-Eight Weeks to Term*

Infections	Complications							Totals		
	Pelvic Inflammatory Disease*	Syphilis	Nephritis	Influenza	Tuberculosis	Endocarditis	Pyelitis	Complicated†	Uncomplicated	Mortalities
Syphilis	4	..	2	1	3	1	2	10	22	32
Nephritis	..	..	..	1	..	3	..	4	4	8
Pelvic inflammatory*	..	..	..	..	..	..	..	0	3	3
Influenza	..	..	..	..	..	..	..	0	2	2
Endocarditis	..	..	..	..	..	..	..	0	1	1
Infections	4	0	2	2	3	4	2	14	32	46
Mortalities	3	32	8	2	0	1	0	..	..	..
Totals	7	32	10	4	3	5	2	..	..	..
Percentages	15.2	69.5	21.7	8.6	6.5	10.8	4.3	..	..	..

* Including appendicitis and gonorrhea.
† The number designated as complicated is less than the totals on the same line, owing to the fact that some were multiple infections.

Before discussing the possibilities of treatment of the various maternal infections associated with pregnancy, something should be said of the methods of diagnosis that have been utilized in regard to syphilis.

DIAGNOSIS IN SYPHILIS

The literature on the occurrence of syphilis is confusing. A review of this literature leaves the reader in doubt as to whether the actual incidence ranges somewhere around 10 per cent. or is more than twice this amount.

In the study of 1,153 pregnant patients entering Lane Hospital in whom the Wassermann test was made of each patient, there were forty-three positive reports, or an incidence of 3.7 per cent. (Table 1). This agrees with the reports of Johns Hopkins Hospital and of several other women's clinics, but is less than that reported by Commiskey. He found, in the routine examination of 1,822 pregnant patients in the obstetric clinic of Kings County Hospital, New York, an incidence of 8 per cent. positive Wassermann reactions.

TABLE 11.—*Fetal Mortalities with Maternal Infections, from Term to First Fourteen Days Post Partum*

Infections	Complications							Totals		
	Pelvic Inflammatory Disease*	Syphilis	Nephritis	Influenza	Tuberculosis	Endocarditis	Pyelitis	Complicated†	Uncomplicated	Mortalities
Syphilis	3	..	1	1	1	..	..	4	21	25
Nephritis	..	..	..	..	..	1	..	1	4	5
Pelvic inflammatory*	..	..	..	..	..	..	..	0	3	3
Influenza	..	..	..	..	..	..	..	0	1	1
Pyelitis	..	..	..	..	..	..	..	0	1	1
Endocarditis	..	..	..	..	..	..	..	0	1	1
Tuberculosis	..	..	..	..	..	..	..	0	1	1
Infections	3	0	1	1	1	1	0	5	32	37
Mortalities	3	25	5	1	1	1	1	..	..	..
Totals	6	25	6	2	2	2	1	..	..	..
Percentages	16.2	67.5	16.2	5.4	5.4	5.4	2.7	..	..	..

* Including appendicitis and gonorrhea.
† The number designated as complicated is less than the totals on the same line, owing to the fact that some were multiple infections.

That this incidence varies with different groups of patients is shown in Table 2. In this table, with ninety-five patients with abortion, eight, or 8.4 per cent., were found to have positive Wassermann reactions. With thirteen extra-uterine pregnancies there was one positive Wassermann reaction, or 7.7 per cent.

With 882 patients examined as a routine in the gynecologic ward, sixty were found to have positive Wassermann reactions, or an incidence of 6.6 per cent. (Table 3).

TABLE 12.—*Relative Incidence of Maternal Infections in Two Hundred and Four Fetal Mortalities* *

Infections	1 to 16 Weeks	16 to 28 Weeks	28 Weeks to Term	Term to 1st 14 da. p. p.	Total	Percentage
Pelvic inflammatory†	69	6	7	6	88	43.1
Syphilis	14	11	32	25	82	40.1
Nephritis	8	4	10	6	28	13.7
Influenza	15	2	4	2	23	11.2
Tuberculosis	11	2	3	2	18	8.8
Endocarditis	5	1	5	2	13	6.3
Pyelitis	3	0	2	1	6	2.9

* These figures total more than 204 because some patients suffered from multiple infections.
† Including appendicitis and gonorrhea.

This percentage of positive Wassermann reactions does not by any means express the total number of patients suffering with syphilis that have been confined in the hospital, as can be seen by a study of the placental pathology and the necropsy reports of babies dying either before or at full term. Unfortunately, these methods have been of no aid in the early months of pregnancy, because the placenta does not show the characteristic lesions so early, and no extensive studies were made of the embryos. With sixty-eight fetal mortalities due to syphilis between the sixteenth week and term, it will be noted in Table 13 that only twenty, or less than one third, give a positive Wassermann report with the mother. Not all the mothers in this group, however, were tested, and a much smaller number of the fathers were examined, while only very few of the babies received a Wassermann test. The reason for this is that it is very difficult to have the staff obtain the blood from the father, as he does not appear in the clinic until after the baby is born, and practically none of the babies born dead had a Wassermann test of the blood.

On the other hand, with every baby born in the series of 1,762 pregnancies, the placenta was studied microscopically after delivery. For the first sixteen weeks we have not attempted to diagnose syphilitic changes from the microscopic picture, but after the sixteenth week it has been possible with greater ease to note what has come to be recognized as histologic changes due to syphilis. From this study, the diagnosis of syphilis has been made more frequently than on the maternal Wassermann report. Again, from the study of the fetus by necropsy, while it is true that only 53.5 per cent. of the babies dying after the twenty-eighth week have been examined postmortem and very few have been examined for spirochetes, still the anatomic changes in the joints of the child, the lung, the liver and the pancreas are well recognized diagnostic facts, and from these facts the pathologic department has aided us in recognizing forty of the sixty-eight syphilitic deaths occurring after the sixteenth week. In many instances the diagnosis was made positive by all three findings; that is, by a positive Wassermann reaction in the mother, by the placenta, and by necropsy.

The incidence of toxemia of pregnancy in this group of fetal deaths is very high. Twenty-five patients, or 12 per cent., suffered with preeclamptic toxemia, while two patients showed signs of diabetes.

TREATMENT OF MATERNAL INFECTIONS

In discussing the treatment of patients suffering with infection, very little can be said in this paper, because this investigation is intended merely to call attention to the incidence of maternal infection and to give the number of deaths associated with such infections. In order to arrive at a proper understanding of what has been done in the treatment of patients suffering from the various infections, a more comprehensive study of the obstetric material would be necessary, which has not been done to the present time.

It is interesting to note, however, that of the 204 fetal deaths, of which eighty-two were due to syphilis, only ten of the mothers were treated with arsphenamin previous to delivery, the reason for this being that the diagnosis was not made until after delivery and the placenta and body of the dead child had been studied. On the other hand, forty-two patients (exclusive of abortions and extra-uterine pregnancies) were treated by operation. In this group of forty-two operations there were seven abdominal and three vaginal cesarean sections that failed to preserve the life of the child. Furthermore, because of the seriousness of the maternal infection, particularly in influenza and tuberculosis, fifteen of the fetal deaths were due to therapeutic abortion.

These figures demonstrate to me the error of hoping to reduce very materially the number of fetal deaths by treatment of the mother during pregnancy, either by medication or by operation. The prenatal clinic must be preceded by an adolescent clinic, and preventive treatment of the future patient begun many years before pregnancy occurs. This is particularly true in regard to the incidence of venereal disease. To hope to save the unborn child located in the tube inflamed by a previous gonorrhea is useless, and to hope to save the child when the mother or father is suffering from syphilis is far from being ideal. Aside from the recognition and prompt treatment of acute appendicitis during the period of adolescence, there is no problem so great in the study of the prevention of infant mortality as is the problem for the prevention of the spread of venereal disease during adolescence, the cure of the prospective father before marriage, and the protection of the mother from the ravages of venereal disease before she undertakes the problem of motherhood.

TABLE 13.—*Method of Diagnosing Syphilis*

	Positive Diagnoses						
	Wassermann			Pathology			
	Mother	Father	Baby	Placenta	Cord	Necropsy	Total Mortalities Due to Syphilis
From 1 to 16 weeks	13	5	0	..	..	..	14
From 16 to 28 weeks	9	2	0	7	..	2	11
From 28 weeks to term	8	5	0	15	3	19	32
Term to first 14 days postpartum	3	2	3	7	4	19	25
Totals	33	14	3	29	7	40	82

INFANT MORTALITY IN THE FIRST MONTH OF LIFE

BIRTH INJURIES, CONGENITAL ANOMALIES AND HEMORRHAGE *

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It is difficult to obtain accurate statistics concerning the relative frequency of occurrence of birth injuries, congenital anomalies and hemorrhage as causes of early infant mortality. The International List of Causes of Death, to which the Census Bureau conforms, is notable for its omission of many important causes which are generally, if not peculiarly, responsible for infant deaths in the first month after birth.[1] For example, birth injury from forceps is mentioned, but from other causes is ignored. Spontaneous hemorrhage, except umbilical, and sepsis of the new-born, are not spoken of.

Confusion is caused by the fact that many of the titles are symptoms of one or more specific conditions and not primary causes of death. In the classification of causes of deaths in infants during the first month, asphyxia, atelectasis, asthenia, general debility, and paralysis and convulsions are symptoms commonly found in birth injury, intracranial or intraspinal hemorrhage, and pneumonia of the new-born.

TABLE 1.—*Infant Deaths Under One Month from Certain Causes in the District of Columbia, 1922, Compared with Columbia Hospital Statistics, 1922*

	District of Columbia, 9,121 Live Births			Columbia Hospital, 1,388 Live Births		
	No. of Deaths	Per Cent. of Total	Rate per 1,000 Births	No. of Deaths	Per Cent. of Total	Rate per 1,000 Births
All Causes	429	100.0	47	53	100.0	31
Hemorrhage	22	5.1	2.4	11	20.7	7.9
Congenital deformities	33	7.6	3.6	4	7.5	2.8
Birth injuries	29	6.7	3.2	5	9.4	3.6

In the 1920 census report, 2,145 deaths of children under 1 month of age out of a total of 62,635 were designated as caused by "unknown or ill defined diseases"—3.5 per cent. of the total deaths in the first month of life.

Since our general statistics as now classified are not specific enough, I attempted to compare the causes of death under 1 month of age at Columbia Hospital, a Class A maternity hospital in the District of Columbia, with figures for the general population of Washington for the year 1922 (Table 1). I was enabled to carry out this purpose through the cooperation of the hospital and of the health department of the District of Columbia. Certain differences stand out between the figures of the hospital and of the community as given in this table.

BIRTH INJURIES

Hospital statistics usually record a higher ratio of birth injuries as a cause of death than the community statistics. Columbia Hospital gives 9.4 per cent. of all deaths as due to this, while the community as a whole shows 6.7 per cent. The Maternity Center Association of New York places about half of its mothers in hospitals. The association records 15.5 per cent. of all deaths in the first month (1919-1921) as due to difficult labor, while the general community figures show 13.5 per cent. This is a high rate, and under a stricter classification of causes might be still higher (Table 2).

Dr. Louis Dublin, statistician of the Metropolitan Life Insurance Company, being anxious to evaluate benefits derived from prenatal care in the prevention of early infant mortality, studied, comparatively, the figures of the New York Maternity Center Association, and the figures of the general population of New York City. As a result, he found savings in the rates for prematurity, malformation, diarrhea and enteritis, but not for syphilis, congenital debility, and *birth injuries*. It is interesting to note that Dr. Dublin's findings are relatively almost identical with those in the District of Columbia, being, respectively, 3.2 and 3.6 in Washington, as compared with 4.7 for the general and 4 for the Maternity Center statistics in New York. Prenatal care evidently does not diminish the number of birth injuries. Dr. Dublin[2] says: "The benefits resulting from good prenatal work were lost through the breakdown of the obstetrical service. This accounts for the unsatisfactory results in the rate from dystocia as a factor in early infant mortality."

TABLE 2.—*Deaths from Birth Injuries per Hundred Infants Dying in First Month*

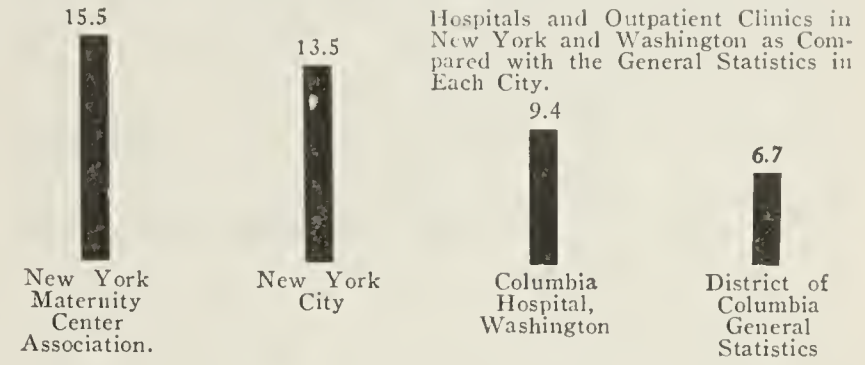
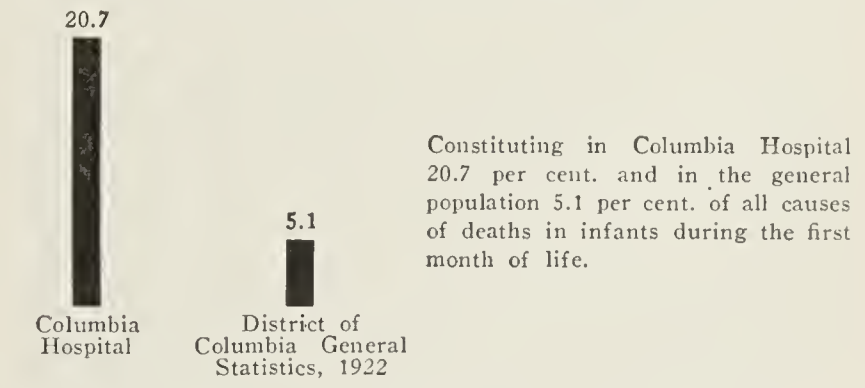


TABLE 3.—*Deaths Charged to Spontaneous and Intracranial Hemorrhage in the General Population, Contrasted with Hospital Statistics of District of Columbia, 1922*



HEMORRHAGE

Hemorrhage (*a*) of spontaneous type, or (*b*) due to injury, or (*c*) the perhaps more common type in which both factors are concerned, or (*d*) accompanying asphyxia, is a cause of death the importance of which seems not well recognized. Visible hemorrhage.

* Read before the joint meeting of the Section on Diseases of Children and the Section on Preventive Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. The International List of Causes of Death, under "Malformations and Diseases of Early Infancy" (X and XI), reads: 150. Congenital malformations; congenital hydrocephalus; congenital malformation of heart; spina bifida. 151. Congenital debility, icterus and sclerema; premature birth, atrophy, marasmus, inanition. 152. Umbilical hemorrhage; atelectasis; injury by forceps at birth. 153. Lack of care.

2. Dublin, L. J.: Tr. Am. Child Hyg. A., 1922, p. 91.

such as that from the umbilicus, or stomach or bowel is always recognizable; the occult hemorrhage occurring within the cranial cavity may go undiagnosed. But its influence seems to be well understood at Columbia Hospital, for the hospital charges 20.7 per cent. of all deaths in the first month to hemorrhage, including intracranial hemorrhage. Contrast this with the figures for the community of 5.1 per cent. (Table 3). Hemorrhage, and intracranial hemorrhage, especially, seems either to occur, or to be diagnosed, more frequently in

TABLE 4.—*Registration Area Statistics, 1920, and Necropsy Reports on Congenital Deformities*

Montreal General Hospital	1 as cause of death in 204 children, all examined at necropsy (78 per cent. under 3 months of age). Average, 0.5 per cent. of all deaths.	
Sloane Hospital	12 out of 291 deaths (about 50 per cent. examined at necropsy). Average, 4.1 per cent. of all deaths.	
Census Bureau	Report Registration Area, 1920. 11.6 per cent. of all deaths.	

the hospital than in the community at large.[3] A fairly large literature has accumulated concerning the hemorrhagic tendency of the new-born as a cause of intracranial hemorrhage, and the treatment of this condition by means of hemostatic therapy, since 1918, when I called attention to the relationship between the two conditions.[4] Numerous necropsy records are now available, of which the most recent figures are from Warwick,[5] who found evidence of intracranial hemorrhage in 46 per cent. of 136 selected infants dying within the first week of life, although some of these doubtless were small lesions, not capable of causing death. Several other observers have reported from 40 to 60 per cent. during the same period. Certain hospitals report intracranial hemorrhage as birth injuries; the incidence, however, under any classification in community or hospital, does not approach the necropsy ratio.

Excepting in the extensive and purely traumatic cases, early diagnosis, and prompt transfusion, or subcutaneous injection of whole blood, should reduce the death rate from intracranial hemorrhage.

CONGENITAL MALFORMATION

Congenital deformities in the general community of the District of Columbia are charged with 7.6 per cent. of all deaths within the first month of life, and in Columbia Hospital with 7.5 per cent. In the general community, 66.6 per cent. of these malformations are heart lesions, and of one variety only, patent foramen ovale. In the hospital, 50 per cent. of fatal malformations are charged to anomalies of the heart, patent foramen ovale being also the only variety mentioned.[6] The figures of the Census Bureau for 1920 charge 66.6 per cent. of 12,229 deaths due to congenital anomalies to congenital heart diseases. This is the same percentage rate as that of the District of Columbia. It would be interesting, if it were possible, to see how many of these were attributed to patent foramen ovale.

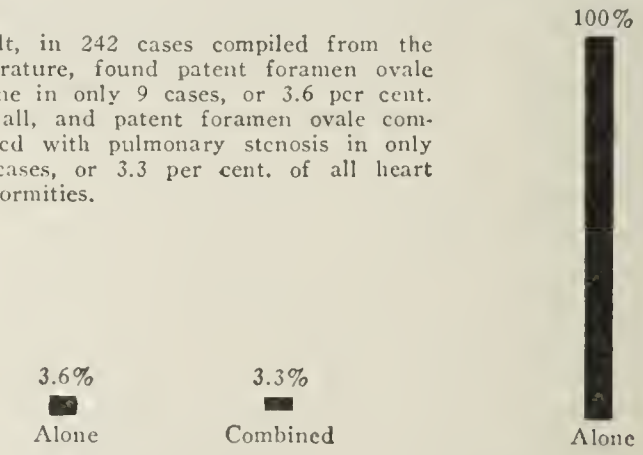
We are informed by the statisticians that the death rate from malformations grows less as the community or state acquires age in the registration area, which means experience in collecting and interpreting statistics. The rate varies according to environmental changes even among groups in the same community; thus, in New York City the rate in 1920 was 10 per cent. of all deaths in the first year of life, while in infants delivered through the Maternity Center Associations it was 6.3 per cent.[2] The etiology of malformations is little understood; but it is believed, despite theories as to injury, infection, amniotic occlusion, etc., that they are in most instances transmitted according to the mendelian laws of heredity, through characteristics inherent in the chromosomes, or at least in the germ plasma. It is difficult, therefore, to accept as accurate statistics which would indicate that environmental changes occurring in the course of a year or so, or even in the same year, could reduce the actual number of the malformations in new-born infants to any considerable degree. It would be more logical to believe that the statistics concerning these deformities, rather than the infants themselves, are changed by improved conditions.

Two alleged facts in the statistical tables seem open to question; that (1) 11.5 per cent. of all deaths in the first month of life (which are the figures for the registration area) are due to congenital malformations, and (2) the greater number of these, being fatal anomalies of the heart (100 per cent. in the District of Columbia), are due to patent foramen ovale.

Routine necropsy findings show a much lower rate of occurrence of fatal deformities than 11.5 per cent. in the first month or months of life (Table 4). McCrae,[7] at the Montreal General Hospital, did complete necropsies on 204 children, 87 per cent. of whom were under 3 months of age, and only four children over 1 year of age. He found a number of anomalies, such as transposition of organs and circulatory defects, but in only one case was the heart lesion the primary cause of death. In all extensive visceral anomalies, cardiac deformities also were found. One child, 49 days old, suffering from pulmonary atresia, hypoplasia of the pulmonary ventricle and patent foramen ovale with almost all the viscera transposed, died of pneumonia. Another with transposed viscera, and patency of both

TABLE 5.—*Frequency of Patent Foramen Ovale Among Congenital Heart Deformities as Shown in Necropsies*

Holt, in 242 cases compiled from the literature, found patent foramen ovale alone in only 9 cases, or 3.6 per cent. of all, and patent foramen ovale combined with pulmonary stenosis in only 8 cases, or 3.3 per cent. of all heart deformities.



3. Warwick, Schwartz, Holland and others have found in routine necropsies evidences of intracranial hemorrhage in from 40 to 60 per cent. of all infants born dead or dying during the first month. Cyanosis and atelectasis usually accompany this condition.

4. Foote, J. A.: Discussion on Brady, J. M.: Lumbar Puncture in Meningeal Hemorrhage of the New-Born, J. A. M. A. **71**: 347 (Aug. 3) 1918.

5. Warwick, M., quoted by Ehrenfest: Birth Injuries of the Child, New York, 1922, p. 45.

6. Preponderance of congenital heart lesions among congenital anomalies, in general, as compared with hospital, statistics, 1922: In general population, District of Columbia, 1922: patent foramen ovale, twenty-one out of thirty-three anomalies. Columbia Hospital, District of Columbia, 1922: patent foramen ovale, two out of four anomalies.

7. McCrae, J.: Montreal M. J. **38**: 586-595, 1909.

septums, died probably of the deformity. Another with multiple heart anomalies, and the liver and gallbladder transposed, died from pleurisy and lung abscess following pneumonia. Marked patent foramen ovale as a deformity, but not as a cause of death, was found in only two cases out of 204. Only one death in 204 was directly chargeable to a deformity, or about 0.5 per cent. Among 10,000 consecutive births at Sloane Hospital, reported by Holt and Babbitt,[8] twelve malformations occurred out of 291 deaths, or 4.1 per cent. of all deaths. These figures, ranging from 0.5 to 4.1 per cent., would indicate that the general rate of 11.5 per cent. among all causes of death in the first month is open to question. Pneumonia, in the Sloane and Montreal General Hospital necropsy series, was, after congenital weakness or prematurity, and accidents of labor, the most frequent cause of death.

As to the frequency of occurrence of fatal cardiac malformations as a cause of death, and particularly of patent foramen ovale, as a cause of death, Holt[9] compiled reports of 242 cases of congenital heart disease, and found patent foramen ovale alone in only nine cases, and associated with pulmonary stenosis in only eight cases. This would be a percentage among all cardiac anomalies of patent foramen ovale alone of 3.7 per cent., and complicated, of 3.3 per cent.—an extreme variation from the 100 per cent. in 1922 in the District of Columbia.

Birnbaum,[10] in the Göttingen obstetric clinic, found four cases of fatal congenital heart disease among 4,200 births. McCullough, Pohlman, Vierordt[11] and many other authorities believe that patency of the foramen ovale, even when marked, is rarely a primary cause of death. Hemenway[12] said recently, "It is in the opinion of the writer very doubtful if patent foramen ovale is ever directly or indirectly a cause of death."

Intermittent cyanosis in infants is probably more frequently due to other causes than to cardiac lesions. It is almost always present in the atypical pneumonia of the new-born and in intracranial hemorrhage. But many diagnoses of congenital heart malformation are made on this symptom alone.

CONCLUSIONS

A revision of present methods of classifying the causes of death from diseases peculiar to early life would give more accurate information than is now obtainable.

Better obstetric teaching, which implies larger and better endowed teaching clinics, is necessary if birth injuries are to be minimized. The use of the new-born child for clinical teaching by the department of pediatrics should prevail in every university hospital.

Complete necropsies should be performed on every infant dying within the first month of life.

The frequent occurrence of intracranial hemorrhage, as shown in necropsies, compared with its rarity in other statistical tables, suggests that it is frequently undiagnosed. Prompt diagnosis and use of hemostatic therapy would save many lives.

The rate of congenital heart diseases in general community statistics, as compared with statistics from necropsies, is much too high. Patent foramen ovale is too frequently given as a cause of death.

8. Holt, L. E., and Babbitt, Ellen C.: Institutional Mortality of the New-Born, J. A. M. A. **64**: 287 (Jan. 23) 1915.
9. Holt, and Howland: Diseases of Infancy and Childhood, New York, 1922.
10. Birnbaum, R.: Malformations of the Foetus, London, 1912, p. 142.
11. Vierordt, K. H., in Nothnagel's Specielle Pathologie und Therapie, Vienna **15**: 55, 1898.
12. Hemenway, H. B.: Am. Phys. **26**: 388 (May) 1921.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SPALDING AND FOOTE

DR. LOUIS I. DUBLIN, New York: In a full paper on early infant mortality that I published recently, I attempted to bring together all of the evidence bearing on this subject. My first conclusion was that syphilis was apparently the most important cause of early infant deaths. It is very interesting to have had this conclusion so strikingly confirmed by Dr. Spalding. The material used by Dr. Spalding was somewhat different from mine. He attempted to cover the entire period of fetal life, whereas my material was limited to the last months of fetal life and to the children born alive. Therein lies, I believe, the great value of Dr. Spalding's work; for it is, to my knowledge, the first effort on a fairly large scale to record the conditions responsible for neonatal deaths, having in mind the entire period of uterogestation. In the main, one may say that very much the same factors are at work to destroy infant life, in utero and in the first month post partum. There are two principal factors. The first is unquestionably syphilis, and the second is the toxemia of pregnancy. Together, these two account for approximately two thirds of all the misfortunes. The other third is accounted for variously, as we are concerned with the fetal deaths, or with those of live born children during the first month. In the former group, pelvic inflammatory diseases of the mother play an important rôle. In the latter group, that is, of the children born alive, injuries received at birth and the pneumonias are the outstanding items. There are, of course, a goodly number of other causes, but they are minor. It is difficult to agree with Dr. Spalding that little may be expected from the intensive treatment of syphilitic mothers during pregnancy. The experience of Dr. Williams at Hopkins indicates, quite to the contrary, that a great deal can be accomplished if an intensive effort is made to discover early in pregnancy, by routine Wassermann tests, those women who are infected, and then to treat them intensively during pregnancy. By this means we can reduce the percentage of infant deaths. Dr. Spalding says, in explanation, that he was not able for various reasons to discover these cases of syphilis during the pregnancy of the mother. He waited until the child was born dead or died soon after birth and then, by an examination of the placenta, and by other means, he discovered the syphilitic infection. By far the better method is to discover these cases during pregnancy.

I am entirely in sympathy with the suggestion of Dr. Foote that the classification of causes of death as at present used is very unsatisfactory for the deaths of early infancy, and that the classification needs revision. The international list of causes of death, so far as this group of conditions is concerned, was never well conceived. Dr. Bertillon, who was the father of the international classification, evidently knew very little about, and, perhaps, was interested less, in the matter of early infant mortality. That lack of interest is reflected in the poverty and in the utter inadequacy of the classification. Strangly enough, the world has sat still with regard to this classification. The general attitude of physicians well informed with regard to the factors causing infant mortality has been to let the matter rest as it is. Certainly, the several revisions of the international list have not kept pace with the immense increase of our knowledge in regard to the factors of early infant death. The revision of Groups 10 and 11 of the list should be undertaken early. It will involve many difficulties, which will have to be cleared up by research. Much will depend on the point of view of the classification, for in this group of deaths we are concerned not only with the actual conditions found in the child, but also with the antecedent conditions in the mother, which probably acted as primary causes in the misfortune to the child. If we are concerned with the actual anatomic condition of the child, that is one thing. If, on the other hand, we approach this problem from the point of view of the student of preventive medicine, then the classification will often be different. Possibly, there will be no successful classification unless both these factors are considered; but this will involve much discussion, and it would be very desirable, I think, to have this section appoint a committee to cooperate

with the statisticians of the American Public Health Association. A joint conference on the revision of the international list with reference to this very important group of cases of death should be asked to prepare such a revision.

Dr. Arthur M. Rogers, Los Angeles: It would be very unfortunate if the impression embodied in Dr. Spalding's paper should go out as the dictum of this section, viz., that little or nothing can be done to reduce the appalling fetal and infant mortality due to syphilis. It is well known among those who work in this field of medicine that there is never a time in the history of an individual afflicted with congenital syphilis when it can be so surely and so rapidly cured as while it is within the mother's womb, if the mother is treated properly. I wish to make that as emphatic as I possibly can, and I do not think any reliable syphilologist will deny it. The great difficulty is in failure to diagnose syphilis in pregnant women early. Intelligent search for this disease early and, indeed, throughout the period of gestation is quite as important as the customary examinations for kidney disease, and should be a part of the routine care of every pregnant woman. The time to treat syphilis in the new-born or the fetus and to reduce its mortality to the vanishing point is while the child is in the mother's womb.

EPIDEMIC (LETHARGIC) ENCEPHALITIS

THE RECENT NEW YORK EPIDEMIC *

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NEW YORK

So much has been written about encephalitis that it is difficult to say anything new and useless to group symptoms or describe the course of the disease. I thought it would prove more interesting and possibly more instructive if I reported a few observations and related a few of my experiences in connection with the disease. In this way, I shall hope to bring about an open discussion bearing on some of the many questions that pertain to encephalitis.

New York City has had a great many cases of encephalitis in proportion to the population, probably more than any other community. And yet, strange to say, Philadelphia, which is only 90 miles away, has had very few.

The encephalitis epidemic of 1923 differed from its predecessors in three respects: It was more extensive, more virulent, and more often fatal. It resembled its predecessors in two important respects: in the time of its appearance and in the fact that it followed closely a severe epidemic of influenza. In 1922, the patients who were attacked by encephalitis were largely young and strong adults. In 1923, the patients included all types: the very young, the very old, and the weak and strong. That the 1923 epidemic was undoubtedly more extensive than the one of 1922, will become evident if one looks at the number of cases of encephalitis that were reported to the Board of Health of New York City.

In the period from Jan. 1 to March 31, 1923, there were reported to the board of health in New York 577 cases of encephalitis. This is more than double the number (228) reported for the corresponding period of the year 1922. In considering these figures, one must bear in mind that in 1923 the medical profession was both more competent and also more anxious to diagnose the condition. Making allowance, however, for these two factors, one must admit that the 1923 epidemic far exceeded that of 1922. That the epidemic of 1923 was not only more widespread, but also more fatal than that of 1922 will be admitted when it is realized that the proportion of deaths reported was more than 3 to 1, whereas in 1922 the ratio of deaths was only over 2 to 1. In 1923, in the two months of January and February alone, the deaths numbered ninety-seven, whereas in the corresponding period of 1922 the deaths numbered only twenty-four. If we analyze these statistics, taken from the board of health report, we find that a greater number of deaths occurred among females than males, and, in proportion to the number of cases, a greater number of deaths occurred among those under 20 and those over 40 than in the period ranging from 20 to 40. These two facts would justify us in stating that resistance and age were important factors to be weighed in considering the prognosis of encephalitis.

During the same period, it is interesting and instructive to consider the incidence of encephalitis by age groups. The board of health has compiled the figures for the two months of January and February. In this period there were reported 268 cases. Of these, fifty-nine occurred in the twenties, fifty-eight between the ages of 5 and 19, and fifty-three in the thirties. Under 5 years of age there were forty-eight cases, and over 40 years of age there were forty-eight cases. No age was given in thirty-six cases. These cases, when divided into sexes, show a great preponderance in favor of the disease attacking the male sex, the proportion being 172 males to ninety-six females.

Thus, encephalitis almost invariably followed influenza; it appeared in a community which had already been attacked by influenza or by a high prevalence of respiratory diseases, and it always reached its height in the most trying part of the year.

I am convinced that the epidemic of 1923 was more virulent than that of 1922, because the types that I saw in 1923 were more prolonged and more severe. It was not until 1923 that it became usual to see patients with elevated temperature for weeks and conditions of stupor for several days. Never before that year did we witness so many cases of prolonged and severe pain, or others with such marked and persistent choreiform movements.

It is interesting to consider the two ways in which the epidemic of 1923 resembled that of 1922. In each year, while a few cases occurred in the late fall and early winter, it was not until late in December that the number became considerable, and it was not until still later, when winter was well established, that encephalitis assumed the proportions of an epidemic. The other factor, the occurrence of influenza preceding the encephalitis outbreak, was identical in the two years.

In each instance a severe and protracted epidemic of influenza began in the early fall, reaching its peak at the beginning of winter. Shortly after Christmas this epidemic began to subside. Almost immediately after this, and coincident with the severe weather of winter, appeared a well defined epidemic of encephalitis. To behave this way was characteristic of encephalitis, because just this has always been true of every encephalitis outbreak in the history of the world, save one only, which was reported in Austria.

It is not out of place at this point to revert to the epidemics of 1890-1891. In that year occurred a severe epidemic of influenza. As it reached its height and

* Read before the Section on Nervous and Mental Diseases at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

began to subside, an unusual type of influenza appeared. It was called nervous or cerebral grip. These cases, in view of subsequent events and of present-day knowledge, were undoubtedly mild cases of encephalitis, so that again, in this instance, encephalitis appeared in a characteristic way.

It would seem, therefore, that two factors were essential to produce a violent encephalitis epidemic: a severe winter and influenza. Just what bearing these two factors have on encephalitis is difficult to say. Possibly they prepare the way and lower the vitality; possibly the influenza bacillus and that of encephalitis have something in common.

CONTAGIOUSNESS

In New York it is the custom to admit patients with encephalitis to the general medical wards. No attempt is made either to segregate or isolate. The question of infection or contagion is never discussed. In the epidemic of 1923, I was struck with the fact that no cases developed in any of the hospitals, and I do not recall an instance in which two cases were reported in one family or in one home. And yet, in other parts of the world, undoubted instances of such a kind have been recorded. In England, McNally reported the occurrence of twelve cases of encephalitis developing in a single building which harbored twenty-two inmates. Marie cites encephalitis as having attacked two sisters. Netter reported the disease as occurring in the case of three children who occupied the same room, and Jorge of Lisbon knew of the disease developing in a man who came from a distance to visit a friend sick with encephalitis. Reese has encountered the case of a nurse who contracted the disease while attending a patient. The nearest approach to anything so definite and conclusive as these reports occurred in New York in the epidemic of 1922. In that epidemic, in each of two hospitals in the crowded part of the city, one of the interns developed a definite and straightforward attack of the disease. I also knew of a nurse with encephalitis. All of these instances, taken together, indicate very strongly the contagious nature of this disease. It will be interesting and instructive to learn of any similar instances. It will also be instructive to hear the views of others as to the advisability of isolating these cases. It strikes me that there is enough evidence to warrant segregation; it might do some good; it certainly can do no harm.

If we take the years in which encephalitis appeared and became epidemic, subsided, and then again became epidemic, we find that they correspond with the outbreak of war. From this coincidence it would seem fair to conclude that the conditions which prevailed during war time were conditions which favored the development of the disease. Are not these the same conditions that spread contagious diseases—bad hygiene, close living, lack of cleanliness, exposure, the close contact of large bodies of troops, and the transportation over a distant part of the world of armies?

This would be corroborated by the statement of Bassoe, who observed that nearly all his patients suffering from encephalitis had been in a more or less run down condition prior to the onset.

Another point that should be considered is the rapidity and systematic regularity with which the disease attacked different communities and different parts of the world. After appearing first in the middle of Europe, it spread rapidly to France and England, and then crossed the Atlantic and continued due westward. In 1918-1919, the peak of the outbreak was reached in New York City in January, in Virginia in February, in Louisiana, Texas and Illinois in March, and finally in California in April.

Do not these facts furnish additional proof that encephalitis is contagious, and is it not reasonable to suppose that when better living conditions prevail the exacerbation of the disease will be correspondingly less acute?

I think another observation is worth recording, and that is that I myself knew of five medical men who became afflicted with encephalitis. This seems to me a large proportion. I do not know that one is justified in drawing any inference from this—possibly it may be evidence as to the occurrence of contagion.

In 1922, the peak of the epidemic was reached in January; in 1923, in February. This follows the same train of thought as does Bassoe's statement that nearly all of his patients were in a more or less run down condition prior to the onset.

The conclusions to be drawn from the recent New York epidemic are the facts that: (1) influenza prevailed previous to the appearance of encephalitis; (2) there was a more widespread prevalence of encephalitis in 1923 than in 1922; (3) with each succeeding year, the cases of encephalitis become more severe; (4) in the last epidemic, the proportion of deaths was greater than in any preceding epidemic; (5) the greatest proportion of cases occurred between the ages of 20 and 40; (6) more males were affected than females; (7) females succumb in greater numbers than males; (8) while the disease has been more prone to attack the young and robust in recent epidemics, it has attacked all ages; (9) in the young and those over 40, the disease is more fatal; (10) evidence of contagion is absent, and (11) improved hygiene and greater supervision and control on the part of our boards of health are necessary.

LABORATORY AND CLINICAL FINDINGS

In almost every case of encephalitis that I saw in 1923, the spinal fluid was examined. In the large majority of cases it was abnormal; in a small minority, normal. I think it is fair to say from my observation that the more severe the attack proves, the greater is the likelihood of finding abnormalities in the fluid. These abnormalities consisted of changes in the cell count, in the globulin content, in the sugar content, in the pressure and in the colloidal gold reaction.

The cell count was increased in severe and well marked cases, especially at the beginning of the disease. The amount of increase varied considerably; this pleocytosis was likely to change as the disease progressed, so that three different lumbar punctures taken on three different occasions throughout the course of the disease would be very apt to give three different results. The tendency is for the cell count, early in the disease, to reach its greatest abnormality and then gradually to return to the normal. An observation of this character should teach us the importance not only of one lumbar puncture but also of repeated lumbar punctures. There does not seem to be any connection between the severity of the attack and the character or number of the cells.

The globulin usually showed a slight increase, but without any relation either to the pleocytosis or to the clinical type of the disease.

The sugar content of the spinal fluid was almost invariably increased.

The colloidal gold reaction is not pathognomonic in encephalitis. In almost all of our cases we found a slight curve of irritation, but not one that could aid much in forming a diagnosis. There was nothing characteristic in these curves.

The importance of examining the spinal fluid is from the point of view of differential diagnosis. In tuberculous meningitis, the sugar content is diminished; in cerebrospinal syphilis it is normal, and in encephalitis it is increased. In tuberculous meningitis the cell count is increased; in cerebrospinal syphilis it may be anything, but usually is increased, and in encephalitis it is at first increased and then normal. The slight curve of irritation following the gold test is of help in differentiating general paralysis and acute forms of syphilis.

UNUSUAL SYMPTOMS

In encephalitis, some of the unusual symptoms are those connected with respiration, such as persistent, rapid respiration, irregular and spasmodic, forced respiration, inspiratory dyspnea, tachypnea and difficulty in breathing; others are paroxysms of deep breathing; others are those connected with the bladder, such as anuria, hematuria, retention, polyuria and incontinence. The polyuria seems due to changes in the third ventricle. Gossett and Gutman reported a case in which the patient passed 10 liters for ten days. Pain is a constant symptom, but the forms in which it may appear are irregular and varied. I recently saw a case in which pain in the gums was most severe and distressing. In another, pain in the region of the cecum came on periodically, giving great distress.

The motor disturbances are also frequent and of various kinds. Head nodding, twitching of the abdominal muscles, and choreiform movements of the arms are the most common. We had two cases in St. Luke's Hospital in which there was a constant and rhythmic movement of the lower jaw.

Disturbances of the eye muscles are common; those of the fundus much less so. It is now generally recognized that, in encephalitis, hemorrhages, papilledema and choked disk do occur. I have seen three or four instances of choked disk in this disease.

Convulsions occur; they simulate both the petit and grand mal of the epileptic. They may occur at fixed intervals or be entirely unrelated to any cause.

An unusual symptoms which I observed in one patient was yawning. This patient, for a period of two weeks, yawned anywhere from three to five times an hour during the time he was awake and less often during his sleep. At any time when he was sleeping and was aroused, he would immediately yawn several times. The habit became so bad that three times during his stay in the hospital he dislocated his jaw. Accompanying the yawning there was a persistent and constant jactitation of the chin. The latter, when I saw him several weeks afterward, still persisted, although the yawning had ceased.

Prolonged elevation of temperature is not unusual. I followed one patient who had fever for sixty days, another for forty, and a third for twenty. In most of the cases with protracted fever, the degree of temperature was not high. It usually began as high, but at the end of a week registered between 99 and 100 F.

MENTAL COMPLICATIONS AND SEQUELAE

One of the characteristics of encephalitis is the peculiar change that the disease exerts on the character of the patient. This has been spoken of often, but I do not think that sufficient emphasis has been placed on the effect the disease exerts on children. Children who have contracted encephalitis appear to be more susceptible to changes in character and disposition than do adults. These changes are constant and bizarre. They take the form of emotional instability, bad temper, incorrigibility, insomnia, phobias and hysterical reactions. A curious fact is that in nearly all the reports of these cases, the children were, before the illness, unusually good and well disciplined. We had one boy of 9 who, on entering the hospital, was of such mild disposition, good temper and of so gentle and refined bearing as to attract the attention and interest of all connected with the ward. This boy at the end of two months became as rough and foul-mouthed as a street gamin, and his language finally was so obscene that he had to be removed to another institution. His choice of words reminded one of the language that is so characteristic of the acutely maniacal and demented woman of refinement and culture. In addition to the symptoms that I have mentioned, I might say that many postencephalitic children have been found to be liars, thieves and mental defectives. Just what the prognosis is going to be in these cases it is impossible to say. Sufficient time has not yet elapsed; it would be far better to wait three or four years. I should feel, however, that the prognosis in children would be better than in the case of adults.

Ebaugh observed several of these cases and found that spinal drainage gave good results. I have never tried it in this symptom complex.

Mental complications are common; mental sequelae, even more so. These assume all forms: exhilaration, depression, dementia, lack of the proper sense of proportion, confusion and profound stupor. Depression is the most common psychosis of all. It is prolonged, and may vary from a slight depression to that of a profound melancholia. Last year I followed one patient who at the end of a three months' illness, which was characterized by somnolence, fever and eye paralyses, developed a typical and well marked period of exhilaration. This patient slowly improved, and has now completely recovered. In our hospital service was a patient with a profound degree of depression and mental deterioration. He had always been well; he became acutely ill, and rapidly deteriorated mentally. There were no very definite signs pointing to encephalitis. The diagnosis was considered probable, but was confirmed on necropsy. I cannot describe this patient as having been somnolent; rather did he suggest the course of a fulminating general paralysis of the depressed type. In many, the mental changes are less marked, and could better be described as character changes. Their outlook on life is different; they take responsibilities less seriously, and become more erratic and less trustworthy; others assume a pessimistic and disinterested attitude. I cannot leave this part of the subject without remarking that many of these patients who display mental and character changes may have been congenitally predisposed to such changes.

PROGNOSIS

The most difficult problem connected with encephalitis is the prognosis. There is nothing to guide us, and we have no reason to feel that with the expiration of any fixed period of time the patient has escaped any of the sequelae. In some of the cases it seemed as though one could make a definite prognosis either for the better or the worse; but after I had observed a large number and had followed them for several months I recognized the futility of trying to forecast the outcome. I believe that in no disease is the prognosis more difficult. It is not fair to say that it should be guarded, because I have seen patients who had what appeared to be very severe attacks, with a bad prognosis, recover completely. We should recognize the fact that in encephalitis we are quite ignorant as to the course and outcome of the disease.

ABSTRACT OF DISCUSSION

DR. D. H. MORGAN, Akron, Ohio: I wish to ask Dr. Hunt a question in reference to a symptom that was present in a case which I saw. A girl, aged 12 years, was exhibiting post-encephalitic psychotic manifestations. One of the outstanding symptoms was that she would not reply to a question unless asked at least twice or in multiples of two. She would not answer from four to eight when questioned. In other words, no response would be made to a question except at two or a multiple of two. Has Dr. Hunt seen this exhibition; what is its basis?

DR. PETER BASSOE, Evanston, Ill.: When I was asked in 1920 to give some figures to the Research Association, I tabulated the cases I had seen up to that time. There were forty-nine—twenty-four of one sex and twenty-five of the other. As to contagion, I know personally of one instance, that of a nurse who had taken care of a patient with encephalitis and contracted the disease. It may be well to call attention to Kling's experience. I believe that his observations have not been reported very extensively, except in the Swedish language. Kling was a member of a government mission that went into northern Sweden, where the population was very sparse, and made an extensive survey during an epidemic. They concluded that they could trace the disease from person to person, and showed a period of incubation of ten days that they considered to be quite definite. They found a large number of abortive cases, just as they had in poliomyelitis. With regard to our epidemic in Chicago, conditions have been different from those in New York and on the Pacific Coast. We had most of our cases in the winter of 1918, 1919 and 1920. There were very few cases in 1921 or 1922. We did have a few cases this year, all undoubtedly acute cases, but we have had a most astonishing number of late Parkinsonian cases. I have seen several cases in young persons who give a distinct history of having had encephalitis in 1919, and who did not develop any symptoms at all until 1922, three years later; so that in making a prognosis I would never say that a patient is cured. Persons have been perfectly well in the interval. Why do they get these symptoms three years later? It does not seem possible that we are dealing with a mere sequel from the nature of the dead tissue. We must assume that the virus remains living in these persons. This can be explained in two ways: Either the virus may lie dormant in the brain as the spirochete in syphilis does before it produces general paralysis, or possibly the virus may remain in another part of the body; for instance, in the liver or other internal organ, until some condition mobilizes the virus, so to speak, so that it again gets an opportunity to show its affinity for the brain.

DR. WILLIAM HOUSE, Portland, Ore.: In the 1923 epidemic in the Pacific Northwest, all of the larger cities had numerous cases. The twenty patients whom I saw were all between 20 and 30 years of age, and equally divided as to sex. Six patients, three of each sex, died, giving a mortality of 30 per cent. The epidemic first appeared in January, and recurred in waves. Based on the length of these waves and on preceding experience, I had come to the conclusion that the period of incubation must be about sixteen days, but I dare say that the epidemiologists who have estimated it at ten days have had opportunity for more accurate observation. The first wave was most severe and was attended in some sections by a mortality as high as 70 per cent. Successive waves were milder. Myoclonic and neuritic forms were much more prevalent than in preceding epidemics, and pain and twitching were infinitely more severe. In one case, for instance, pain began in the median nerve of one arm, accompanied by muscular twitching which, with the pain, soon spread to the other arm and then to the diaphragm. This patient's muscles jerked at the rate of seventy-eight times a minute continuously for ten days, when death occurred from respiratory paralysis. Without exception, pain or myoclonus, or both, were present in every case I saw. I used the Rosenow serum in about a dozen cases, discontinuing it, in part, because of the urticaria it caused. I am convinced that in one case, at first regarded as hopeless, it was a potent factor in saving the patient's life, and in one or two other cases it seemed to have beneficial effects. Whether these were due to specific effects or just to the reaction from the horse serum, I am in doubt. Prior to last winter I had never seen a case of encephalitis accompanied by convulsions; but then I saw two cases (which I hope to describe elsewhere) in which typical jacksonian convulsions occurred. As for parkinsonian cases, there are many of them now appearing as a result of the preceding epidemics. Three patients whom I had observed with sequelae of encephalitis have committed suicide.

DR. EDWARD LIVINGSTON HUNT, New York: I have never seen anything that resembled the case cited by Dr. Morgan. I am unable to explain it.

REEDUCATION IN APHASIA*

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LOS ANGELES

Aphasia is defined as a loss of or modification of the ability to change concepts into words in spite of the integrity of the speech machinery. It is also a loss of the ability to understand the audible word in spite of the fact that hearing ability may be present. There is often inability to speak spontaneously or to use words. Reading, writing and writing from dictation are involved. Copying may be impossible.

Motor aphasia is the failure to express ideas. Sensory aphasia is the failure to receive impressions and transmute them first into ideas and then express them.

REPORT OF CASE

History.—C. J. K., a man, aged 36, a plumber, married, with one son, was struck on the left side of the head by the propeller of an aeroplane wind machine that he was starting, Nov. 5, 1919. A concave area extending from the middle line of the head downward toward the ear was dished out; both tables of the skull were destroyed and carried away; the dura was shattered and the cortex of the brain was macerated; the patient was in shock when seen by Dr. R. G. French, the surgeon who attended him, and was unconscious. There was complete paralysis of the right side.

Emergency surgery consisted of controlling the hemorrhage, cleaning up the cortex of the brain, suturing together the fragments of the dura, and putting the patient to bed. A fatal prognosis was given.

At the end of the first week there was evidence of regaining consciousness with complete aphasia; the patient gradually regained the function of the right leg; the right arm and shoulder remained paralyzed. He left the hospital in about

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two months. In about thirty days epileptic seizures began to develop, becoming more frequent and more severe. Seven months later Dr. French dissected out all scar tissue and inserted an inlay bone graft, taking the graft from the head of the tibia, which was the only part of the body where a large enough graft could be procured. The wound healed by first intention with apparently perfect result. The paralysis of the right arm and right side of the face gradually improved. The patient had had several epileptic seizures since the time of the operation, which was in September, 1920. These were controlled by a daily dose of 5 grains (0.3 gm.) of phenobarbital (luminal).

Examination.—The patient, referred to me, Oct. 16, 1922, was of German-Swiss origin and common school education to the fifth grade. His family history had no bearing on his case. He was nervous, apprehensive and slender, and the hands and feet were cold. He gave the right hand in greeting, but there was no strength to the grip. He was right handed before the injury.

Speech examination revealed that Ah was Ah; Ah was A; Ah was E (because he could not make the proper mold with his tongue and also because the kinesthetic sense was affected); Aw was Aw; O was O; Oo was Oo; Ah was I; Ah was Eh; P was P; B was B; M was M; Oo was Wh; Oo was W; Ts was Th′; D was Th″; F was F; W was V; S was S; S was Z; S was Sh; L was L; T was T; D was D; N was N; Oo was R; T was K; D was G; H was H; No was Y; S was Zh; St was Sch; Ts was J.

The vocabulary consisted of about one hundred words. The patient repeated "papa," "mamma," "baby." He said "tahdah" for "cargo," and said "fine" and other words imperfectly. He could whistle in expiration but not inspiration. He could not whistle (repeat) the first eleven notes of "Marching Through Georgia," or any other tune.

Questions and Answers: 1. Can patient speak spontaneously in ordinary conversation? (Ask him: "What is your trouble?"). *Ans.*—Yes, but does not pronounce the words right.

2. Can he enumerate and denominate number and name objects? Question: "Can you count your fingers aloud?" *Ans.*—Yes. "Can you name the members of your family or the days of the week?" *Ans.*—Yes. Can you name these objects? Chair: Yes. Nose: Yes. Key: Yes; says "tee."

3. Can he speak from dictation? (Can you repeat: "Now is the time for every good man to come to the aid of his party.") *Ans.*—Yes, but leaves out two or three words and mispronounces others.

4. Can he read aloud? *Ans.*—Yes, slowly, and with effort.

5. Can he read to himself and understand it? *Ans.*—Part of a daily paper—some words in each sentence.

6. Can he recite what he reads or what he has learned? *Ans.*—Parts of what he has just read, or if he is familiar with (has practice with) the words.

7. Can he write spontaneously? *Ans.*—Yes.

8. Can he enumerate and denominate in writing? Question: "Can you write the numbers 1 to 10?" *Ans.*—Yes. "Can you add this column of figures?" *Ans.*—Yes, but cannot say the words involved in the process, although he does know the method and answer. "Can you write the days of the week?" *Ans.*—Yes, but leaves out Thursday, but corrects himself. "Can you write the names of these objects shown?" *Ans.*—Yes: Book, pencil. Key (says "tee").

9. Can he write from dictation? *Ans.*—Yes, with some errors.

10. Can he copy written or printed matter? *Ans.*—Yes.

11. Can he hear and understand what he hears? *Ans.*—Yes, but makes mistakes.

12. Can he see and understand what he sees? *Ans.*—Yes.

13. Is he aware of such errors as he may make in speaking or writing? *Ans.*—Sometimes, and says so.

14. Has he a concept of his own speech? *Ans.*—No.

15. Does he misuse words? *Ans.*—Seldom; "said good morning for good night." Is he ungrammatical out of proportion for his education? *Ans.*—No. Does he perseverate in fixed phrases? *Ans.*—No.

From the examination outlined above, it may be deduced that this patient showed a loss in the intellectual speech mechanism, but not in the emotional. No agraphia was present. Partial word deafness existed. Word blindness was not demonstrated. Inner speech was absent. He had alexia, aphemia and paragraphia.

Reeducation.—The patient was told that he should not compare his speech or his ability to express anything with respect to either his former condition or with his boy, a bright youngster in the third grade of the grammar school, but to think of himself almost as beginning all over again, and to note his improvement, which was bound to be constant. Emphasis was put on cheerfulness and on the necessity for faithful practice every day, and his wife was enlisted to aid in his treatment by helping him to practice, to read to him, to cheer him and to rebuild his self confidence. Deep breathing, auditory practice, importance of the vowels, inflection, and use of all necessary face muscles, as in E and I, were emphasized. His own touch sensations in his mouth, tongue and palate were brought to his attention as each difficulty was encountered, and the proper molds demonstrated by actual visual and tactile examples.

He was given a little blank book in which to record each lesson. Speech reeducation began about Nov. 1, 1922. It consisted of diaphragm breathing and counting, one, rising inflection; two, falling inflection. November 6, he was shown why he did not make the wide "e" sound: Because of the partial paralysis of his tongue, it did not approach the roof of his mouth closely enough, and this faulty position was corrected for him. He soon learned this perfectly as well as "eh," and was able to use these sounds, as in "five," "eight," "nine" and "twenty." Counting was continued up to one hundred, and by November 13, or one week, he was able to count perfectly. On the 17th, sums in addition and subtraction followed. Vowel practice combined with consonants, especially l, r, b and m, was continued throughout. In December, singing the vowel sounds up and down the scale was begun. Multiplication and division were begun.

Difficult sounds for him were t, d, n, l, r, k, g, h and y, for the reason that the tongue and cheek were partially paralyzed. A great deal of practice was necessary to perfect the kinesthetic sense in these sounds. Words were practiced throughout. A sample list of words was: tomato, door-knob, lonesome, nobody, rowing, coconut (kokonut), gorilla, hose-cart (hose-kart), yeoman and judge.

In January he began rhymes and poems, making appropriate gestures. "Enee meenee minee mo," "One, two, buckle my shoe," and "Jack and Jill went up the hill," arithmetical tables of time, measurements, money, liquid measure and dry measure. Writing with both hands simultaneously was used.

He had a saving sense of humor; and, as smiling and laughing were good for him, I took up Charlie Chaplin and built up a lot of practice around Charlie's loose shoes, clothes, Jews, etc., using such sentences as: Charlie Chaplin is a Jew; Jews choose cheap shoes; Jews choose loose shoes; judge a Jew by his shoes; let Charlie Chaplin choose loose shoes at a Jew clothier's, and "A Dog's Life" is one of Charlie's best cinemas (kinemas).

In March he began to keep a diary, and recited to me what he did every day of the week.

His present condition shows a great improvement. He can now copy words, read words, say words and sentences, use all forms of grammatical speech; in fact, can express all things understandingly, if he does not hurry. His voice, weak at first, has gained in volume, resonance and pitch. He is much more cheerful and has a more hopeful outlook for the future.

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Effect of Cold Water on Face.—The application of cold water to the face, particularly when it is applied as a spray, produces a gasp followed by a pause in respiration. The terminals of the trigeminal nerve are excited and a reflex is induced by way of the bulbar autonomic apparatus; the impressions are carried to the lungs by filaments in the vagus nerves, and vasomotor changes are also induced in the mucous membranes of the head.—C. F. Sonntag: *Proc. Roy. Soc. Med.* **16**:9 (Aug.) 1923.

BENIGN STRICTURES OF THE RECTUM *

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ROCHESTER, MINN.

In reviewing the subject of rectal stricture, one is forcibly impressed with the fact that most of the discussion and study of the subject is devoted to the etiology, a phase concerning which the least satisfactory and uniform conclusions have been drawn. All writers agree that rectal strictures come under two chief headings, malignant and benign; but when the latter type is considered, the significance of syphilis as a cause invariably becomes the leading point on which opinions vary widely. Often the relative frequency has been expressed on a percentage basis, but the estimates are so varied that even an average of them would be of little worth. Certain observers assert that syphilis is the cause of few, if any, rectal strictures; but the greater number attribute to syphilis the existence of most lesions of this type. Asman [1] has said: "The vast majority of strictures of the rectum are due either to syphilis or to cancer. Other causes are rare." Gant has classified twenty-five cases of rectal stricture, thirteen of which he believed were the result of syphilis. Cripps [2] has a record of seventy cases of rectal stricture, thirteen of which were classified as syphilis. Ball [3] wrote: "It is, however, probable that a large majority of cases of stricture are due to syphilis." Henri Hartmann,[4] in his recent report of eighty-six cases, declared that syphilis undoubtedly existed in thirty patients" and that "the action of syphilis is today acknowledged everywhere." He also quoted Juliusberger as having noted syphilis in eight of twenty patients; Poelchen in ninety-six of 215, and Allingham, in thirty-five of seventy. Lockhart Mummery,[5] in 1914, said, "It cannot be proved that syphilis is a cause of rectal stricture." He says he had not observed it to be the cause (except of condyloma of the anus and chancre), and that there is no reliable record in St. Mark's Hospital of tertiary syphilis of the rectum or of syphilitic stricture. The usual teachings, however, have been that syphilis plays a very important part in the causation of rectal strictures.

Several factors have been responsible for the difficulty in determining the significance of syphilis as an etiologic factor in these lesions. First, there are not and never have been definite criteria. Until comparatively recently, if a patient suffering with rectal stricture had been previously affected with syphilis, the rectal lesion was at once pronounced syphilitic and was so treated. In fact, in a great many instances patients with rectal strictures have been treated for syphilis, notwithstanding the fact that there was absolutely no evidence to substantiate such a cause. All such treatment has been signally unsuccessful, and on this account a therapeutic test has not been possible. Our experience with the Wassermann reaction on the blood has taught us that a negative Wassermann reaction does not disprove the existence of syphilis and that a positive reaction does not prove that syphilis is responsible for the stricture.

The truth of Dr. Tuttle's [6] remark, "Nonsyphilitic stricture may exist in the syphilitic," is self evident. It is a regrettable fact that the microscope has been of little value in making a definite differential diagnosis. Owing to the insidious character of the onset of the trouble, the tissues usually are so changed by chronic fibrosis, secondary infection and ulceration that little can be determined of the original pathologic condition by the time the patient consults a physician. If such lesions manifested characteristic changes which could be attributed to syphilis, and which could be seen with a fair degree of constancy on microscopic examination, we would have the most satisfactory method of reaching conclusions. Warthin,[7] in his extensive work on the pathology of syphilis, has described certain microscopic changes which he considers pathognomonic of syphilis; he has noted these changes in numerous anatomic structures. With Warthin's conclusions as a basis, a number of specimens were studied in the Mayo Clinic, but the results were unsatisfactory. The formative and destructive changes were so extensive that only a chronic inflammatory picture was obtained. I cannot, therefore, formulate a more definite statement with regard to the etiologic significance of syphilis in the production of rectal strictures than has been offered.

HISTORY

Incontinence was complained of by a few patients; the degree could not be determined from the records. It is true, however, that this complaint was most marked in patients whose stricture was nearest the anus.

The average age of the patients was 40 years. Eighty-six were between 30 and 40; forty were between 50 and 60; sixty-two between 40 and 50, and thirty-eight between 20 and 30. Only eight were less than 20 years; in three of these the condition was congenital. The condition occurred in 148 (56.3 per cent.) patients between the ages of 30 and 50. In 250 (96.75 per cent.), the patients were more than 20. To a certain extent these data should be discounted, since the stricture had existed, in many instances, for a long time before the patients came to the clinic. Forty-three patients had known of their trouble for less than one year; twenty-two had had symptoms between one and two years; fifty-four between two and five years; seventy-six between five and ten years; forty-two had been troubled more than ten years, and in twenty-two the duration of the symptoms could not be determined. One hundred and seventy-one patients had been suffering with a varying degree of discomfort around the rectum for more than two years; 117 had had trouble more than five years, and forty-one had noticed symptoms more than ten and as long as twenty-four years. It is true, therefore, that the larger number of rectal strictures occur during adult life and cause symptoms for long periods. Although it could not be determined accurately, it is probable that the early symptoms were those of ulceration and destruction of tissue in the rectum, and that the symptoms of actual stricture were of shorter duration.

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* From the Section on Medicine, Mayo Clinic.
* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

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7. Warthin, A. S.: The New Pathology of Syphilis, in Harvey Lectures, Series xiii, xiv: 67-96, 1917-1918, 1918-1919.

ETIOLOGY

In presenting the etiologic phase of this study, it has been possible to record only the various circumstances as they were given in the histories. The part that syphilis has played could not be estimated with any more accuracy than has attended the efforts of other writers on the subject. An effort has been made, however, to gather all the evidence pointing to possible syphilitic origin and to test the value of such evidence. It should also be considered that the incidence of syphilis in the Mayo Clinic is probably less than in the clinics of large cities where dispensary patients are more numerous.

SYMPTOMS

Two hundred and fifty-eight patients with rectal stricture have been observed in the Mayo Clinic during the last ten years, 1912 to 1922. A study of the histories of these patients has revealed interesting facts. The greater number complained of constipation and had had increasing trouble with bowel movements, finding it difficult to force the feces through. One hundred and fifty-seven found it necessary to take purges constantly. Twenty had been troubled with constipation and diarrhea alternately. A history of diarrhea was given by ninety-four, but the constant tendency toward stoppage and the necessity of taking purges must have been a factor in the production of the stool frequency. In some instances true diarrhea had existed, but this condition usually occurred if the involvement extended above the rectum, as shown by the roentgen-ray examination of the colon, or if the patients had active endamebiasis. Forty-five patients had histories characteristic of actual attacks of obstruction. Passage of blood was the most constant symptom; 184 patients referred to it. One hundred and sixty-eight said that they had been troubled with pain and discomfort, usually associated with the effort of expelling the rectal contents. The pain, sometimes associated with cramps, was located in the lower rectum and seldom showed a tendency to radiate. One hundred and fifty-nine patients had noted pus in the feces.

One of the most interesting points in the histories of these patients was that only thirty-five had noticed deformity of the stool, which most writers assert is characteristic of low rectal lesions; pencil, ribbon and flat stools are the familiar terms. In 169 patients the stricture was limited to the first 10 cm. of the rectum; in forty-two the entire rectum was involved, and in five, the sigmoid and the rectum. There were, therefore, 216 patients in whom the lower rectum was contracted, and of these only thirty-five complained of misshapen stools. It has been my experience that patients whose stools are small and of the pencil or ribbon variety are more likely to be suffering from contraction (spastic or otherwise) of the anal lumen; constipation is usually associated.

In twenty-five cases, the histories were positive for syphilis; and in thirteeen, although the histories could not be considered positive, they were sufficiently suggestive to designate the cases as questionable. In eighteen patients, serum Wassermann reactions were positive; and in two, diagnoses of syphilis of the central nervous system were made. Thus, if the patients with positive histories, questionable histories, positive serum Wassermann reactions, and syphilis of the central nervous system are added, the total is fifty-eight. Three of these should be omitted, since they presented positive Wassermann reactions besides positive histories. Thus there were fifty-five patients who presented some evidence of having syphilis, or of having had it. Two hundred and twenty patients had histories negative for syphilis; 150 were negative to serum Wassermann reactions; the test was not made in ninety.

Twelve of the twenty-five patients with positive histories of syphilis had had operations on the rectum. Four of the others had had extensive operations for pelvic inflammatory disorders. Seven of the thirteen with questionable histories of syphilis had had operations on the rectum. Eight of the eighteen with positive Wassermann reactions had had operations on the rectum. A significant fact regarding this phase of the study was the decided tendency for the rectal symptoms to develop after such operations. One patient with a postive Wassermann reaction had active endamebiasis. Such data weaken the evidence that syphilis was the cause of the strictures in thirty-two of the fifty-five patients, and leaves only twenty-three with histories of syphilis, questionable histories of syphilis, or positive Wassermann reactions alone, associated with the strictures. It should be recalled, however, that in the group of thirty-two patients the chances of syphilis as a possible cause were evenly divided. There is also the possibility of syphilis occurring independently of the stricture.

It has been demonstrated generally that operative manipulations and "treatments" of the rectum which cause breaks in the mucosa and consequent infection have a decided tendency to cause strictures. This is significant and important when it is considered that 148 of the patients in this series gave histories of having had operations on the rectum. Sixty-three had had either "pile treatments" or operations for hemorrhoids. Unquestionably, a great portion of this work has been done and is being done by the quack "pile doctors," and, in view of the great care that must be exercised in conserving the rectal tissues in operating, it is surprising that more of the results of such blunders are not seen. Thirty-seven patients had histories of ischiorectal abscess, and the strictures were probably the result of extensive and oft repeated operations in attempts to eradicate the fistulous tracts. Incontinence was usually found in these cases. Ten patients gave histories of having had operations for rectovaginal fistula; four, Harrison Cripps operations; three, Kraske operations; four, tube resections; two, operations for recto-urethral fistula; ten, operations in the pelvis; two, plastic operations for imperforate anus; and two, resections of the rectum of unspecified type. Radium had been applied by rectum in three instances, and in two others the strictures had developed after the rectal mucosa had been blistered by a scalding rectal drip. Extrarectal pressure was noted in three cases, and *Endameba histolytica* in the stools of ten; four had multiple strictures. Symptoms of stricture developed in four women after the delivery of children. I have seen strictures that might be considered tuberculous, but they were usually associated with extensive fistula formation and not tuberculosis of the mucous membranes.

There were only 120 females in the series of 258 cases. Other observers have noted the condition more often in females. This fact has been offered as one of the evidences against syphilis as a cause, because it is possible that fewer women than men have syphilis. In Tuttle's [8] 313 compiled cases, 216 were in women.

8. Tuttle, J. P.: Fibrous Stricture of the Rectum, Boston M. & S. J. **164**: 445-454, 1911.

There were 190 women and twenty-five men in Poelchen's [9] 215 compiled cases, and Carré's [9] report had 210 women out of a total of 266. Poelchen's practice, however, was limited largely to diseases of women. It is believed, too, that the frequency of strictures in women can be ascribed to the fact that they have borne children and that pressure might be responsible. In the Mayo Clinic series, ninety-two of the patients were married women, sixty-five of whom had borne children.

The records of a few of the patients were unusual. One gave a history of having had a piece of stick driven into the rectum accidentally as he had jumped on a load of hay, thirty years before. A urethrorectal fistula resulted and, gradually, a rectal stricture. A young woman with a tuberculous hip, on which several operations had been performed, had a sinus from the hip joint communicating with the rectum. On proctoscopic examination, an extensive stricture was found. A patient now under my observation underwent a cystoscopic examination ten months ago elsewhere. Before he got off the table, he felt most excruciating pain around the pelvis. In a few hours a large swelling, with some discoloration, appeared around the perineum. He had remained in bed for about three months, during which time abscesses broke and discharged through the rectum. A few weeks ago he came to the clinic, complaining of increasing difficulty of passing stools, and of pain, pus and blood in the stools. On examination, a tubular constriction of the rectum was found, evidently produced by changes in the surrounding structures. The mucosa moved freely over the constriction, and was thrown into folds except where there were two rather large ulcers.

The complexity of the histories, and the impossibility of evaluating them from the etiologic point of view, is well illustrated by a patient who had been operated on for hemorrhoids ten years before, and had given a positive history of syphilis. The operation was followed in a short time by pus in the stools, and progressively difficult defecation. During the examination at the clinic, two Wassermann reactions on the blood were negative. Exploration and permanent colostomy were performed. A specimen from the stricture was reported to be inflammatory; tubercles were noted in the peritoneum. Inoculation tests on guinea-pigs were negative. Three years later after an attempt, elsewhere, to resect the stricture, the patient died. The necropsy report was syphilitic ulceration of the bowel. This case obviously could be classified neither as the effect of trauma due to operation, nor as a syphilitic stricture. Not all pathologists and specialists are agreed with regard to the possibility of diagnosing syphilis in lesions of this character, or to the criteria to follow in determining the etiology; this accounts for wide differences in statistics. I have heard, and I have read this expression: "Stricture of the rectum feels syphilitic." I doubt whether such a method of differentiation is dependable.

TYPES AND POSITION OF STRICTURES

One patient, examined in December, 1920, said that he had had a severe attack of bacillary dysentery in 1919, and since then had been troubled with diarrhea and the passage of blood and pus. When I examined him I found an ulceration extending about 8 cm. above the anus, and the entire rectum a contracted tube less than 2 cm. in diameter. This brings up an interesting point in connection with certain of these cases. Fifty-two patients with strictures also had ulcerative colitis. It has been impossible to establish the etiology of this disease, but it is not difficult to diagnose. Roentgenograms show characteristic and constant deformities of the colon, and proctoscopic examination reveals pathognomonic changes in the rectal mucosa. The tendency of the ulceration to heal, break down, and heal, producing scars over and over again (much like duodenal ulcer in its periodicity), always results in contraction and obliteration of the normal haustrations of the bowel, and a more straightened and contracted tube, the degree depending on the severity and the duration of the ulcerative process. I had the opportunity of examining the majority of these fifty-two patients, and the findings led me to believe that many of the strictures that we see and classify as syphilitic because there is no other apparent cause are the result of the same process, or one similar to that which causes deformity of the colon in ulcerative colitis. I have found that there is ulceration not only above and below the stricture, as is usually described, but also within the constricted canal. The ulceration above the lesion has been ascribed to fecal accumulation and irritation, and the ulceration below to trophic changes; other observers seldom have noted ulceration within the constricted canal.

The majority of the strictures occurred in the lower part of the rectum; 179 of them were confined to the lowest 10 cm.; forty-two involved the entire rectum. One hundred and twenty-seven were confined to the lowest 7.5 cm. of the bowel. Strictures that encircled the entire rectal lumen were by far the most common. It was difficult to make accurate determinations from the records, but it could be fairly estimated that there were 211 tubular strictures, thirty-six of the ring type, and eleven of the linear.

TREATMENT

It is not possible to outline any one best treatment for rectal strictures. The position, the amount of ulceration and depth of infection, the length of the constricted canal, the diameter of the lumen and the amount of obstruction produced, the degree of involvement of adjacent structures, the duration of the condition and the general state of the patient's health must all be considered carefully in determining the procedure in the individual case.

One hundred and nine of the entire series of patients were treated surgically. Simple dilation under general anesthesia was done in fifty-four instances. As a rule, the result was disappointing, the relief being only temporary; so far as could be ascertained, only seven patients were relieved. In the remainder the results were questionable, or satisfactory reports were not obtainable. Colostomy was performed in fifteen cases, and ileostomy in twelve. I believe there is a great deal to be said in behalf of these two operations, especially the former. It is very difficult to convince patients that it is best for them to live the remainder of their lives with the contents of the intestine emptying through the anterior abdominal wall; but, when the matter is put before them in the proper light, they accept the situation more often than would be expected. Without the colostomy, they have pain and difficulty in defecation. Many patients are obliged to wear pads; they are thin, sallow, sick, and have little to live for. One patient, herein described, on whom a colostomy was

9. Quoted by Hartmann (Footnote 4).

performed, returned recently for reexamination. The rectum was practically closed because he had not carried out instructions to keep the dilator inserted for a few moments each day, but he had gained 30 pounds (13.6 kg.), and was actively engaged in the pursuit of his work. He found no trouble in caring for the

TABLE 1.—*Symptoms and Area Involved*

	Cases
Constipation	157
Constipation and diarrhea	20
Diarrhea	94
Actual obstruction	45
Blood in the stools	184
Pain on defecation	168
Pus in the stools	158
Stool deformity	35 *
Lowest 2 inches	29
From 2 to 3 inches	98
From 3 to 4 inches	42 †
From 4 to 5 inches	26 ‡
From 5 to 6 inches	8
From 6 to 7 inches	8
All of the rectum	42
Sigmoid and rectum	5

* 13.6 per cent.
† Lowest 4 inches.
‡ 216 (84 per cent.).

abdominal opening, by irrigating twice a day and wearing an abdominal binder and gauze. The picture of this man who is happy, strong and useful, one year after colostomy, is in striking contrast to the man who is constantly suffering and spending his time and his fortune seeking relief.

Proctotomy was performed in ten cases. Three patients were cured; three had questionable results; two were improved and found it necessary to use dilators constantly afterward, and the other two remained the same. When resections were possible the results were more gratifying. Three Mayo-Kraske operations were performed and the strictures were cured. The stricture was excised in two cases; one patient improved and the other remained about the same. One complete cure followed a Mikulicz operation.

Medical treatment was advised in 149 cases. This consisted usually of systematic dilations with Wales bougies; remedies for syphilis were almost always

TABLE 2.—*Age and Duration of Symptoms*

	Cases
Less than 20 years	8
From 20 to 30 years	38 *
From 30 to 40 years	86 †
From 40 to 50 years	62
From 50 to 60 years	40
From 60 to 70 years	20
More than 70 years	4
250 (96.7 per cent.) more than 20 years	
Less than 1 year	43
From 1 to 2 years	22
From 2 to 5 years	54 ‡
From 5 to 10 years	76 ‡
More than 10 years	41
Questionable	22

* 30 to 50 years.
† 148 (56.3 per cent.).
‡ More than 2 years.
‡ 171 (63.3 per cent.).

added to the routine. The universal tendency to syphilitic therapy, in these cases, in spite of the fact that the histories, Wassermann reactions, provocative tests, neurologic examinations, and other diagnostic means do not bear evidence, is the best proof of the attitude of the profession toward the etiology of the condition.

Whenever possible, the stricture should be treated first by simple dilation. The cases should be selected very carefully. If the lesion is above the peritoneal reflection, or if it is very extensive, more drastic means must be used. But if the stricture is low and not too extensive, treatment by dilation is preferable before resorting to the more dangerous methods, and often brings about gratifying results. If the stricture is thoroughly dilated, if the proper after-treatment is carried out by inserting bougies regularly through the proctoscope, and if hot water irrigations and antiseptics are applied locally, healing will often be properly established and the recontraction which would ordinarily have occurred is avoided. The patient should have a proctoscopic examination at certain periods in order to be sure that there is no contraction and to keep the constricted canal free from ulceration. Ultimately the patient should be allowed to go home with a Wales bougie of suitable size to be used at regular intervals, to preserve the diameter of the bowel lumen. He should carry out a two-way irrigation through two catheters inserted into the rectum side by side. He may lie in a bath tub with the enema bag suspended from the wall. If a cleansing enema is taken first, clogging of the outflow is prevented. The water should be very warm, even as high as 120 F. Medication may be added to

TABLE 3.—*Clinical Findings*

	Cases
Positive history of syphilis	25
Questionable history of syphilis	13
Positive Wassermann reaction	18
Syphilis of the central nervous system	2
	58
Positive Wassermann reaction and positive history in same patient	3
Evidence of having syphilis or of having had it	55

Of twenty-five patients with positive histories, twelve had rectal operations and four others had operations for extensive pelvic inflammatory disease.
Of thirteen patients with questionable histories, seven had rectal operations.
Of eighteen patients with positive Wassermann reactions, eight had rectal operations and one had active endamebiasis. Total, 32.

the water, if desired. The canal should be irrigated for one hour each morning and afternoon. If such treatment cannot be carried out, as a result of the extent of the stricture, a resection should be considered. If there is doubt concerning such procedure, a colostomy should be performed, and, if possible, the stricture removed later. If it is found that resection is not possible, then the colostomy should remain permanently, or until the bowel lumen can be sufficiently restored by treatment to permit reconnecting the segments.

Certainly the greatest opportunity for healing the ulceration is offered after a colostomy, because not only is the fecal current diverted, but the bowel may be irrigated from above. The efficiency of this treatment has been demonstrated in cases of severe ulcerative colitis. When everything else has failed, the bowel being full of ulceration and the patient going down hill rapidly, an ileostomy has been made and a tube inserted into the lower segment at the time of operation. The next day a constant irrigation of water at 120 F. has been started at a rate about four times as fast as a rectal drip; the results have been astonishing. All the griping and tenesmus clear up within a few hours, and very soon the patient begins to improve. In cases of stricture with ulceration, this mode of therapy offers the best chance of a restorative operation.

CONCLUSIONS

1. The tendency of the profession to regard benign rectal strictures as syphilis seems unwarranted. The usual method of treating such strictures with a form of empiric syphilitic regimen seldom, if ever, produces beneficial results.

2. Most treatments are unproductive of complete cure, and the treatment that leaves the patient in the most comfortable condition should be used. Many such patients are doomed, at best, to lives of some discomfort, and it is their privilege to aid in deciding which of the various after-conditions are preferable.

3. Resection, when possible, is a most desirable procedure, but the operation is technically difficult and the risk high.

TABLE 4.—*Trauma*

	Cases
Histories of rectal operations	148 *
Hemorrhoid operations	63
Rectovaginal fistula operations	10
Recto-urethral fistula operations	2
Pelvic inflammations	10
Imperforate anus	2
Radium	3
Scalding rectal drip	2
Endameba histolytica associated	10
Multiple strictures	4
Prolonged labor	4

* 47.7 per cent.

4. Colostomy is the most dependable form of treatment in the severe cases; and, in combination with through and through irrigation, local medication through the proctoscope, and dilation, offers the best prospect for a later restorative operation. Most assuredly it places patients in a better state of physical and mental comfort, and enables them to become useful, not only to themselves, but to others.

5. From the standpoint of etiology, trauma and infection stand out prominently. Trauma from rectal operations or manipulations, and pile remedies of the "painless" type are factors in an astonishing number of cases.

6. A patient should not be condemned as syphilitic just because he happens to have a stricture of the rectum.

ABSTRACT OF DISCUSSION

DR. J. EARL ELSE, Portland, Ore.: There is no question that colostomy is sometimes indicated. But we know from a study of the patients who have had colostomies that it is impossible to prevent a certain amount of leakage, and that this leakage has an unpleasant odor. Even with the greatest of care, gas will escape at times. Ileostomy performs practically the same function and does not have this disadvantage. I did an ileostomy in a case of obstinate ulcerative colitis for the purpose of irrigating the colon, and, up to the present, the patient has refused to have the ileostomy closed, because I cannot guarantee that she may not have a recurrence of the ulcerative colitis. She states that she would rather have the ileostomy than run the risk of the return of her former condition. She has no odor about her. She is comfortable. This is true of nearly all of the patients on whom I have done an ileostomy. I want to make an appeal for ileostomy in place of colostomy in many of these cases. The patients get along just as well and are much more comfortable.

DR. HARRY P. RITCHIE, St. Paul: In cases of stricture of the rectum high up, the only thing indicated is a permanent colostomy. In one case of low lying stricture I tried to dissect out the scar tissue and approximate the mucous membrane. This was fairly successful, and the patient was much relieved. I have had five cases of stricture of the anus. These were all within the grasp of the sphincter and had a piano string feel, causing almost complete occlusion of the rectum. This piano string is very easily taken care of by doing a plastic operation, cutting the string in one place, and dilating the sphincter. The raw surface becomes very much enlarged, and triangular, with an apex high up. A pedicle flap is then cut from the buttock. This flap must, of course, be cut round, but it can easily be fitted to the apex because of the mobility of the mucous membrane. I have done this successfully in five cases. Multiple incisions heal because the muscle is only occasionally dilated. But a single incision, with wide interposition of tissue, prevents mucous membrane contact for the width of the flap, although the muscle is contracted. In all cases it is wise to advise postoperative routine delation treatment.

DR. J. F. MONTAGUE, New York: I believe I can supply some evidence in support of Dr. Buie's statement that the treatment by injection that he speaks of is often followed by tremendous fibrosis. I have made many sections of the tissues of the rectum and anus in connection with some research I am doing on pruritus ani. Some of these patients had received various injection treatments for the relief of the pruritus, and sections in these cases showed a tremendous fibrosis of the tissues injected. The sclerosis of this fibrous connective tissue could very well produce a stricture such as Dr. Buie described.

DR. RALPH W. JACKSON, Fall River, Mass.: Stricture of the rectum, whether syphilitic or inflammatory, is a difficult problem. Dr. E. J. Clemons of Los Angeles discovered that cases of nonmalignant strictures that can be reached through the anus can be treated effectively by chilling with carbon dioxid snow. It is packed into a rubber finger cot, to the base of which is attached a soft rubber catheter to allow escape of gas from the melting snow. Over the catheter is passed a rubber hose pipe till it impinges on the shoulder of the cot containing the snow. Thus the cot and its contents can be pushed into the lumen of the stricture, and the indurated tissue softens and remains soft. Long cylindric strictures may require several treatments. The snow in no way comes in contact with the tissues. Dr. Clemons offers no explanation of how the results are accomplished, but we saw the results.

DR. L. A. BUIE, Rochester, Minn.: I have a suggestion to offer in the handling of cases with colostomy. If the patient irrigates the bowel through the colostomy opening every morning and every evening, it will often be unnecessary to use the colostomy bag, and some patients can get along with just a single abdominal binder. I have found that colostomy and irrigation are better than ileostomy. In cases of ulcerative colitis in which a modified Brown operation has been done, the liquid character of the contents of the ileum makes it very hard to keep the field clean. In doing a colostomy in a case of stricture, we can usually make the opening in the sigmoid. It is a very good idea to have the opening at that point, because we can insert a tube through the abdominal opening and irrigate through the stricture. This will hasten the healing of the ulceration associated with the strictures, which is always one of the hardest things to control, and possibly permit an earlier restorative operation. I am very glad that Dr. Jackson mentioned Dr. Clemons' treatment. It is quite an advance, and I hope to try it.

India's Health Problem.—Out of forty million people living in Madras Presidency alone, it is estimated that more than thirty-six million are infected with hookworm disease. A widespread campaign of popular education is under way, and hospitals are incidentally giving treatment for the disease to all patients as a routine measure. A convincing experiment was undertaken among 298 students of the Madras Medical College who were skeptical of the prevalence of the disease, but were willing to be examined. Two hundred and forty-one were found infected; and it is safe to assume that as many qualified doctors, with improved health, will advocate hookworm control in those districts in which they undertake private practice.—Report of International Health Board of the Rockefeller Foundation, 1922.

THE INFLUENCE OF THE LIVER ON PHENOLSULPHONEPHTHALEIN EXCRETION *

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The frequent occurrence of low phenolsulphonephthalein excretion in certain persons without suspicion or evidence of renal disease must have attracted the attention of many observers. In our clinic, while studying the excretion of creatinin in health and in disease, a low excretion of phenolsulphonephthalein has been rather frequently observed in patients who excreted creatinin in a normal fashion, whose blood on chemical analysis and whose blood pressure were normal, and whose urine contained no albumin, sugar, casts or other evidence of renal impairment. Further tests in these normal controls showed, at times, a normal excretion of phenolsulphonephthalein, at other times, a marked diminution.[1]

TABLE 1.—*Results Following Injection of Phenolsulphonephthalein by Four Different Methods: Phenolsulphonephthalein Excretion at End of Two Hours*

Rabbit	Intravenous Injection Percentage	Subcutaneous Injection Percentage	Pleural Injection Percentage	Intrahepatic Injection Percentage	Kidneys
1	55	45	50	17.5	Normal
2	60	60	48	17	Normal
3	43	60	70	15	Normal
4	60	42	30	20	Normal
5	80	55	52	20	Normal
6	60	45	..	10	Normal
7	45	65	..	7.5	Normal
8	60	50	..	2.5	Normal
9	45	55	60	2	Normal
10	60	65	60	5	Normal
11	55	65	80	5	Normal
12	60	65	80	5	Normal
Average	59	56	75	10.5	

The low values in phenolsulphonephthalein excretion were seen more often following intravenous injection, but were also noted at times after intramuscular injections. Six normal persons, showing a two-hour urinary excretion of from 35 to 40 per cent., showed three and four days later an excretion of from 75 to 80 per cent., following intravenous injection.

Macht [2] has shown that the excretion of phenolsulphonephthalein may be markedly diminished following purgation with magnesium sulphate and with sodium sulphate. This interesting observation indicates an important source of error in interpreting the results of phenolsulphonephthalein excretion in patients who have received such medication.

In our patients and controls, however, this source of error was excluded, since none of them received saline purgatives, and the normal controls received no medication whatever. This led us to believe that at times there must be other important factors that can profoundly influence the rate of phenolsulphonephthalein excretion, factors that should be kept in mind when drawing conclusions in regard to kidney function.

Several years ago, Kendall [3] called attention to the marked affinity of liver tissue for phenolsulphonephthalein, and stated that when liver tissue and phenolsulphonephthalein were mixed together outside the body, the dyestuff was rapidly destroyed. Later, Braasch and Kendall [4] stated that "the destruction of phenolsulphonephthalein within the tissues not properly oxygenated is rapid and complete." Marshall and Vickers,[5] who have recently investigated the excretion of phenolsulphonephthalein, while emphasizing the marked affinity of the renal tissue for the dye, show also that the liver may take it up. From their experiments they conclude that the liver tissue does not destroy the dye, but holds it in some sort of combination from which it can be later released.

All of these observations indicate the necessity of further study of the affinity of certain tissues for this dye, which has such a widespread use in the study of renal function. As a further contribution to the study of this subject, a series of experiments has been carried out to investigate the possible rôle of the liver in influencing the rate of phenolsulphonephthalein excretion.

In the first series of experiments, twelve rabbits were used. In these animals the dye was first injected intravenously, then subcutaneously, then into the pleural cavity and, lastly, directly into the liver itself by means of a long, slender needle (26 gage) inserted just under the costal margin with the tip directed toward the diaphragm. One cubic centimeter of phenolsulphonephthalein was injected, and the urine was collected by a catheter at the end of two hours. The phenolsulphonephthalein determinations were made with a Dunning or Duboscq colorimeter, and each set of experiments was carried out under identical conditions. At the conclusion of the experiment, the animals were killed, the liver was examined for evidence of puncture, and the kidneys were studied grossly and microscopically for evidences of renal lesions.

A summary of Table 1 shows that while the average two-hour excretion is approximately the same when the dye is injected intravenously, subcutaneously or into the pleural cavity, the excretion after direct injection into the liver is much decreased, the average being only 15 per cent. of that observed following the other methods. Greater individual variations were observed in some instances, one animal (Rabbit 8) excreting twenty-four times as much after intravenous injection as it excreted following intrahepatic injection, and another animal (Rabbit 9) excreting twenty-two times as much when injected intravenously as when injected directly into the liver.

TABLE 2.—*Phenolsulphonephthalein Excretion Following Intrahepatic Injections*

Animal	2 Hours Percentage	24 Hours Percentage	48 Hours
1	17	5	None
2	15	7	None
3	5	Trace	None
4	5	None	None

Attempts at injecting the liver directly were not always successful, but such failures were always evident by an adequate excretion of phenolsulphonephthalein. One rabbit, in which an attempt was made to

* From the Department of Internal Medicine, University of Kansas School of Medicine.

1. Major, R. H.: The Use of Creatinin as a Test of Renal Function, J. A. M. A. **80**: 384 (Feb. 10) 1923.

2. Macht, D. I.: Concerning the Effect of Saline Purgatives on the Absorption and Excretion of Phenolsulphonephthalein, J. Urol. **7**: 271 (April) 1922.

3. Kendall, E. C.: The Fate of Phenolsulphonephthalein When Injected into the Animal Organism, J. A. M. A. **68**: 343 (Feb. 3) 1917.

4. Braasch, W. F., and Kendall, E. C.: Clinical Investigation of the Phenolsulphonephthalein Test, J. Urol. **5**: 127 (Feb.) 1921.

5. Marshall, E. K., Jr., and Vickers, J. L.: The Mechanism of the Elimination of Phenolsulphonephthalein by the Kidney, Bull. Johns Hopkins Hosp. **34**: 1 (Jan.) 1923

inject the liver, showed a two-hour excretion of 80 per cent. Necropsy showed that the needle had missed the liver entirely and had passed into the abdominal cavity. Another animal, presenting a two-hour excretion of 35 per cent., showed at necropsy that the liver had been torn, allowing the dye to escape into the abdominal cavity, from which it had been absorbed.

In order to determine whether the phenolsulphonephthalein when injected directly into the liver was destroyed or its excretion simply delayed, four animals were given intrahepatic injections, and the urine collected at the end of two hours, at the end of twenty-four hours and at the end of forty-eight hours. The results are shown in Table 2, and indicate that most of the dyestuff is destroyed.

TABLE 3.—*Phenolsulphonephthalein Excretion at End of Two Hours: Five Animals Injected Directly Into Portal Vein; Five Animals Injected Directly Into Inferior Vena Cava*

Injection into portal vein, percentage.....	25	15	20	25	0
Injection into inferior vena cava, percentage.....	70	70	60	70	70

In a second series of experiments, the animal was etherized lightly, the abdomen opened and the dyestuff injected directly into the portal vein. Certain difficulties were frequently encountered in carrying out these injections, the greatest source of error being produced by hemorrhage from the portal vein, permitting escape of the dyestuff into the peritoneal cavity, from which the phenolsulphonephthalein is readily absorbed. Five satisfactory experiments were carried out, however, and, as controls in five animals the dye was injected directly into the inferior vena cava under identical conditions. The results are shown in Table 3.

A summary of the results obtained in this series of experiments shows that injection of the dyestuff directly into the portal vein, which allows it to pass through the liver, is followed by a low urinary phenolsulphonephthalein excretion, and in one instance none was recovered from the urine. In the control animals, however, direct injection into the vena cava was followed by a very high phenolsulphonephthalein excretion.

COMMENT

The marked affinity of renal tissue for phenolsulphonephthalein is well shown by numerous clinical observations, and emphasized particularly by the observations of Marshall and Vickers.[5] Our experiments emphasize that liver tissue also possesses a marked affinity for this dyestuff. In the majority of patients, the dyestuff, when injected subcutaneously or intravenously, probably passes largely through the kidneys, which take it from the circulating blood and excrete it in the urine. Our experiments suggest, however, that if any considerable portion of the dyestuff in the blood stream passes through the liver, this organ may take it from the blood, and either hold it for several hours or destroy it. Such a process may explain the marked diminution in the phenolsulphonephthalein excretion noted in persons with no evidence of renal disease.

Birth Control.—The trouble with birth control is that it is practiced least where it should be practiced most.—Holmes: Studies in Evolution and Eugenics, New York, 1923.

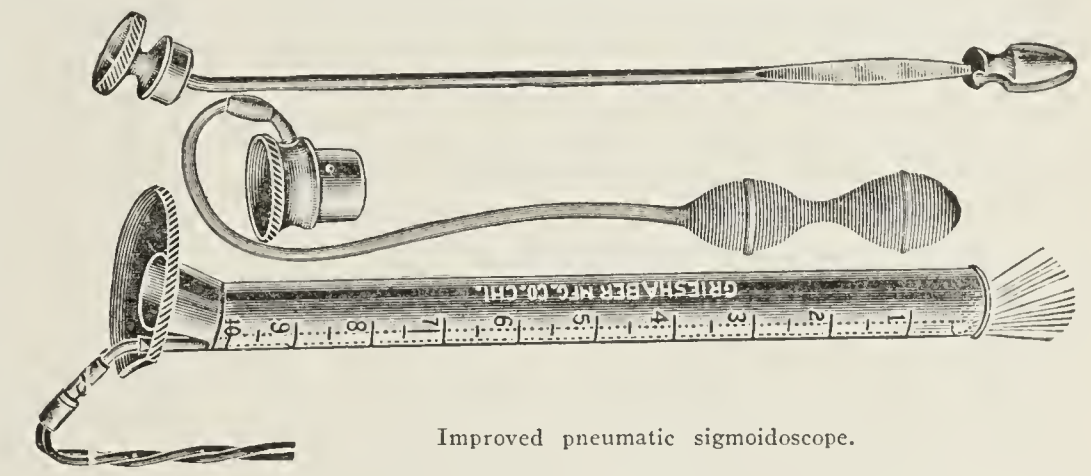
Clinical Notes, Suggestions, and New Instruments

AN IMPROVED PNEUMATIC SIGMOIDOSCOPE

J. RAWSON PENNINGTON, M.D., CHICAGO

This instrument is composed of two tubes—principal and auxiliary. It is made in three lengths, 8, 10 and 14 inches to the angle, and is ¾ and ⅝ inches in diameter. The proximal end of the principal tube is bent at an angle of about 22 degrees to permit the auxiliary tube, which contains the light carrier, to emerge from it independent of the window or obturator. This bending of the principal tube does not interfere with the perspective, yet permits the lamp to be carried through the auxiliary tube, and along the inside of the sigmoidoscope to its distal end, while either the obturator or the window is in position. It is made air tight by means of a ground plug which contains a glass window, and a tube to which may be attached an inflating bulb for distending the intestine with air. The instrument has the standard scale impressed on it.

To protect the mucous membrane, the distal end of the sigmoidoscope is flanged; the proximal end also contains a flange or ring 2¼ inches in diameter. The distal end of the auxiliary tube is left open; hence, the light rays from the lamp, which can be lighted from a dry cell battery or the electric light current controlled by a rheostat, are unobstructed.



Improved pneumatic sigmoidoscope.

The light carrier fits air tight, by a true taper socket, into the proximal end of the auxiliary tube.

The instrument is more easily introduced and manipulated, far less painful or disagreeable, less likely to get out of order, much more efficient and better illuminates the field for inspection than any other of which I have knowledge. It is made by the Grieshaber Manufacturing Company, Chicago.

31 North State Street.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

ANTIDYSENTERIC SERUM (See New and Nonofficial Remedies, 1923, p. 287).

Parke, Davis & Co., Detroit.

Antidysenteric Serum.—From horses immunized against several strains of Shiga and Flexner types of dysentery bacilli. Marketed in packages of one syringe (*Bio. 120*) containing 10 Cc.; in packages of one vial (*Bio. 121*) containing 10 Cc.; in packages of one vial (*Bio. 122*) containing 20 Cc.

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SATURDAY, OCTOBER 20, 1923

TEMPORAL VARIATIONS IN CEREBRAL LOCALIZATION

Medical students have been taught for some time that the cerebral centers which originate voluntary motor impulses are located in the ascending frontal convolution immediately in front of the precentral fissure, a center being distinguishable for each muscular grouping of the body. The importance of this doctrine is exemplified in the modern surgical treatment of many cases of jacksonian epilepsy. By trephining the skull over the affected center and removing the source of irritation there, such as a meningeal tumor or a spicule of bone, some phenomenal cures have been instituted, attesting the great significance of the doctrine of cerebral localization of motor function in practice. More recently, however, physiologists have begun to question somewhat the validity of the experimental evidence commonly adduced in this connection. There were reports that the responses elicited from a given cortical center were not always the same; thus, if a point giving a certain response was stimulated immediately after a previous stimulation, the result in respect to motor response was sometimes altered. In other instances observed by competent experimenters, successive stimulations of a cortical point resulted in dissimilar movements, after intervening stimulation of other areas. Some of these "deviations of response" involved changes as great as that from finger to shoulder movements and even overlapping of the face and arm areas.

Thus there has arisen some tendency to discredit anatomic localization of the motor function centers in the brain. Summarizing the situation, Lashley [1] of the University of Minnesota has pointed out that possibly each cortical point is capable of calling out a primary reaction which is relatively stable, although capable of temporary modification: it is possible that the reaction elicited from each motor point is wholly dependent on previous conditions of stimulation, and that apparent anatomic localization within the motor area arises only through the relative constancy of dynamic conditions within the time limits of the experiment; or the truth may lie somewhere between these extremes, in a gross anatomic localization within which the finer movements are determined by transient physiologic conditions.

In Lashley's own recent observations of the effects of electrical stimulation in the region of the precentral gyrus of the monkey, in each test the reactions were almost constant, subject to slight deviations resulting from the order of stimulation. In the different tests, the general fields from which movements of the face, arm and leg segments were elicited tended to remain constant, although the borders of the field were inconstant. Within the arm area, stimulation of the same point in different tests resulted in widely different movements, and at different times the same movement was obtained from widely separated and shifting areas. The results suggest that within the segmental areas the various parts of the cortex may be equipotential for the production of all the movements of that area, and that the particular movements elicited in any test depend on the temporary physiologic organization of the area rather than on any point-for-point correspondence between pyramidal and spinal cells. It cannot be denied, however, that there is some morphologic basis for the differentiation of function in the larger segmental divisions of the gyrus.

1. Lashley, K. S.: Temporal Variation in the Function of the Gyrus Precentralis in Primates, Am. J. Physiol. **65**: 585 (Aug.) 1923.

NAVY DAY

Last year the Navy League, a civilian organization created for the purpose of promoting interest in the Navy, chose October 27, the birthday of Theodore Roosevelt, as Navy Day. Suitable ceremonies ashore and afloat will be held on this day in order to effect a better understanding of the Navy. All ships, navy yards and naval hospitals will keep open house so that citizens may familiarize themselves with the work.

During the war, when the Navy transported 2,079,880 men to Europe without the loss of a single man by enemy submarines or other vessels, there were 1,720 reserve medical officers in the Navy, 1,630 of whom have since returned to civil life. The services rendered by these officers were of untold benefit to the country. The naval medical officer must possess a good working knowledge of general medicine and surgery, but he has ample opportunity to take up the study and practice of one of the specialties. His vocation, however, is a special field of medical work. In naval practice the physician is confronted by problems peculiar to the Navy. The Navy consists of its ships, its navy yards for the building, repair and upkeep of these ships, its naval training stations for the training of recruits, and its naval hospitals for the treatment of the sick. The modern battleship, with its complement of more than a thousand men, is a compact community in which the medical officer is concerned with questions of food and

water supply, sewage and garbage disposal, the lighting of passageways, living quarters and workshops, heating and ventilation, the protection of the crew from communicable diseases, the maintenance of the general health of the men, and the care of the sick. To be successful, the medical officer must keep himself thoroughly informed of the advances made in medical science and in sanitation; he must be familiar with the latest information relative to the cause and prevention of disease; the modern means of lighting and ventilation, and special treatment of special diseases; he must have a knowledge of modern gas warfare, aviation medicine, and the special hygienic factors that pertain to the submarine and to deep-sea diving. The competent naval medical officer must be ready at any time to undertake to the best of his ability the solution of any problem that he may encounter in his official capacity. The wide range in the character of the work in this special field of medical activity, and the responsibilities entailed, call for high professional standards and ready adaptability. Sea duty is diversified. The newly appointed medical officer may be ordered to duty as the only medical officer of a small naval vessel, which may take him to interesting parts of the world—to the Mediterranean, the West Indies, Central America or China. As the battleship is designed primarily for battle, the medical officer is concerned in the preparations for battle. For this purpose the ship is equipped with certain battle dressing stations behind armor, and supplied with the necessary appliances to care for the wounded during an engagement. Definite plans are made for the conduct of the medical department of the ship during battle. The medical officer has on board ship to assist him a detachment of the Hospital Corps of the Navy. He is responsible for the instruction of its members and consequently is interested in their advancement to higher ratings.

If the young medical officer has special qualifications, he may be ordered to duty on one of the hospital ships, of which at present the Navy has four, the *Relief,* the *Mercy,* the *Comfort* and the *Solace.* These vessels are complete floating hospitals with all the conveniences and equipment found in any modern hospital on shore. They carry a full staff of medical officers, most of whom are specialists in various branches of medicine. To the hospital ship are sent the sick of the fleet—those who are critically ill, those whose ailments will require a long time to cure, such surgical cases as demand special operative treatment, all wounded from engagements on board ship, or the wounded from shore expeditions. The hospital ships are ordered from place to place to meet the demands for their services in connection with the employment of naval forces.

In connection with Navy Day, it is of interest to note that the Navy Department now is preparing a bill to present to Congress giving exactly the same promotion, at exactly the same time, to medical officers as is given to line officers. If this bill is adopted, a medical officer entering the Navy will advance through the various ranks into the rank of rear admiral with the lieutenant of the line with whom he takes rank on being commissioned. Thus, equal promotion with one's contemporatries would be guaranteed.

CLIMATE AND BUBONIC PLAGUE

About ten years ago, the spread of bubonic plague completed the encircling of the globe when the disease appeared for the first time in one of the southern cities of the United States. Although plague has been observed in frigid and temperate climates, it has long been recognized that it flourishes best in moderately warm, dry weather, such as is found in the tropics and subtropics from the end of winter to the rainy season, or usually from January to June. The seasonal periodicity is not absolutely constant, yet it has been noticeably frequent. Elevation per se seems to be of no importance, as the disease has been reported at both sea level and at high altitudes.

According to current opinion, the plague is largely communicated by means of fleas that have become infected by living on human beings or on rats. Hence it may be said that the three factors man, rat and flea must be considered together in any epidemiologic study of the disease. An officer[1] of the United States Public Health Service, who has made a study of the accumulated records of the past quarter century, points out that during this term of years bubonic plague has spread alike to countries that endeavored to prevent its entrance and to those that made no such efforts. He states also that the disease has failed to spread to colder countries that made no effort to prevent its entrance, as well as to those which, like our own North Atlantic seacoast, have made strenuous effort to prevent its ingress.

The epidemiologic fact that bubonic plague never has extended in a threatening way to countries where the climate is cold or relatively cold challenges notice. Robertson has called attention to the fact that, whereas man and the rat do not hibernate in any climate, the adult flea rarely passes alive through the cold of winter. The species, he states, is prevented from dying out in cold countries by the ability of the immature forms to exist for periods that may range to more than a year. These long pupal stages are seen only in cool or cold weather. Robertson maintains that bubonic plague is essentially a disease of hot climates, and, having been introduced into tropical countries, it tends to persist indefinitely. In countries with a mean midwinter temperature of 45 F. or below, the disease is occasional, accidental and distinctly self-limited, and it seems possible for it to occur in the colder regions only for short periods under unusual conditions. In view

1. Robertson, H. M.: A Possible Explanation of the Absence of Bubonic Plague in Cold Countries, Pub. Health Rep. **38**: 1519 (July 6) 1923.

of all these circumstances, Robertson has concluded that the seasonal prevalence of fleas regulates the spread of bubonic plague; otherwise it becomes necessary to find at least some equally reasonable explanation for the absence of bubonic plague in cold countries. We are warned, however, that, interesting as this speculation may be, when one considers the long past history of the disease, the period of observation on which Robertson's statistical inquiry is based is probably far too short to justify final conclusions.

SLEEP

What is sleep? Any one who attempts to secure an answer from treatises on physiology is likely to find the information unsatisfactory. The problem has for the most part been relegated to the psychologists. Pawlow [1] has remarked that when the physiologist leaves the study of the simpler parts of the central nervous system, which he has investigated by observation of reflexes, and proceeds to the higher parts, especially the cerebral cortex, his methods suddenly change; he tends to introduce psychologic ideas derived from his own consciousness. The consequence seems to have been a paucity of knowledge respecting the cause of sleep, a subject to which Kleitman [2] has lately called attention. Probably the most popular explanation of the mechanism of falling asleep has assumed an anemia of the brain due to fatigue of the vasomotor center at the end of the day's activities. Innumerable schemes to "draw away blood" from the brain so as to create a cerebral anemia supposedly favorable to sleep are familiar to every physician. Who, indeed, has not now and then attempted to apply the idea in advice to a patient complaining of insomnia? It will be a disappointment to many, therefore, to learn that, contrary to Mosso's assertion, there is probably a plethora rather than a deficit of blood in the brain during sleep. As for the vasomotor center, furthermore, in Kleitman's observations at the physiologic laboratory of the University of Chicago it was impossible to detect any loss of tone of the vasomotor center even after 115 hours of wakefulness, or seven times the normal sixteen-hour period. The low blood pressure obtained during the insomnia periods was partly due to a slowed heart, and both the slowed heart and low blood pressure were due to muscular relaxation in the lying position, and were absent when the subject was seated.

Another favorite theory of the genesis of sleep involves the alleged "autointoxication with the products of wakefulness." Chemical compounds supposedly arising as the result of fatigue, fatigue toxins, have lost their popularity of late as sponsors for bodily changes. Kleitman found that a large variety of measurable factors—blood sugar, alkali reserve of the blood and plasma, percentage of hemoglobin, percentage of corpuscles, red and white blood cell count, body weight, basal metabolic rate, appetite, temperature, ability to name letters and to do mental arithmetic—showed no variations from normal during the period of sleeplessness. There is no evidence of an intoxication. Furthermore, while it is true that fatigue will accelerate the onset of sleep, a person can fall asleep when not fatigued at all, and idlers have no difficulty in falling asleep at the usual hour, or at any hour.

The onset of sleep is probably due to complete muscular relaxation, voluntary or involuntary. We have failed, heretofore, to realize the extent to which the impulses pouring into the brain come from the muscles, tendons and joints, proprioceptive impulses as they are often termed, in addition to the visual, auditory and tactile sensations that usually play on the sensorium. Kleitman concludes that when a person lies down the visual sensations soon become monotonous, and muscular relaxation, removing the greater part of the proprioceptive impulses, precipitates what we call sleep.

1. Pawlow, I. P.: Naturwissenschaft und Gehirn, Ergebn. d. Physiol. **11**: 345, 1911.
2. Kleitman, N.: Studies on the Physiology of Sleep, I, The Effects of Prolonged Sleeplessness on Man, Am. J. Physiol. **66**: 67 (Sept.) 1923.

Current Comment

THE WORLD'S DAIRY CONGRESS

The month of October has witnessed the convocation of the World's Dairy Congress in this country, with a series of sessions attended by delegates and visitors from far and wide. One object of this organization, in which the United States has taken the initiative, and which was authorized by Act of Congress, has been to bring together the forward-looking leaders who are shaping the trend of the dairy industry. To the medical profession the meeting of such a group has not a little significance and interest, because the purposes of the dairy congress include consideration of the influence of a wise use of milk and its products on national health, and the vital importance of the part which they play in human physical and mental development. Thus, one of the public conferences, at the sessions in Syracuse, included a symposium on the nutritive value of milk and enlisted the cooperation of numerous investigators and clinicians of note in the science of nutrition and its practical applications. Another group discussed the methods of improving and protecting the milk supply; others considered the chemistry and bacteriology of milk, and the problems of transportation and marketing. These examples are sufficient to indicate the truly broad scope of the congress and to demonstrate that the purely commercial aspects of the dairy industry by no means overshadowed the scientific and educational problems. Great Britain and her dependencies, Scandinavia and central Europe, South America and Central America, Japan and China were represented in the proceedings. The importance of milk can scarcely be overemphasized. There is probably no other food so vital to our national health and efficiency. The lesson

of the universal shortage of milk all over Europe owing to the depletion of dairy herds is still before us. It is a wholesome circumstance that the various aspects of the production, sanitation and distribution of milk and its varied products should be the subject of conferences that bear testimony to the dignity of the subject.

SPIRITUAL HEALING

Australia has been undergoing one of those periodic visitations of religious healing which from time to time sweep over the world like epidemics. A healing mission was established and attracted large numbers of enthusiastic believers. In this connection the editor of the *Health Forum*, the official organ of the Public Health Association of Australia, calls attention to a usual feature of such work: the lack of interest shown by the leaders of the religious mission in the question of the prevention of disease. The literature issued by the mission lays stress on the idea that disease is opposed to the divine order of things, yet no attention is paid to prevention and elimination, all of the stress being placed on the healing of disease after it has occurred. Patients with open tuberculous disease attended the mission to be relieved of their subjective symptoms, but were permitted to proceed about their daily lives, spreading infection without regard for others. It is unfortunate that the same passion and energy that are shown in promoting such ventures cannot be applied to legitimate, scientific methods for disease control. Diseases that are dependent on community control can be eliminated only by a united community spirit. The *Health Forum* wisely indicates that the creation of such a spirit does not depend entirely on the medical profession and will not be achieved until teaching by non-medical organizations is directed toward prevention rather than mere healing.

THE MANUFACTURE OF SERUMS AND VACCINES

Trade Information Bulletin 149, just issued by the Chemical Division of the Bureau of Foreign and Domestic Commerce, presents a short survey of world markets for medicinal and pharmaceutic preparations, antitoxins and vaccines. According to the bulletin, Canada takes more of our serums, antitoxins and vaccines than any other country. In Norway and Sweden the market is showing an improved tone, but Germany is still obtaining the largest share of the Scandinavian business. The Danish government manufactures the vaccine used for animals, and furnishes it at cost of production. Consequently, American vaccines find no market there. American exporters have been able to sell medicinals to Holland in spite of the proximity of that country to European centers of production. It is our third largest European market. The United States does not supply any animal vaccine to Belgium. It is obtained from French or German laboratories, and is supplied at the expense of the government. Medicines and drug solutions are in large demand in Great Britain, and American products, particularly of the shotgun or "patent medicine" type, occupy a prominent place in the market. Ireland receives about 40 per cent. of her "patent medicines" from the United States, and 50 per cent. from Great Britain. France is a relatively small purchaser of our preparations, owing to the fact that that country meets its requirements from domestic manufacture. Germany, of course, is a poor market for American medicinals owing to the preeminent position of German chemistry in Europe. Small amounts of serums and vaccines have been exported to Spain; Italy is largely supplied by Germany. Nearly 90 per cent. of the drugs imported into South Africa come from the United Kingdom, while about 6 per cent. come from the United States. In Latin America the United States is practically everywhere the principal source of supply.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Electric Chair Instead of Hanging.—The Inzer bill, which would abolish hangings at Kirby prison by June 1, 1924, and substitute the electric chair for executions, passed the house, September 21, by a vote of 53 to 10.

Hospital News.—The $86,000 recently appropriated by the state legislature for the home for mental inferiors in Alabama will be used by the new institution at Tusealoosa, of which Dr. William D. Partlow, Mount Vernon, superintendent of the Alabama Insane Hospital, has charge.

Bill Passed to Abolish Tuberculosis Commission.—Following charges of graft, extravaganee and inefficiency made by Senator De Waddell against the state tubereulosis eommission in the course of debate on the floor of the senate, September 28, a bill to repeal the act creating the commission passed by a vote of 18 to 11.

CONNECTICUT

Health Commissioner Resigns.—Dr. Joseph M. Klein, former commissioner of public health of New Britain, has gone to Los Angeles to reside.

Typhoid Epidemic.—Twelve cases of typhoid fever were admitted, October 4, to the Stamford Hospital from the Laurel Reservoir Camp. It is believed that the disease was spread by a carrier; the remaining 140 men working on the reservoir were inoculated with antityphoid vaccine.

DISTRICT OF COLUMBIA

New Laboratories for Freedmen's Hospital.—The contract was awarded, October 4, for the construction of a fireproof building to house the pathologic laboratories of Freedmen's Hospital, Washington. The building will cost $57,000 and contain a necropsy room that will seat 100 students, pathologic and bacteriologic laboratories and a roentgen-ray department.

Wapiya Elects.—At the annual meeting of the Wapiya (Medicine Men) in Washington, October 10, the following officers were elected: president, Dr. Everett M. Ellison; vice president, Dr. Oscar B. Hunter, and secretary-treasurer, Dr. Frank A. Hornaday. About 100 physicians and surgeons of Washington who are members of the University Club belong to the Wapiya.

GEORGIA

Physician Sentenced.—According to reports, Dr. W. S. Glenn of Columbia County was convicted in the supreme court the latter part of September for practicing without a license and sentenced to a term in jail.

State Board Examiners Appointed.—At the meeting of the state board of medical examiners, October 10, the following officers were elected: president, Dr. Jarrett W. Palmer, Ailey; vice president, Dr. Nichols Peterson, Tifton, and secretary-

treasurer, Dr. Charles T. Nolan, Marietta. Governor Walker appointed Dr. Burr T. Wise, Plains, a member of the board in place of Dr. Marcus F. Carson, Griffin.

Physician in Hall of Fame.—The Georgia assembly more than twenty years ago voted to place a statue of Dr. Crawford W. Long in the Hall of Fame, Washington, D. C., but little was done about it until Dr. Joseph Jacobs founded the Crawford W. Long Memorial Association early this year (The Journal, January 20, p. 188). The arrangements have now been completed; most of the $10,000 necessary has been contributed, and the remainder is assured. J. Massay Rhind, Brooklyn, has been retained as sculptor of the statue, which will be carved from Georgia marble. It is expected that the memorial will be ready for the formal unveiling at Washington by June, 1924.

ILLINOIS

Society Condemns "State Medicine."—The Adams County Medical Society, at its October meeting, unanimously adopted a resolution condemning state and federal activities in the field of medicine, except in the control of communicable diseases.

Chicago

Chicago Medical Society.—At the annual meeting of the Chicago Medical Society, October 10, Dr. Archibald Church was installed as president to succeed Dr. Hugh MacKechnie, who was presented with a diamond ring by the society. Dr. Jeremiah H. Walsh is president-elect for 1924.

Personal.—Dr. David J. Davis, University of Illinois, has been appointed consulting pathologist and bacteriologist to the newly reorganized St. Elizabeth Hospital, Chicago.——Drs. Willis O. Nance, Dean Lewis, Joseph L. Miller and Lawrence Ryan, Chicago, all former Kewanee men, furnished the program for the Tri-County (Henry, Knox and Warren) Medical Convention held in Kewanee, October 10.

The Cradle Society.—Dr. Henry Dwight Chapin, New York, gave an illustrated public lecture on "Improved Methods of Child Saving" at Evanston, October 7, before the Cradle Society, which aims to offer a home to new-born babies deprived of their birthright. Since the home was opened in the spring, at 2039 Ridge Avenue, Evanston, forty-two babies have been placed in homes.

Hospital News.—Construction work on the addition to Lakeside Hospital has been started. This structure will be erected at a cost of $500,000, and will have a capacity of 125 beds.——Additional ground has been purchased for the erection of a new building at the Home for Destitute Crippled Children.——The sixty-fifth anniversary of the Illinois Eye and Ear Infirmary was celebrated, October 12-13. Lectures and clinics by former interns and a home-coming banquet were features of the two-day program.

INDIANA

Tuberculosis Clinics Resumed.—The tuberculosis clinics conducted by the Tippecanoe County Tuberculosis Association have been resumed and will be held twice monthly in the future. The first clinic of the season was held at the Home Hospital, La Fayette, October 4.

Course of Clinical Lectures.—The twenty-fourth annual course of clinical lectures at the pathologic department of the Central Indiana Hospital for the Insane, Indianapolis, commenced, September 22, and will continue until Feb. 28, 1924. There are five courses: psychopathology, psychiatry and neurology, psychiatry, abnormal psychology and a course to practitioners and students of law.

IOWA

Personal.—Dr. Evan S. Evans has been appointed city physician of Grinnell to succeed Dr. Lewis A. Hopkins, who resigned.——Dr. Arthur C. Selmon, Columbus Junction, has sailed with a relief expedition to Japan on the Chinese ship *Shin Min-Abo*.——Dr. Oscar A. Dahms, former president of the Davenport school board, has resigned.——Dr. David S. Fairchild, Clinton, editor of the *Journal of the State Medical Society of Iowa*, has been named chairman of the national health examination movement in Iowa, which was originated by the National Health Council in cooperation with the U. S. Public Health Service.

MARYLAND

De Lamar Lectures.—Dr. Lindsay R. Williams, managing director of the National Tuberculosis Association, gave the first of the public lectures under the Joseph de Lamar series at the Johns Hopkins School of Hygiene and Public Health, October 8. His subject was "The Methods Employed in the Prevention of Tuberculosis and Their Results."

Personal.—Dr. Martin F. Sloan has been elected president of the Tuberculosis Association of Maryland, to succeed Dr. Henry Barton Jacobs, resigned.——Dr. John S. Fulton, commissioner of health for Maryland, Dr. Robert H. Riley, Dr. C. Hampson Jones, commissioner of health for Baltimore City, and Dr. John F. Hogan, of the bureau of communicable diseases, Baltimore City Health Department, were appointed delegates by Governor Ritchie to the convention of the American Public Health Association in Boston, October 8-11.——Dr. William H. Welch, director of the School of Hygiene and Public Health of Johns Hopkins University, has been given an honorary degree by Cambridge University and has been elected honorary member of the Royal Society of Medical and Natural Sciences at Brussels.——Dr. J. Molyneux Hamill, representative of the British government to the World Dairy Congress, held in Washington, D. C., the week of October 1, was recently in Baltimore as a guest of Dr. C. Hampson Jones, health commissioner, to study the method of protecting the milk supply.——Prof. Hans Driesch of the University of Leipzig gave a lecture on "Mind and Body" in the medical amphitheater of Johns Hopkins Hospital, October 16.——Dr. Lloyd H. Ziegler, former instructor in clinical psychiatry at George Washington Medical School, has accepted a position as medical house officer and assistant in psychiatry at the Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital.

MASSACHUSETTS

Ether Day.—The fiftieth anniversary of the founding of the training school for nurses of the Massachusetts General Hospital, Boston, was celebrated in connection with the seventy-seventh anniversary of Ether Day, October 15-16. Dr. Henry P. Walcott presided, and Dr. Winford Smith, director of Johns Hopkins Hospital, Baltimore, and Dr. Richard C. Cabot, professor of clinical medicine, Harvard Medical School, Boston, gave addresses.

Boston University School of Medicine.—At the opening exercises of the university, it was announced that Dr. Wesley T. Lee, professor of dermatology, will succeed the late Dr. Edward E. Allen as registrar of the medical school. Only seventy-two students from 300 could be accepted because of the limited facilities. Dr. Alexander S. Begg, the new dean, presided. President Lemuel H. Murlin, who has just returned from abroad, spoke to the students on the social function of a physician. For the first time in more than forty years, Dr. John P. Sutherland, dean emeritus, was not present at the opening of school. Other speakers were Dr. Joseph Emmons Briggs of the board of trustees and Dr. Fred Piper of the alumni.

MICHIGAN

Court Upholds Board of Health.—The state supreme court ruled, October 1, that local health boards have the power to require children to be vaccinated when there is danger of an epidemic of smallpox. This decision settled the controversy between the Lansing health board and the board of education following the school board's refusal to comply with the health board's order that all children must be vaccinated. The board of health secured a writ of mandamus in the circuit court to compel the board of education to comply with the order. The latter board appealed. The supreme court ruled that the health board under Act 5081, 1915, has the necessary police power to take steps to prevent the spread of disease.

Public Health Meetings.—The fifteenth annual meeting of the Michigan Tuberculosis Association was held in Flint, October 3-4, in joint session with the Michigan Trudeau Society and the Genesee County Medical Society. Those who addressed the meeting were Dr. Robert Woodhouse, president of the Canadian Tuberculosis Association; Dr. Caroline Hedger, Elizabeth McCormick Fund, Chicago, and Dr. Francis Trudeau, Saranac Lake, N. Y.——Michigan's joint committee on public health met at Ann Arbor, October 8. The committee, which directs the presentation to the people of the state of accurate scientific information concerning public health problems is composed of Prof. M. L. Burton, president; Dr. Richard M. Olin, commissioner of health; Dr. William T. Dodge, Big Rapids; Dr. John B. Jackson, Kalamazoo; Dr. Frederick C. Warnshuis, Grand Rapids, and Drs. B. D. Harison and Andrew D. Biddle of Detroit. The university was represented by Dean Hugh Cabot of the medical school, Dr. John Sundwall of the public health department, and Prof. W. D. Henderson of the extension division, under whose direction the health lectures are given.

MINNESOTA

State Medical Meeting.—At the annual meeting of the Minnesota State Medical Association in St. Paul, October 10-12, the following officers were elected for the ensuing year: president, Dr. Archibald MacLaren, St. Paul; vice presidents, Drs. Edward T. Sanderson, Minneota; Frank J. Hirschboeck, Duluth, and Charles W. Bray, Biwabik; secretary, Dr. Carl B. Drake, St. Paul, and treasurer, Dr. Frederick L. Beckley, St. Paul. The next meeting of the association will be held in St. Cloud in October, 1924.

MISSOURI

Kansas City Academy of Medicine.—Dr. Jefferson D. Griffith, Kansas City, has offered a prize of $100 for the best paper read before the Kansas City Academy of Medicine. The award will be made at the last meeting of the year, May 2, 1924.

Follow-Up Work in Kansas City.—For the last two years the Tuberculosis Society of Kansas City, in cooperation with the Missouri State Sanatorium for Tuberculosis, has been doing follow-up work. Patients discharged from the sanatorium are reported to the society, which then investigates their home environment and reports at regular intervals the patients' progress.

NEVADA

State Medical Meeting.—The twentieth annual meeting of the Nevada State Medical Association was held in Reno, September 28-30. Dr. Ray Lyman Wilbur, San Francisco, President of the American Medical Association, spoke on "The Earth and the Physician." Dr. Horace J. Brown, Reno, secretary-treasurer of the association, was elected president for the ensuing year; Drs. William M. Edwards, Yerington, and Amos C. Olmsted, Wells, vice presidents, and Dr. Claude E. Piersall, Reno, secretary-treasurer. Dr. George L. Servoss, Reno, was elected associate editor of the *California State Journal of Medicine*. Dr. Anthony Huffaker, Stewart, presided in the absence, owing to illness, of President John L. Robinson.

NEW HAMPSHIRE

Dartmouth Medical School.—The one hundred and twenty-fifth anniversary of the Dartmouth Medical School, Hanover, was celebrated, October 5-6. Dr. Nathan Smith founded the school in 1797. More than one fifth of the living graduates of the school were present. Prof. Harrie Sheridan Baketel, New York, was elected president of the alumni association. Speakers at the alumni banquet were Drs. Edwin J. Bartlett, '72, Hanover; Harry C. Martin, '98, Springfield, Mass.; Howard M. Clute, '14, Boston, and the president of the college, Ernest Martin Hopkins, LL.D. A resolution was adopted favoring the introduction of a four-year medical course at the college. The graduates proposed the addition of two years to the present courses and referred their desires to the trustees and faculty who will determine the feasibility of the plan immediately.

NEW JERSEY

Labor Commissioner Appointed. — Governor Silzer has appointed Dr. Andrew F. McBride, former mayor of Paterson, as commissioner of labor to succeed the late General Bryant.

Proposed Medical Legislation.—Dr. Wells P. Eagleton, Newark, president of the state society, called a special meeting of the welfare committee of the state medical society with presidents and secretaries of county medical societies at Trenton, September 30, to prepare the program for medical legislation to be presented at the next session of the state legislature. The venereal disease control bill will be reintroduced, and a sterilization bill for feebleminded, habitual criminals and the chronic insane. The advisability of introducing an amendment to the Workmen's Compensation Act to give to the injured workman the right to employ his own physician, was discussed.

NEW YORK

Hospital News.—The site for a new building which will be erected next year has been purchased by St. Joachims' Hospital, Watertown, at a cost of $23,000. —— The formal opening of the Buffalo City Hospital, Buffalo, took place, September 30-October 7, inclusive. The dedication of the Ernest Wende Building (in memory of Dr. Ernest Wende, who died in 1910) was held, Sunday, September 30. Dr. William A. Pusey, President-Elect of the American Medical Association gave an address, and a dinner was held, October 4, by the eighth district branch of the state medical society, at which Drs. Orrin S. Wightman, president of the state medical society, Samuel P. Capen, LL.D., chancellor, University of Buffalo, Matthias Nicoll, Jr., state commissioner of health, Franklin H. Martin and Carl Beck, Chicago, gave addresses, and Dr. Hugh H. Young, Baltimore, was the guest of honor.

Progress at the University of Rochester.—The foundations are now being laid for the medical school and hospital building of the University of Rochester. The building will be six stories high, and will house both medical school and hospital. It is expected that students for the first year's work in medicine will be received in the autumn of 1925. A differentiation between medical and dental students will not be made at all in the first year, and only to a limited extent in the second. The faculty appointments so far made are as follows: dean and professor of pathology, Dr. George H. Whipple, formerly dean and professor of research medicine at the University of California; professor of biochemistry, Walter R. Bloor, Ph.D., formerly professor of biochemistry at the University of California; professor of anatomy, Dr. George W. Corner, associate professor of anatomy at Johns Hopkins Medical School; professor of bacteriology, Dr. Stanhope Bayne-Jones, associate professor of bacteriology at Johns Hopkins Medical School; professor of gynecology and obstetrics, Dr. Karl M. Wilson, Baltimore; professor of medicine, Dr. William S. McCann, associate professor of medicine, Johns Hopkins Medical School; director of the Strong Memorial Hospital, Dr. Nathaniel W. Faxon, formerly assistant director of the Massachusetts General Hospital; professor of surgery, Dr. John Jamieson Morton, Jr., assistant professor of surgery at Yale Medical School, and superintendent of nurses, Helen Wood of Barnes Hospital, St. Louis. A contract has been made by the university with the city of Rochester with reference to the erection and maintenance of a municipal hospital of 240 beds adjacent to the Strong Memorial Hospital. By this contract the university agrees to deed to the city about 26 acres of land, and to give to the city, without cost, the services of the professional staff. Resident physicians, interns and nurses will be provided for the city hospital at cost by the university; also heat, laundry service and food.

New York City

Harvey Society Lecture.—Walter R. Bloor, Ph.D., professor of biochemistry at the University of Rochester School of Medicine and Dentistry, will deliver the second Harvey Society lecture at the New York Academy of Medicine, November 3. His subject will be "The Utilization of Fat in the Animal Body."

Personal.—Dr. Robert S. Carroll, director of the Highland Hospital, has been granted one year's leave of absence for study and travel in Europe.——Dr. J. Herbert Bliss, who has recently completed his internship in the Methodist Episcopal Hospital, Brooklyn, has been appointed a fellow in surgery at the Mayo Foundation, Rochester, Minn.——Dr. Simon Tannenbaum, superintendent of the Beth David Hospital, has been appointed medical director of the Hadassah Hospitals and Clinics in Palestine. He will sail in November.

Medical Lectures in Brooklyn.—Under the auspices of the Medical Society of the County of Kings, the first of the fall series of practical lectures was delivered on October 5. The course comprises ten lectures of interest to the general practitioner and is a part of the free postgraduate medical education under the direction of a joint committee of the Long Island College Hospital and the Medical Society of the County of Kings. Further information regarding these lectures may be obtained from the dean of the Long Island College Hospital, Henry Street, Brooklyn, N. Y.

Free Graduate Lectures.—Additional speakers for the course of free lectures given Friday afternoons at the New York Post-Graduate Medical School (THE JOURNAL, September 23, p. 1029) and their subjects, are as follows: November 9, Dr. Herman O. Mosenthal, "Insulin in the Treatment of Diabetes Mellitus"; November 16, Dr. Lester J. Unger, "Blood Transfusion"; November 23, Dr. Roger H. Dennett, "Simplified Infant Feeding"; November 30, Dr. Henry H. Whitehouse, "A Plea for a Broader Conception of Dermatology"; December 7, Dr. Fred H. Albee, "Reconstruction Surgery"; December 14, Dr. Robert H. Halsey, "Recent Advances in the Diagnosis and Treatment of Diseases of the Heart"; December 21, Dr. Harold S. Vaughan, "Cleft Palate," and December 28, Dr. Charles J. Imperatori, "The Limitations of Bronchoscopy and Esophagoscopy."

OHIO

Physician's Estate Willed to Medical School.—By the will of Dr. John C. Mackenzie, Cincinnati, who died, September 19, provision is made for his entire personal estate to go, eventually, toward maintaining a chair of pathology in the Medical Department of the University of Cincinnati. The estate is valued at about $100,000.

Toledo Hospital News.—The East Side Hospital will erect a new hospital at the corner of Starr Avenue and Main Street. It is expected that the new building will be ready for occupancy by July, 1924.——Work on the new hospital building for the Municipal Hospital is progressing slowly. Owing to necessary changes in the plans, it is thought that structure will not be ready for occupation until about the first of the year.——The new addition to the Flower Deaconess Home and Hospital, has been completed.

Personal.—Dr. Arthur W. Laird, Marenisco, Mich., has been appointed public school physician of the schools of Canton.——Governor Donahey has appointed Dr. Joseph L. Johnson, formerly United States minister to Liberia, as a trustee of Wilberforce University, Columbus.——Dr. Nuno Guerner, São Paulo, Brazil, and Dr. Chang H. Han, Tsinghau, China, have been several weeks with Dr. Emery R. Hayhurst of the Ohio State University Department of Public Health. They have been sent to the United States by their respective governments to study public health under the auspices of the International Health Board.——Dr. Stephen S. Halderman, Portsmouth, former president of the state medical association, was presented with a silver set by the Hempstead Academy of Medicine on the occasion of his golden wedding anniversary, recently.——The International Health Board has awarded scholarships at Johns Hopkins School of Public Health, Baltimore, to five Ohio physicians: Drs. Thomas W. Mahoney, Columbus; Arlington Ailes, Springfield; Clarence D. Barrett, Wooster; Charles Koenig, Toledo, and Roll Markwith, Akron. The scholarships are for one year, and include traveling expenses, maintenance and college fees.

PENNSYLVANIA

Personal.—Dr. Robert A. Kilduffe, Jr., Pittsburgh, has accepted an offer to take charge of the Los Angeles branch of the Pacific Wassermann Laboratories.——Dr. William E. Fawcett, Oil City, has been appointed superintendent of the Pureair Sanatorium, Bayfield, Wis., to succeed Dr. John M. Conroy, who has associated with Dr. Frank C. Studley in the management of the Riverside Hospital, Milwaukee.——Dr. John S. Anderson, Greensburg, has been appointed medical director of Westmoreland County to succeed Dr. Robert E. Lee McCormick, Irwin, resigned.——Dr. William S. Bertolet has been appointed medical director of the Reading Hospital. ——Dr. Charles E. Hannan, who has been appointed chief of the orthopedic service in the Memorial Hospital, Johnstown, will be succeeded in the surgical service by Dr. Benton E. Longwell.

The State Housing Rules.—The advisory health board has adopted new housing regulations, applicable in all municipalities and townships of the state. The regulations define tenement houses as all buildings "occupied or designed for occupation by three or more families, living in separate apartments and doing their cooking on the premises," thus including apartment houses, apartment hotels and flats. The new regulations state that in tenement houses each family must be provided with a separate toilet; that proper light and ventilation opening to the outside air in tenement, lodging and boarding houses must be provided, and that all living and sleeping rooms must have ample natural light and outside ventilation and be provided with windows easily operated. Sleeping rooms must have 12 square feet of window area, 70 square feet of floor space and 600 cubic feet of air space.

Changes in Quarantine Rules.—The secretary of the state department of health announced, October 1, several important changes in department regulations regarding communicable diseases. In cases of whooping cough, measles, German measles, chickenpox or mumps, children who have had the disease previously may attend school, and there is no restriction as to the movements of adults of the family. The quarantine period for whooping cough has been reduced to four weeks from the date of onset; after the third week, with the permission of the health authorities, the patient may be taken on the street in charge of a responsible person. The regular quarantine period for diphtheria is extended five days and for scarlet fever ten days, after the death or removal of the patient, unless the immunity of all other members of the household can be established. Lethargic (epidemic) encephalitis has been made reportable, and, if deemed advisable by the health department, will be made quarantinable. In typhoid and paratyphoid fevers there is no time limit to the quarantine, but physicians may not request the removal of the placard until the patient has had a normal temperature for a period of seven days. No case of communicable disease may be moved from one place to another without written consent of the health authorities concerned. Hookworm and certain other ailments have been stricken from the list of reportable and quarantinable diseases.

Philadelphia

Medical Congress at Sesquicentennial Planned.—A plan for national and international congresses of physicians and those practicing the allied sciences was adopted, October 12, by the committee on health and medicine of the Sesquicentennial Exhibition. The first society that accepted the invitation to be present in 1926 was the Pennsylvania State Medical Society.

Personal.—Dr. Ernest Laplace has been made a Commander of the Legion of Honor by President Millerand of France. ——Dr. Winnifred Alice Blampin, Philadelphia, has been appointed teaching fellow in pathology, and Dr. Walter G. Elmer, Philadelphia, has been appointed professor of orthopedic surgery, at the Woman's Medical College of Pennsylvania, Philadelphia.

TEXAS

Hospital News.—Dr. Charles H. Harris, Fort Worth, announces plans for the erection of a $250,000 sanatorium building. The present building will be used for a nurses' home.——The Overall Memorial Hospital, Coleman, for the erection of which $75,000 was donated by Mrs. M. Tye Overall, is completed and will soon be opened to the public. Dr. Luke P. Allison, Brownwood, has been appointed superintendent of the institution.——The new hospital building for the Mercedes Hospital, Mercedes, will be completed, Jan. 1, 1924.

Personal.—Dr. George F. Powell has been reappointed superintendent of the North Texas Hospital for the Insane, Terrell. This is Dr. Powell's thirtieth year in charge of the institution.——Dr. Charles W. Castner, Terrell, assistant physician in the North Texas Hospital for the Insane, has been appointed superintendent of the East Texas Asylum for the Insane, Rusk, to succeed Dr. William J. Johnson.——Dr. R. A. Wilson has been appointed acting city health officer of El Paso during the absence of Dr. John W. Brown, who will take an eight months' course in public health at Johns Hopkins University, Baltimore.——Dr. Marcel W. Sherwood, Temple, was elected state commander of the department of Texas of the American Legion at the recent convention at Galveston.——Dr. Charles E. Durham, Hico, has been appointed director of the bureau of venereal disease of the state department of health.

VIRGINIA

University News.—The one hundredth session of the University of Virginia was formally opened, September 27, with a record attendance in all departments. In the department of medicine there was an increase of twenty-three registrations over last year. Among the gifts to the university, announced by President Alderman, were a portrait of Dr. Richard Henry Whitehead, former dean of the department of medicine, which was given by members of the medical faculty and students; $10,000 from an anonymous donor for the establishment of the Richard Henry Whitehead scholarship in medicine, and $1,000 from Dr. Seale Harris, Birmingham, Ala., for a scholarship in memory of his father. Two second year medical class students, Benjamin M. Baker, Jr., and Eldridge H. Campbell, Jr., have won the Rhodes scholarship. They left, September 29, for Oxford University, England.

WISCONSIN

Smallpox in Milwaukee.—Following the report of eleven cases of smallpox among Milwaukee school children, vaccination by health department physicians was started, October 3.

Hospital News.—A $100,000 hospital for the insane will be erected at Verona, according to reports.——A new $25,000 hospital building will be erected at Ripon by the Ripon Hospital Association.

WYOMING

Personal.—Dr. Frederick Gassman, roentgenologist at the Virchow Hospital, Berlin, Germany, has located in Thermopolis, where he will be connected with the Hopewell Hospital.

Vaccination Enforced.—According to a ruling of the state board of health, no pupil shall be enrolled or attend any public, private or parochial school in the state of Wyoming, nor shall any teacher be employed therein, until he or she shall present to the person in charge of the institution, or his agent, a certificate signed by a physician licensed to practice medicine, showing that the pupil or teacher shows evidence of having been successfully vaccinated against smallpox.

CANADA

Personal.—Dr. Arthur L. Hughes, research professor of physics, Queen's University, Kingston, Canada, has been elected Wayman Crow professor of physics at Washington University Medical School, St. Louis, to succeed Prof. Arthur H. Compton, who goes to the University of Chicago.——Major General Sir David Bruce has been elected president of the British Association for the Advancement of Science for the Toronto meeting.——Dr. Maurice M. Seymour, deputy minister of public health for Saskatchewan, has been nominated by the dominion government to be the Canadian representative on the public health department of the League of Nations.——Dr. Charles K. Clarke, medical director of the Canadian National Committee for Mental Hygiene, delivered the Maudsley lecture on Psychiatry, recently, in London, England.——Sir Robert Falconer, president of the University of Toronto; Drs. Charles F. Martin and Edward W. Archibald, McGill University, Montreal, and Dr. Clarence L. Starr, Toronto, will give addresses at the annual session of the Tri-State District Medical Society, at Des Moines, Iowa, October 29-November 3.

GENERAL

American Electrotherapeutic Association.—At the annual meeting of the association in Atlantic City, N. J., September 18-21, Dr. Sinclair Tousey, New York, was elected president of the association; Dr. Richard Kovacs, New York, secretary, and Dr. John Willard Travell, New York, treasurer.

New Drug Regulation.—To prevent tampering with packages containing narcotic drugs, the Bureau of Internal Revenue, October 14, issued regulations requiring the stamps to be affixed so as to afford a seal for the package when sent through the mail. Strip stamps will be used for the tax, and they must be put on in such a way that they will be broken only when the package is opened.

Personal.—Prof. Nils Bohr, University of Copenhagen, winner of the Nobel Prize in Physics for 1922, will lecture at the Carnegie Institute of Technology, New York, in November.——Prof. Carl Voegtlin, Hygienic Laboratory of the U. S. Public Health Service, Washington, D. C., has returned from Europe where he attended a conference on biologic standardization of the health committee of the League of Nations.——Sir William De Courcy Wheeler, president of the Royal College of Surgeons, Dublin, Ireland, and Dr. Arthur E. Webb-Johnson, London, England, will address the annual session of the Tri-State District Medical Society, at Des Moines, Iowa, October 29-November 1.

International Health Board's Report.—Sections of the report of the International Health Board of the Rockefeller Foundation for 1922 show that during the year the board worked in cooperation with the governments of seventy states and countries throughout the world. The activities reported include a review of the history and objects of the International Health Board; the campaign against yellow fever in Mexico and South America; surveys, field experiments, and demonstrations in malaria control at home and abroad; world-wide efforts in the control of hookworm disease; the extension of county health work in the United States and Brazil; the development of public health laboratory services, public health nursing services, and schools of hygiene in various countries; cooperation with the health section of the League of Nations, and the extension of training through fellowships.

Tri-State District Medical Association Meeting.—The Interstate assembly of the Tri-State District Medical Association will be held at Des Moines, October 29-November 1. All the sessions of the general meetings and the clinics will be held in one building. Any physician who is in good standing in his state medical society may register at this session. Among those who have accepted places on the program are: Sir William DeCourcy Wheeler, Dublin, Ireland; Sir Robert A. Falconer, president, Toronto University; Drs. Edward W. Archibald, Montreal, and Clarence L. Starr, Toronto. The program for the session is in charge of Drs. Dean Lewis, Chicago, E. Starr Judd, Rochester, Minn., W. L. Bierring, Des Moines, and John L. Yates, Milwaukee. Representative clinicians from the leading schools of Chicago, New York, Rochester and the middle west will conduct symposiums on medical and surgical diagnosis.

Clinical Congress of Surgeons Meets.—The Clinical Congress of the American Surgeons will hold its thirteenth annual session in Chicago, October 22-26. The first day's session will include two hospital conferences and the presidential meeting at which the president-elect, Dr. A. J. Ochsner, Chicago, will be inaugurated. Dr. George W. Crile, Cleveland, will deliver the John B. Murphy oration in surgery. The remaining sessions of the conference will be devoted to clinics and demonstrations at the hospitals and medical schools and to evening scientific sessions. On October 23 elaborate ceremonies will mark the laying of the cornerstone of the Murphy Memorial. A special feature of the present session will be a series of clinical demonstrations in various hospitals in which internists, pathologists and other specialists will participate. In view of the limited capacity of the various clinics and hospital amphitheaters attendance is limited and clinic tickets are issued to all who attend.

Middle Western States Birth Control Conference.—A conference on the social and medical aspects of birth control will be held at the Drake Hotel, Chicago, October 29-31. At the opening meeting the principal speakers will be Horace J. Bridges and Mrs. Margaret Sanger. Among the speakers for the second day are Prof. E. A. Ross, Department of Sociology, University of Wisconsin; Prof. E. M. East, professor of biology, Harvard University, "Civilization at the Crossways," and Judge Harry Olson, Chicago, "Moral Decadence." At the afternoon session the speakers include H. H. Miller, professor of sociology, Oberlin College; O. N. Lovejoy, director of the National Child Welfare Council; Leon J. Cole, professor of genetics, University of Wisconsin, and Eleanor R. Wembridge of the Women's Protective League, Cleveland. On Tuesday evening at a special session for the medical profession, the scientific aspects of contraceptive methods will be discussed. The final session, October 31, includes addresses by C. C. Little, professor of biology, University of Maine, "Biological Phases of Birth Control"; Dr. S. A. Knopf, New York, "Infant and Maternal Welfare," and Dr. Raymond Spaeth of the Johns Hopkins University, Maryland, "Mental and Social Aspects of Birth Control." Physicians, sociologists and psychologists interested in the subject are invited to attend the sessions.

Bequests and Donations.—The following bequests and donations have recently been announced:

Putnam Memorial Hospital, Bennington, Vt., $150,000, and the Kurn Hattin Homes, Westminster, Vt., the Children's Aid Society of New York City, and the Home for the Friendless, Erie, Pa., each $10,000, under the will of Guy B. Johnson of the Standard Oil Company, on the death of the beneficiaries.

Boston Floating Hospital, the Baby Hygiene Association, Little Sisters of the Poor, Home of the Angel Guardian, Jamaica Plain, Boston Provident Association and St. Vincent's Orphan Asylum, each $25,000; Home for Jewish Children, Dorchester, Mass., Free Hospital for Women, Brookline, and the Salvation Army, each $20,000; Roxbury (Mass.) Home for Children and Aged Women, Mount Pleasant Home, Roxbury, St. Monica's Home, Roxbury, Burnett Home for Aged Women, and the New England Home for Women and Children, each $15,000; Children's Island Sanatorium, Inc., Boston, St. Mary's Infant Asylum, the Massachusetts General Hospital, the Home for Aged Colored Women, each $10,000, and the Boston Nursery for Blind Babies, $5,000, on the death of the annuitants, by the will of James G. Knowles of Boston.

Bellefontaine, Ohio, for the establishment of a home for aged maiden ladies, $40,000, by the will of Miss Mary Powell.

Rochester (N. H.) Hospital, $31,000, from the will of Mrs. John F. Sanders.

St. John's Riverside Hospital, Yonkers, N. Y., having raised $50,000 for a new building, gets the $25,000 pledged conditionally by Alexander Smith Cochran.

Jewish Consumptive Relief Association of California, $20,000, by the Cleveland Ladies' Auxiliary, for an addition to the tuberculosis sanatorium.

Newberry, S. C., $15,000, subscribed by citizens for the erection of a hospital in that city.

St. Luke's Hospital, New York, $10,000, and the Waterbury Hospital, Waterbury, Conn., $10,000, to found a bed in memory of his mother, by the will of William Edmund Curtis.

New Hampshire Hospital for Women and Children, Concord, $10,000, by the will of John C. Webster of Hartford.

Presbyterian Hospital, Philadelphia, $6,000, to endow a free bed in the Eliza Cathcart Home for incurables; $5,000 to endow a free bed, and $1,500 in trust, the income to be used for furnishing rooms, by the will of Catherine W. E. Snyder.

Children's Seashore Home, Atlantic City, N. J., $2,000, by the will of Mary Beatty.

Visiting Nurse Association of Chicago, $500, by Mrs. George R. Carr of Lake Forest, Ill.

Fostoria, Ohio, the site for a hospital, by Mr. and Mrs. Edward Bricker.

Protestant Children's Home, Chicago, 25 acres of land on which to erect a home for 1,000 destitute children, anonymous.

Annual Meeting of the American Public Health Association.—The American Public Health Association met, October 8-11, in Boston, with a registered attendance of more than 800. Coincidentally the U. S. Bureau of Education held a conference on school health supervision, and a health show was conducted on private initiative. The activities of the association were carried on in two general sessions and in meetings of the nine sections into which the association is divided. The principal speakers at the general sessions were Sir Thomas Oliver, Newcastle-on-Tyne, England, who discussed American activities in the fields of safety and sanitation in modern industries; Dr. George E. Vincent, president of the Rockefeller Foundation, who analyzed preventive medicine from a layman's standpoint, pointing out the essential relations between animal experimentation and human welfare, and urging the energetic support of the Society of Friends of Medical Progress, Inc., recently organized to offset the activities of the forces that combat animal experimentation, and Dr. Linsly R. Williams, managing director of the National Tuberculosis Association, who discussed the coordination of national health activities.

COMMITTEE ON MUNICIPAL HEALTH DEPARTMENT

An elaborate report was submitted by the committee on municipal health department practice, printed by the U. S. Public Health Service as Public Health Bulletin 136, showing the results of the inquiries conducted by the committee since 1920. Through the activity of this committee there has been created in the Public Health Service a division on administrative practice, under the immediate direction of Dr. Paul Preble, Assistant Surgeon-General, Washington, D. C. The activities of this division will be supplemented by those of a field director whom the committee is enabled to employ through a guarantee by the Metropolitan Life Insurance Company of $15,000 for carrying on the work during 1923 and 1924. Dr. Watson S. Rankin, state health commissioner of North Carolina, has been employed in this capacity, having obtained leave of absence from the state to enable him to serve. Dr. Rankin will visit cities within the United States that ask for his assistance, his activities and the results of his observations being coordinated and assimilated with those of the Public Health Service. The extension of this service to Canada, Cuba and Mexico is under consideration. A suggestion by the committee that medals be awarded to cities and towns for work accomplished in the public health field did not meet an altogether favorable response. It was pointed out that the award of a medal might lead a community to believe that its work was in a state so highly satisfactory that no improvement was needed; that the failure of a city to receive a medal might react unfavorably on the health officer who, after all, might be prevented from doing satisfactory work solely by handicaps imposed on him by local conditions; and that it might fairly be questioned as to whether a medal of this character should be awarded to the city, to the city council, or to the health agencies.

PUBLIC HEALTH ADMINISTRATION

In his address as chairman of the Section on Public Health Administration, Dr. John W. S. McCullough, chief officer of health of Ontario, Canada, urged the advantages derived from the employment of full-time health officers. They are now found very generally in the larger cities, but the health work of the smaller towns, villages and rural areas is carried on largely under the direction of part-time, practicing physicians. Insecurity in tenure of office and inadequacy of salary were pointed out as obstacles in the way of the employment of full-time officers. Financial aid by the state to its minor political subdivisions, to permit the employment of full-time health officers, was looked on as of questionable expediency, since the assured benefit to be derived from such aid was liable to be offset by a diminished local interest in health matters. In any event, the full-time health officer cannot be looked on as a panacea, but he can best serve as a nucleus around which the activities of the medical profession and of private health agents crystallize.

THE TEACHERS' PART IN HEALTH EDUCATION

Discussing the teachers' part in health education, Dr. John Sundwall, director of the department of hygiene and public health, University of Michigan, Ann Arbor, Mich., laid stress on a warning note previously sounded by Miss Maude A. Brown, director of health education, Child Health Demonstration, Fargo, N. D., who protested against a system that turns the mind over to the teacher, the body to the physician, and the soul to the clergyman. Dr. Sundwall advocated a new type of health supervision for schools, to coordinate and direct all physical welfare activities, and at the conference on school health supervision, held under the direction of the U. S. Bureau of Health Education, he reported that the University of Michigan was preparing to train men and women each of whom would be qualified to discharge the duties of the medical inspector, the health teacher, and the instructor in physical education. The relation of the public health nurse to the practicing physician, the physical examination of apparently healthy individuals, the coordination of the public health laws of the United States, nuisance prevention as a hindrance to the prevention of disease, medical treatment of narcotic addicts, and other matters of interest to the medical profession and to the public were discussed.

PERIODIC HEALTH EXAMINATIONS

The association adopted a resolution indorsing the periodic physical examination of apparently healthy persons, urging all citizens of the countries represented by the association to have such medical examinations made, and indorsing the campaign for health examinations now being conducted by the National Health Council.

ELECTION OF OFFICERS

The following officers were elected for the ensuing year: president, Dr. William H. Park, director, Bureau of Laboratories, New York City Health Department; first vice president, Dr. Francis X. Mahoney, commissioner, Boston City Health Department; second vice president, Dr. John W. S. McCullough, chief officer of health, Province of Ontario, Canada; third vice president, Dr. William H. Davis, chief, division of vital statistics, Bureau of the Census, Washington, D. C.; treasurer, Dr. Roger I. Lee, professor of hygiene, Medical School of Harvard University, Boston, and executive secretary, Dr. James A. Hayne, commissioner of health, South Carolina. The annual meeting in 1924 will be held in Detroit.

LATIN AMERICA

Personal.—Our Buenos Aires exchanges mention the arrival in Argentina of Dr. A. Lustig, professor of general pathology at Florence, and author of works on general pathology and infectious diseases in man and animals.——Dr. Sebastian Recasens, dean of the medical department of the University of Madrid, has also arrived in Argentina, where he is to deliver a series of lectures on "Gynecologic Radiotherapy"; "Physical Measures in Gynecologic Treatment"; "Genital and Peritoneal Tuberculosis," and "New Methods of Treatment." He is to lecture at three other cities besides Buenos Aires.—— The *Semana Médica* adds that Dr. G. Weygandt, professor of psychiatry at the University of Hamburg, is also lecturing in Argentina. Besides his series at the medical faculty, he is giving lantern talks on "The Relations of Art to Medicine," "Pathologic Art," and "Modern Futurism."——The resignation of Prof. J. T. Cancio, of the chair of physiology at the University of Lima has been presented, as he wishes to take a long trip to other countries.——The *Reforma Médica* of Lima announces that the legislature has decreed the foundation of an institute of preventive medicine, to train officials for public health work, on the initiative of Dr. C. E. Paz Soldán, who presided. He urged, further, the creation of a ministry of public health, mentioning thirteen countries that have organized a ministry of health since 1918. Cuba has had a government department of the kind since it first became a republic.——The Rio de Janeiro exchanges mention the arrival of Dr. J. H. White of the Public Health Service of the United States, who has been commissioned to study the foci of yellow fever in northern Brazil.——Dr. Daniel M. Vélez has been decorated by the French government as an officer of public instruction. He is professor of ophthalmology in the University of Mexico, director of the *Anales de la Sociedad Mexicana de Oftalmología,* and president of the Franco-Mexican Medical Society.

FOREIGN

Memorial to Medical Author.—A drinking fountain has been erected in Frankfurt as a memorial to Dr. Heinrich Hofmann, author of *Struwwelpeter,* familiar to many generations of children, by members of the medical profession of that city.

Turkey Bars Alien Physicians.—According to a dispatch from the Associated Press, the government of Angora has ordered the closing of all foreign hospitals and Red Cross establishments in Constantinople, and has forbidden foreign physicians and dentists to practice.

Centenary Number of the Lancet.—The October 6 number of the *Lancet* is the centenary number. It has nearly four

times as many pages as the usual number and contains a pictorial review of the progress of the paper. There is also a large colored portrait from an unfinished sketch by Edwin Landseer, of Thomas Wakley, the founder.

Honorary Degrees Conferred.—At the recent meeting of the British Association for the Advancement of Science in Liverpool, England, the honorary degree of doctor of science was conferred by the University of Liverpool on Sir Ernest Rutherford, president; Dr. Ernest Howard Griffiths, treasurer; Prof. Neils Bohr, professor of physics, University of Copenhagen; Prof. G. N. Lewis, professor of chemistry, University of California; Prof. G. Elliott Smith, professor of anatomy, University of London; Dr. Johs. Schmidt, director of the Carlsberg Laboratory, Copenhagen, and Prof. J. C. McLennan, professor of physics, University of Toronto.

Public Health News.—During the week ending July 29, forty-seven cases of plague were reported in Egypt.——About 3,000 cases of smallpox were reported present at Pointe à Pitre, Guadeloupe, August 4.——Forty-six new cases of smallpox (alastrim) were reported in the island of Jamaica, August 4.——Nine cases of yellow fever have been reported from Bahia, Brazil, by the U. S. Public Health Service.——Information received by the public health service, August 13, shows the occurrence of a case of plague at Paris France.——During June, 441 deaths from plague were reported in the Island of Java in four weeks.——During July, twenty-three cases of plague, with twelve deaths, were reported in Peru.——Twenty-seven plague-infected rats were found on board the steamship *Warwickshire* at Liverpool, England, recently, it is announced. The vessel had left Rangoon seven weeks previously.——Several deaths from bubonic plague are reported to have occurred among the Spanish troops in the Melilla zone, on the north coast of Morocco.

Deaths in Other Countries

Lieut. Col. **de Vere Condon,** Indian Medical Service, in England, September 13, aged 49.——Capt. **Edward O'Malley,** surgeon, Royal Navy, retired, September 20.——Surg. Commander **William P. Hingston,** Royal Navy, was killed at Yokohama during the recent earthquake.——Dr. **Alec B. Marsh,** surgeon commander, Royal Navy, September 7, of tuberculosis, aged 46.——Dr. **Joaquin Nin Posadas** of Buenos Aires, urologist, and member of the editorial staff of the *Semana Médica.*——Dr. **A. Rogivue,** president of the regional medical society with headquarters at Lausanne, aged 71.——Dr. **Fidel Pagés,** a military surgeon of high rank in Spain, in charge of the official *Diario* published by the war department, killed in an automobile accident, aged 37.——Dr. **J. Alexander,** secretary of the Berlin-Brandenburg medical chamber, aged 59.——Dr. **A. de Fabritiis,** a leader in the organization of the profession in Italy, aged 51.

Government Services

Annual Meeting of Military Surgeons

The thirty-first annual meeting of the Association of Military Surgeons of the United States was held at Carlisle Barracks, Pa., October 4-6. More than 250 members and other officers of the United States Army, Navy, Public Health Service and National Guard attended. Only two papers were read, almost the entire time being given up to practical demonstrations.

The first meeting consisted of routine business and the announcement of the award of Wellcome prize medals for essays. A gold medal and $300 was awarded to Col. Edward B. Vedder, M. C., U. S. Army, for his essay on the subject of "Benefits Derived by Military Medical Science from Animal Experimentation." The second prize, which carries with it honorable mention and life membership in the association, went to Major Edward G. Huber, M. C., U. S. Army. The first prize for the silver medal and $200 went to Lieut.-Col. Henry H. Rutherford, M. C., U. S. Army, and the second prize, honorable mention and life membership in the association, was awarded to Major Glenn I. Jones, M. C., U. S. Army. The subject for the essay for the silver medal was: "The Training of the Medical Student for Service in Time of War."

An address of welcome was delivered by Lieut.-Col. Charles R. Reynolds, M. C., U. S. Army, commandant of the Medical Field Service School. He was followed by the president of the association, Col. Charles Lynch, M. C., U. S. Army. The foreign delegates to the meeting were: Col. Kenneth Cameron, of the Canadian Army Medical Corps; Colonel Visbecq, of the French army medical service and director of the technical section of the sanitary service of the ministry of war; Colonel Duguet, medical service, French army, and professor at the military medical school at Val-de-Grace; Lieut.-Col. John Allan Anderson, professor of hygiene at the Royal Army Medical College, London; Lieut. Comdr. Asazo Tanaka, medical corps, imperial Japanese navy; Major Carl Barre, medical corps, Swedish army, and Capt. Francesco Piccininni, medical corps, Italian army, and professor of bacteriology at the University of Naples.

Papers presented by the French delegates were illustrated with magnificent charts and diagrams prepared by the sanitary service of the ministry of war. At the close of the lectures, Colonels Duguet and Visbecq presented the charts and apparatus to the Medical Field Service School on behalf of the French government.

October 4, there was a demonstration of the new equipment for medical troops. Besides articles of individual equipment there was demonstrated the new veterinary ambulance, the proposed new medical department combat wagon, the old combat wagon, standard ambulance, the field kitchen and the new field hospital tent. At the inspection of the Medical Field Service School, the head of each department explained his work and equipment. At 5 p. m. there was a review by the commandant of the school, together with Surgeon-General Ireland, representatives of the army and navy nurse corps, the foreign delegates and the officers of the association. Immediately following, Brig.-Gen. John M. T. Finney, M. O. R. C., professor of surgery at Johns Hopkins University, unveiled a bronze tablet commemorating the services of the medical department personnel who lost their lives during the World War. General Finney's address was eloquent.

In the evening, Colonel Reynolds entertained the officers of the association, the Surgeon-General of the Army, Captain Bogert and Captain Carpenter of the medical corps of the Navy, the foreign delegates, Brigadier-General Finney, the former presidents of the association and other distinguished guests. Following the dinner there was a reception and dance in the post gymnasium.

October 5 was devoted to a demonstration of the lines of medical aid from the firing line back to and including the field hospital, which was in charge of Major Taylor E. Darby, M. C., U. S. Army, a graduate of the School of the Line as well as the Army Medical School. Officers in attendance were given a map of the locality and a statement of the general situation of the military problem on the day before. They went over the field following the lines of medical aid, inspecting the demonstration of first aid by medical department enlisted men, the battalion aid station, the ambulance head, the collecting station and so on back to the field hospital. Dinner was served in the field at the field kitchen. Late in the afternoon there was a demonstration arranged by the chemical warfare service which included rifle grenades containing white phosphorus. These grenades were used to put down smoke screens from a short distance and also for attacks on machine gun positions. Grenades filled with tear gas were demonstrated. There was a demonstration of smoke candles for screening purposes, and finally a mortar demonstration. The function of the medical department in caring for casualties resulting from chemical warfare was explained by Lieut.-Col. Harry L. Gilchrist, M. C., U. S. Army, and the demonstration was in charge of Lieutenant Sullivan.

The officers elected for the ensuing year are: president, Col. Gilbert E. Seaman, M. C., Wisconsin N. G.; first vice president, Surg-Gen. H. S. Cumming, U. S. Public Health Service; second vice president, Rear Admiral E. R. Stitt, Surgeon-General, U. S. Navy; third vice president, Major-Gen. M. W. Ireland, Surgeon-General, U. S. Army; secretary-treasurer, Major E. E. Hume, M. C., U. S. Army, and Col. J. R. Kean, M. C., U. S. Army.

The afternoon of the last day of the meeting was devoted to a visit to Gettysburg. The entire party went over the battlefield. Major Stayer explained the military situation, particularly the duties of the medical departments of the Union and Confederate armies.

Hospital Authorized

Pursuant to instructions of the Secretary of War, the organization of Evacuation Hospital No. 63 (St. Margaret's Hospital Unit, Kansas City, Kan.), organized reserves, has been authorized.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 1, 1923.

The Defense of London Against Smallpox

The outbreak of smallpox in London, following the Gloucester epidemic, has brought into prominence a question that has for several years caused much concern. Are we, because of the neglect of vaccination, in danger of epidemics such as occur from time to time in unvaccinated populations? The prospect of an epidemic in London, the largest aggregation of people on the globe (amounting to seven millions), is appalling, even if only cost is considered. A case of smallpox costs the community directly $1,000. To this must be added, in the case of an epidemic, the widespread interference with business. The total loss would be a serious addition to financial burdens, which already are as great as we can bear. Neglect of vaccination has increased so much that between the years 1908 and 1918 the percentage of vaccinations to births fell from 63.2 to 41.5, and in 1920, 60 per cent of the children born were not vaccinated. Against this are the facts that the personnel of the war (about seven millions) were revaccinated, and that on the European continent, from which we often derive the disease, vaccination reached its highest level during the war. But patients with smallpox continue to arrive in this country from all parts of the world. For the prevention of an epidemic we have now to rely on prompt diagnosis, isolation and the vaccination of "contacts." This method has been brought to a high state of efficiency in recent years, mainly by the work of two men, and so far has preserved us from an epidemic on a large scale. In London, particularly, the results are remarkable.

Thomas Francis Ricketts, who deserves to be remembered with Jenner, was, like him, a native of Gloucestershire. In 1892 he was appointed medical superintendent of the London Smallpox Hospital, where he remained until 1915 and made observations which have become classical. He showed that while smallpox seems to present many difficulties in diagnosis, yet it is the disease "in which a certain diagnosis can be arrived at in almost every case." His method is based on a study of the distribution of the eruption, demonstrating that it preponderates on surfaces normally or abnormally irritated. In 1904 the London County Council took the important step of appointing a disciple of Ricketts, Dr. W. McConnel Wanklyn, whose experience of the revision of smallpox diagnoses then ran to 10,000 cases, to be available for consultation in all cases of difficulty and to assist in controlling smallpox administration in London. The procedure is that the attending physician, when confronted with a doubtful case, calls in the local health officer, who in turn, if in doubt, calls in Dr. Wanklyn, whose opinion is final. Dr. Wanklyn was also the means of introducing a system of sending warning circulars to physicians so as to put them on their guard when smallpox is present or imminent. If a case proves to be smallpox, the house is at once sealed and the patient is removed to an isolation hospital, usually within two hours. Disinfection is performed, and the public vaccinator offers prompt vaccination or revaccination to all "contacts." Lists of these are prepared and circulated confidentially to the health officers of the districts concerned. The "contacts" are kept under daily observation; the earliest signs of illness are noted, and as soon as the rash of smallpox appears they are removed to an isolation hospital. Finally, as a writer, a lecturer on smallpox diagnosis and administration, Dr. Wanklyn stands alone. His results are probably the greatest success achieved in public health administration in this country. In the sixteen years previous to his appointment in 1904, the cases of smallpox in London amounted to 15,587. In the sixteen years following it they were only 282. In three war years, when men were returning to this country from all over the world, and from many places where smallpox is endemic, there were no deaths from the disease in London, and in one year there was not a single case.

The Dangers of Open Food Shops

The health officer for Holborn (a London borough), in his annual report for 1922, makes a plea for extended powers to deal with the exposure of food in open markets and shops. In these places, he says, the food exposed for sale is subject to contamination from dust, flies and other sources of impurity. Moreover, if the food is exposed for sale or stored near a roadway, it may be contaminated with the excreta of animals. To a less extent this danger is prevalent in open shops. These dangers particularly affect such articles as butter, margarin and cheese, which are not cooked or washed before consumption.

Expedition for the Study of Tropical Diseases in Samoa: The Extinction of Filariasis

A new expedition to the tropics for the study of disease is about to start for Samoa under the auspices of the London School of Tropical Medicine. Its main object is the study of filariasis, which affects 85 per cent. of the natives of the Pacific islands. The expedition will be under the direction of Dr. Buxton, a fellow of Trinity College, Cambridge, who is well known for his work in entomology, performed in Mesopotamia during the war, and later as entomologist for the Palestine government in Jerusalem. The expedition will be away for two years and will have its headquarters at Apia. It will work in cooperation with the New Zealand government, which is responsible for the administration of the Samoan group. It is thought that the susceptibility of the Polynesians to disease, especially to tuberculosis, and the decline of their numbers to the extent of threatened extinction, may be due to filariasis. Infection seems to be due to a *Stegomyia* mosquito which is apparently confined to the Pacific islands. An attempt will be made to eliminate the disease by exterminating the mosquito on lines similar to those that were adopted in Panama and other places. It is thought that the problem is comparatively simple, as the mosquito lives in and around coconut trees and is found in the empty coconut shells, which are stacked in the making of copra. It is proposed to take over a small island a mile or so in diameter, where every breeding place of the mosquito will be effectively dealt with. The native method of storing water is in artificially hollowed coconut trees. It is proposed to substitute, for these, properly constructed cisterns. Moreover, the mosquito does not seem able to exist where the dense undergrowth has been properly cut down. If airways or rides are cut through the dense jungle and the insect is exposed to the trade winds of the Pacific, it may be blown away. An object lesson of this kind can then be applied to the larger islands. Other parasitic diseases prevalent in Samoa, particularly ancylostomiasis, will also be studied. Finally, the effects of the tropical climate on Europeans will be investigated more minutely than has been done previously. The finer methods available since the recent development of biochemistry will be used. Thus, the effect of the sun's rays on the human skin will be investigated with the catathermometer. As an expert ornithologist and entomologist, Dr. Buxton also hopes to bring back a collection of birds and insects (many of which are becoming extinct) for the British Museum.

Plague-Infected Rats at Liverpool

Dr. Hope, health officer of Liverpool, reports that the city has had a narrow escape from being swept by plague brought

by rats on a ship from India. While a cargo was being discharged, the city rat-catching staff discovered dead plague-infected rats in a consignment of mattress fiber. Immediate action was taken by the port sanitary authorities. The native crew was isolated, the cargo cleared, and the ship fumigated. Sixty-four rats and two mice were found, dead or alive, half of them being infected with plague. The mattress fiber in which the infected rats had made their nests was disinfected with steam. The danger of rat infection by rats is shown by the fact that last year 70,000 rats were destroyed in Liverpool, 50,000 of these being found in ships or in the docks.

PARIS

(From Our Regular Correspondent)

Sept. 28, 1923.

Criminality Since the War

The anticipation that the World War would be followed by an increase in crime and delinquency has not been justified by statistics recently published by M. Louis Sadoul, counselor of the Court of Appeals at Nancy. These figures were collected from an area sufficiently large to avoid errors from local or chance causes. Comparative statistics for the years 1913 and 1921 are given for the four departments of France over which the Court of Appeals at Nancy has jurisdiction (Meurthe-et-Moselle, Meuse, Vosges and Ardennes). These four departments contain industrial and agricultural communities, and cities of large and of medium size, as well as isolated villages.

The population of the Nancy judicial district, which was 1,595,495 according to the census of 1911, had dropped to 1,372,684 in 1921, a decrease of 222,811, or about 14 per cent. Included is a sensible decrease in the number of standing troops in the East; numerous garrisons and large strongholds such as Toul and Verdun have been suppressed. Making allowances for these losses, the decrease in the civilian population, which is alone amenable to the civil courts, may be estimated at approximately 10 per cent. The number of misdemeanors has diminished considerably more than 10 per cent. Improbable as it may seem, therefore, the war appears to have brought about a decrease in crime.

In 1913, 15,088 persons were prosecuted before the eighteen correctional courts of this judicial district. In 1921, the number fell to 12,249, a decrease of 2,839, or from 18 to 19 per cent. Closer investigation reveals that the decrease is, in reality, even greater than appears at first sight. War legislation defined a number of new misdemeanors, notably the pursuit of what is termed "illegal speculation." While it is true that some of the newly added misdemeanors are disappearing, they nevertheless caused about 1,000 prosecutions in 1921; logically, for purposes of comparison, these should be deducted from the total. The decrease in the number of misdemeanors in 1921 as against 1913 would then be about 3,839, or approximately 25 per cent. Complete statistics for 1922 are not yet available, but the number of persons prosecuted during the year is known. From 15,088 in 1913 and 12,249 in 1921, the number has dropped still further to 9,933 in 1922.

MISDEMEANORS THAT ARE MORE FREQUENT

Only three kinds of prosecution for misdemeanor have increased at Nancy and in the rest of the district. These are of: (1) foreigners whose identification papers are not in proper shape; (2) owners of cabarets, which are better controlled than formerly, and (3) persons charged with adultery. As regards the last category, however, the increase is not great. In the whole judicial district, only fifty-four more persons were prosecuted for adultery than formerly (248 as against 194). In the arrondissement of Nancy the figures were fifty-six in 1921, as compared with forty, in 1913.

CRIMES AGAINST PROPERTY

In 1913, there were 3,424 prosecutions for theft, confidence games or fraud. In 1921, the number was 3,319, a slight decrease of 105. Indeed, if the decrease in population is taken into account, it must be concluded that there is a tendency for crimes of dishonesty to increase.

MENDICANCY AND VAGRANCY

Misdemeanors associated with mendicancy, vagrancy and pilfering in 1913 were 847; in 1921, 480, a decrease of 367, or more than 40 per cent. The decrease would be even more marked if it were not for the many charges of vagrancy brought against foreigners of all races and colors who throng the liberated regions. The French vagabond, familiar in the courts and jails before the war, has become almost a myth. Mendicancy also is almost a thing of the past. In 1921 there were only fifty prosecutions, as compared with 235 in 1913. In Nancy, especially, a marked decrease was noted, there having been only eleven prosecutions for mendicancy, as against seventy in 1913. One scarcely ever sees now that strange flotsam and jetsam of society with no home but the jail. They rarely committed a felony or serious misdemeanor; but they ran the whole gamut of trivial infractions of the law, and thus secured the opportunity to spend the cold winter months under "municipal shelter" with freedom to enjoy the beautiful summer days in the open. They made a study of the various jail wardens and well knew the relative advantages and disadvantages of the different jails and prisons; in the late fall, they would choose winter lodgings with confidence that they would have no cause for regret. This faithful clientele of the courts and prisons has been completely dispersed by the war. The causes for the change are doubtless to be found in the increase of wages and the ease with which work may be procured. Charity bureaus have noted the same facts, and report that the number of the really needy has diminished notably.

CRIMES OF VIOLENCE

It might naturally be supposed that attacks on the person would increase under the influence of habits of war. However, such has not been the case. Quite the contrary, of all crimes and misdemeanors, those against the person show the greatest decrease. In 1913, these were the most frequent, 3,548 prosecutions having been recorded. In 1921, the number of prosecutions dropped to 1,089, a decrease of 1,459, or more than 40 per cent.

JUVENILE DELINQUENCY

The education of children and adolescents was naturally much neglected during hostilities. The father was in the army, perhaps dead; the mother, left alone, was not strong enough; supervision was lacking; teachers were mobilized: demoralizing sights occurred every day, and tended to weaken the morale of the child. Nevertheless, the increase of juvenile delinquency was less than might have been expected. In 1912, in the judicial district of Nancy, 756 minors under 18 years of age were prosecuted; in 1921, there were 754 prosecutions; owing to the decrease in population, this really marks a slight increase. The complete figures for 1922 are not yet available, but it is known that the number of minors was only 515. The causes that increased juvenile delinquency seem thus to have disappeared.

The Bureau of Social Hygiene

M. Henri Sellier and M. Henri Rousselle, members of the general council of the department of the Seine, recently presented to this assembly a voluminous report from the public bureau of social hygiene, established in the department of the Seine for the prophylaxis of tuberculosis, especially pulmonary tuberculosis. Nov. 1, 1922, the number of persons registered and supervised by the dispensaries established by the bureau

was 21,425, which includes not only actual patients but also persons who cohabit with tuberculous persons. Of this number, 12,630 had been diagnosed as tuberculous. The number of registrants not yet attached to a dispensary but supervised by a provisional station, on this date, was 3,714, 1,601 of which were diagnosed as tuberculous. There was, therefore, a total of 25,139 persons registered by the antituberculosis organizations of the bureau, 14,231 of whom were diagnosed as tuberculous.

AMERICAN CONTRIBUTIONS

Owing to the liberal assistance in personnel and equipment of the Rockefeller Foundation, the bureau has established a central medical registration office which makes it possible to keep patients under medical supervision, and facilitates general control. Every tuberculous person is registered on an individual card, on which are recorded, with dates, all removals, changes of address, notes on the contagious character of the disease, variations in the condition of the patient as shown by repeated examinations, admission or readmission to hospitals, sanatoriums or preventoriums, and information in regard to discharge from these institutions. All this information is furnished by the physicians of the various organizations that care for tuberculous persons. Information in regard to the discharge of patients from institutions is given to the dispensaries interested. This central registration office of the department of the Seine has established connections with similar organizations in six other departments, and others will soon be added. Thus, gradually, the beginnings of national statistics on mortality and morbidity from tuberculosis are being established on new and sure bases.

Evidences of American collaboration are also to be found in other enterprises of the bureau. For instance, the creation of the Ecole de puériculture at the Faculté de médecine in Paris, which supervises public health developments among the mothers and children of Paris, is due, in large measure, to the American Red Cross.

EDUCATION OF THE PUBLIC ON HEALTH PROBLEMS

The influence of American initiative has been especially great in the education of the public. The methods employed in the propaganda department of the bureau were largely inspired by those introduced by the American antituberculosis mission. Propagation of public health doctrines by means of posters and pamphlets has been provided, thus far, to a great extent through the generosity of the Rockefeller Foundation, which presented to the bureau sufficient posters and pamphlets for wide distribution in the schools and among the general public. Also the American Red Cross Society contributed a large supply of pamphlets and illustrated cards. These gifts have made it possible to distribute 180,000 illustrated pamphlets, tracts and posters, 126,800 of which were distributed in the schools, 30,900 at public lectures, 8,800 in the dispensaries of the bureau, 6,700 at the public health exhibits, and 6,800 in institutions and to societies and individuals who asked for them. The bureau has found it necessary to pay for only 10,000 posters and placards, in compliance with demands from dispensaries and institutions. These included more particularly a poster indicating the address of the nearest dispensary of social hygiene for each section of Paris and the suburbs.

Death of Dr. Drouillard

Dr. Drouillard, formerly chief physician of the French Hospital at Jerusalem, died recently at Marseilles at the age of 51, as the result of disease contracted in the colonies and aggravated by the hardships of the war.

Health of Workers

The advisory committee on industrial hygiene, acting under the International Bureau of Labor, has been investigating practical methods of securing information on the hygiene and pathology of labor. The International Bureau of Labor has already published a series of bibliographic documents on industrial hygiene. The commission has drawn up a number of recommendations with regard to researches that should be made in various countries in order to make more general the adoption by industry of practical methods of prevention that are already known.

BUCHAREST

(From Our Regular Correspondent)

Sept. 22, 1923.

Increase of Mortality in Roumania

The deplorable condition of public sanitation in Roumania is evidenced by the request of Dr. Nicolau Papovici, physician to the county of Bihar, Transylvania, for help from the government; he stated that unless active and energetic measures are taken, mortality in the villages, already almost catastrophic among children, will rise terribly. The number of births is decreasing. In July, 49.87 per cent. and in August, 57.21 per cent. of the new-born children died. This enormous mortality is partly due to epidemic diseases, and partly to the great number of saloons, which is still increasing. In Vaskoh, a village with 800 inhabitants, there are seventeen brandy shops. Brandy is cheap, a liter (2 pints) selling for 35 or 40 lei, approximately 18 or 20 cents. In consequence, alcoholism is rampant, and the majority of babies are weakly and suffer from rickets. Papovici recommended that the administrative committee of the county should memorialize the government, requesting the refusal of licenses to sell brandy.

Medical Congress in Czernovitz

A congress of Roumanian physicians held in Czernowitz, the capital of Bukowina, was attended by more than 600 physicians from all parts of the country. The government was represented by the minister of public welfare and health, M. Marzescu, who opened the congress with the statement that the government has been and always will be ready to make monetary sacrifices in the interest of public health and welfare. The congress dealt with the question of improving the system of workmen's compensation in Bessarabia and the old kingdom of Roumania, where at present insurance is in a very primitive stage. M. Marzescu related that on his proposal a law has been drafted providing that all persons seeking relief at mineral springs, inside or outside the country, shall, without regard to their financial status, obtain a reduction of 75 per cent. in the railroad fare within Roumania. The necessity for taking the baths or staying at a climatic resort must be certified to by an official physician: in towns by the medical officer, in villages by the district physicians. Members of the workmen's insurance companies pay no fare when going to the baths for their health.

Dr. Stefanescu, chief medical officer of the province of Bessarabia, spoke about the great shortage of physicians. He said that in more than 100 districts the positions of district physicians are vacant. In Bukowina, out of forty districts these positions are filled in only eighteen. This is largely due to the small salary paid by the state. Energetic efforts will be made by the health officer of Bukowina and Bessarabia to secure salaries large enough to maintain a physician and his family. At present the cities are crowded with physicians, many of them living an indigent life rather than become district physicians. M. Marzescu stated that on his return to Bucharest his first task will be the solution of this important problem. He has learned that about four weeks ago a new disease developed in Bessarabia, which resembles malaria, but is caused by a hitherto unknown fly, and not by mosquitoes. The bite of this fly causes a febrile disease that lasts from four to six days and is accompanied by nasal bleeding and a petechial eruption on the legs, breast and abdomen. Because of the lack of physicians there have been about sixty

fatalities, all of which could have been prevented. In districts where physicians were available, not one patient succumbed. This lesson cannot fail to impress the government and will result in raising salaries sufficiently to attract younger physicians to settle in the country. Luckily the epidemic is over, and it is hoped that next year there will be no recurrence.

Antisemitism in the Universities

The idea of the "numerus clausus" or percentage quota, which caused such distress among the young people in Hungary, has spread to Roumania. But, whereas in Hungary the introduction of the percentage quota allows the admission of a certain number of Jewish students (about 10 per cent), in Roumania the antisemitic excesses that have been perpetrated since November of last year have not only involved the expulsion of Jewish students from the universities but resulted also in closing the universities for more than half a year, so that the students, without regard to creed, have lost one semester. The strongest feelings against Jewish students were encountered in the medical faculty. This started in the dissecting room of Cluj University. Cluj (late Kolozsvar, Clausenburg), is the capital of Transylvania, and its university was founded in 1876. Cluj has a population of about 100,000, and cannot afford to supply the anatomic department of the university with enough cadavers for dissection. This shortage has been increased because many Transylvanian students who formerly used to attend Budapest University were prevented from registering there by the introduction of the "numerus clausus," and non-Jewish medical students were kept back by difficulties in getting passports and visas, and also by the very important circumstance that the Roumanian government has issued an order that medical diplomas issued by Hungarian universities are not valid in Transylvania. The diplomas of Budapest University cannot be validated in Transylvania, although the language of almost all towns in Transylvania is still Magyar (Hungarian), and in the whole territory Hungarian laws relating to public health, forensic medicine and pharmacology are still in force. Cutting off Transylvanian students from the Hungarian universities has resulted in a great increase of registration at the Transylvanian university at Cluj. In other faculties the increase was not so marked because there is another university of law, theology and technology in Transylvania. As the number of first year medical students increased to more than 150, and the number of cadavers available in a season was from twenty to thirty, students have encountered difficulty in getting material for dissection. The number of Jewish students is about sixty, and Gentile students have claimed that Jews have no right to dissect Christian bodies. They have sent an ultimatum to their Jewish colleagues refusing to allow Jewish students to dissect other than Jewish bodies. However, as the ratio of Jews to other races in Cluj and its environs is 1:34, the number of Jewish corpses does not correspond with the ratio of Jewish to Gentile medical students. In addition, the Jewish community provides a fund for burying the bodies of friendless Jews. Under the laws in force in Transylvania, only unclaimed bodies can be utilized for dissection. No Jewish cadavers were sent to the dissecting rooms. When the Jewish communities of Transylvania learned of the antisemitic activities that began with the lack of Jewish cadavers, they offered to supply the unclaimed bodies of Jews for dissection. Jewish bodies were received occasionally, but this did not improve the situation because the foundation of the trouble was the antisemitic feeling, which was upheld by the demand for the "numerus clausus." The students demanded later that Jews be excluded from the lecture halls or they would themselves not attend the lectures. Under these conditions the minister of public instruction closed the medical faculty and later the whole university, not only in Cluj but also in Bucharest and Jassy. It was hoped that the loss of half a year would calm the antisemitic feelings and that at the opening of this semester the students would resume earnest work. This hope, however, has not been realized. In Cluj the students blockaded the entrance of the university against Jewish students. Next day the rector of the university placed a strong police and military patrol before the university building, whereupon the students made such disturbances in the neighboring streets that no Jewish student dared to go outdoors. The rector was obliged again to close the university. The students distributed leaflets by hundreds of thousands, admonishing Jewish students to refrain from attending the university lectures on pain of being whipped. This attitude was common to all the universities of Roumania. M. Angeleseu, minister of public instruction, has resolved to try to open the universities, October 1, and to be personally in Cluj, the center of the excitement. In case the students continue their disorderly conduct, he will use the utmost rigor of the law. He has stated that he will personally attend the classes in anatomy and will allow nobody to interfere with the selection of corpses. If the Jewish communities will supply corpses, so much the better, he says, but he will not try to coerce them.

The worst of these unfortunate events is that hundreds of Jewish medical students prefer to leave the universities of their own country and to go to foreign universities, where they are exposed to poverty and hardship, rather than to be humiliated and even assaulted by their colleagues. Many have withdrawn altogether from the study of medicine, among them some who might have brought glory to their country had they been able to complete their studies and devote themselves to medical science.

BERLIN

(From Our Regular Correspondent)

Sept. 22, 1923.

Exchange for Surgical Films for Instruction Purposes

The surgeons of the universities of Berlin, Breslau and Frankfort-on-the-Main have agreed to make exchanges of surgical films. These films are prepared by the Roth method, which I described in a recent letter.

Women Employable in Disinfection Service

According to a recent decision, women may now be employed in the disinfection service. The regulation provides, however, that in the selection of candidates only those shall be employed who are strong enough to perform the rather arduous duties and manage the disinfecting apparatus. A training course covering fifteen days has been organized.

Regulations Regarding the Sale of Pharmaceutic Remedies

A recently passed federal ordinance contains the welcome provision that, if there are good grounds to suspect that illegitimate traffic in pharmaceutic drugs is being carried on in any place of business, the traffic may be prohibited and, if necessary, the place of business may be closed. This will, it is thought, prevent unreliable dealers from continuing illegal commerce in drugs under a new firm name or through other persons acting for them in the same location.

Birthday Celebrations

SEVENTIETH BIRTHDAY OF SCHULZ

In August, Hugo Schulz, who was for many years professor of pharmacology in the University of Greifswald, celebrated his seventieth birthday. In 1879, he became an instructor in the university, and in 1883 was appointed director of the pharmacologic institute. Schulz was long attacked because he displayed a leaning toward homeopathic principles and was even claimed by the homeopaths as their disciple. In recent years, since nonspecific protein therapy and the principle of changed reactivity of the organism have become generally recognized, opposition to his views has subsided.

His crusade against overvaluation of experimental pharmacology, in the prosecution of which he has at times gone so far as to reject all pharmacologic researches based on experiment, is not greeted with so much hostility as formerly. The Arndt-Schulz biologic "law" has also increased the number of his followers. Of his textbooks, I may mention: "Officinal Plants and Plant Preparations," "Studies on the Pharmacodynamics of Sulphur," and "Outlines of Practical Pharmacology." Two years ago, taking advantage of the old age pension law, he resigned his post and has again taken up his residence in his native city, Rostock.

EIGHTIETH BIRTHDAY OF HIRSCHBERG

September 18, Prof. Julius Hirschberg, the eminent ophthalmologist of the University of Berlin, celebrated his eightieth birthday. He is still remarkably vigorous both in mind and in body. Last year, he delivered an address lasting an hour, in memory of his great teacher Albrecht von Gräfe, without notes and in excellent language. Hirschberg's achievements in his special field are generally known, but special attention may be called to his fundamental researches on congenital and acquired syphilitic changes of the eyes; his scientific and social activities in the crusade against trachoma; his publications on intra-ocular parasites, more particularly, *Cysticercus cellulosae,* the first of which appeared in 1876. His name will be associated especially with the introduction of the electromagnet into ophthalmologic practice. Hirschberg is distinguished also for his linguistic attainments. He speaks probably more than half a dozen modern languages, including Arabic; he is also well versed in the classical languages, and published a special lexicon to the plays of Aristophanes and an edition of Aetius of Amida. His chief literary work is the "Geschichte der Augenheilkunde," which has won the admiration not only of physicians but also of historians and philologists. His "Wörterbuch der Augenheilkunde" and his treatise on the history of Arabian ophthalmologists are also well known. He has traveled much and has acquired a broad knowledge of mankind, which is evidenced by his books "Um die Erde" and "Hellasfahrten." The present economic distress prevented celebration of his eightieth anniversary as it would have been carried out in other days. But, in spite of present conditions, the occasion was celebrated by a small company of friends. He was made an honorary member of the Berlin Medical Association and of the Berlin Society for Internal Medicine, and received other similar distinctions.

SEVENTIETH BIRTHDAY OF FRAENKEL

September 28, the Hamburg pathologist Prof. Eugen Fraenkel will be 70 years of age. He has been active in medical circles in Hamburg since the seventies, serving first as an assistant in the ophthalmologic department of St. George's Hospital. In 1876 he was appointed provisional prosector in this hospital, and in 1879 was given the permanent post; but in 1889, after the large Eppendorf Hospital was completed, he accepted a position in that institution. When the University of Hamburg was founded, he was given the chair of general pathology and pathologic anatomy. He did not confine his activities to theoretical researches on the cadaver but, until a few years ago, enjoyed a rather extensive practice in the field of diseases of the upper air passages. His publications in the realm of pathology and anatomy deal with widely diverse topics. In 1912 he gave an excellent discussion on so-called pseudoleukemia at the convocation of pathologists in Strasbourg. In collaboration with Much, he furnished evidence for the close relationship between pseudoleukemia and tuberculosis. Fraenkel's studies in the field of bacteriology possess still greater importance, and deal with various infectious diseases. His demonstration of typhus from sections of the skin is well known and has been of value for the diagnosis of this disease.

Marriages

WILLIAM NORWOOD ROGERS, Trenton, N. J., to Miss Florence E. Clayton of Jamesburg, September 1.

AUGUSTUS BENJAMIN CHIDESTER, Dexter, N. Y., to Miss Carol Luie Bullock of Cato, October 4.

ORVILLE NEWTON MELAND, Warren, Minn., to Miss Mildred Langtry of Minneapolis, in September.

HARRY LEE PARKER, Rochester, Minn., to Miss Florence Mae Lampert of Madison, Wis., August 4.

PAUL E. JOUARD, Brooklyn, to DR. LOUISE E. STAUDERMANN of Mount Vernon, N. Y., recently.

MORTIMER HARRY WILLIAMS, Roanoke, Va., to Miss Frances Lee of Irvington, September 8.

PATTON K. PIERCE, Tuscaloosa, Ala., to Miss Helen Hammer of University, Va., July 25.

LLOYD CLIFFORD VANCE to Miss Faye Stewart, both of Ponca City, Okla., September 30.

BRAND A. LEOPARD, Minneapolis, to Miss Esther Meyer of Duluth, Minn., in August.

VICTOR CLOUGH RAMBO to Miss Louise S. Birch, both of Philadelphia, October 8.

CHARLES B. WADE, Roseburg, Ore., to Miss Hilda Bechtle of Portland, August 31.

Deaths

David Tod Gilliam, Columbus, Ohio; Medical College of Ohio, Cincinnati, 1871; formerly emeritus professor of gynecology at the Ohio State University College of Medicine, Columbus, and gynecologist to St. Anthony's and St. Francis' hospitals; member of the Ohio State Medical Society, the Pan-American Medical Congress and the Ninth International Medical Congress; formerly vice president of the American Association of Obstetricians and Gynecologists and past president of the Franklin County Medical Society; Civil War veteran; author of "Pocket Book of Medicine," "Essentials of Pathology," "Practical Gynecology" and other works; aged 79; died, October 2, of cerebral hemorrhage. Dr. Gilliam originated the technic of operations for suspension of the uterus and cystocele and devised many surgical instruments.

John Alexander Williams ⊕ Greensboro, N. C.; University of Virginia Department of Medicine, Charlottesville, 1895; president of the North Carolina Hospital Association; past president of the Guilford County and Rockingham County medical societies; on the staff of St. Leo's Hospital; aged 52; died, September 23, in a sanatorium at Baltimore, of a self-inflicted wound in his leg.

Jacob Rosenbloom, Pittsburgh; Columbia University College of Physicians and Surgeons, New York, 1909; member of the Medical Society of the State of New York, the American Biochemical Society, the American Chemical Society, and the Society of Experimental Biology and Medicine; aged 39; died in September, at the Western Pennsylvania Hospital, of pneumonia.

William Henry Burke, Jr., Cambridge, Mass.; Medical School of Harvard University, Boston, 1899; member of the Massachusetts Medical Society; formerly on the staffs of the Lying-In, the City, and the Carney hospitals, Boston; for several years member of the school board; aged 56; died, September 23.

James Widgery Marshall, Leesburg, Va.; Medical Department of Columbian University, Washington, D. C., 1901; member of the Medical Society of Virginia and the Medical Society of the District of Columbia; aged 51; died, September 28, at Johns Hopkins Hospital, Baltimore, of paralysis.

William Radley Miller ⊕ Hartford, Conn.; Albany (N. Y.) Medical College, 1898; member of the New England Society of Psychiatry; served in the M. C., U. S. Army, with the rank of captain, during the World War; neurologist to the St. Francis Hospital; aged 50; died, August 20.

William Edgar Rowe ⊕ Grand Rapids, Mich.; University of Michigan Medical School, Ann Arbor, 1879; formerly county physician; on the staff of the Butterworth Hospital,

where he died, September 24, aged 66, following an operation for carcinoma of the intestines.

Kent Eugene Williams ⊕ Rome, N. Y.; Syracuse (N. Y.) University College of Medicine, 1895; served in the M. C., U. S. Army, with the rank of captain, during the World War; on the staff of the Rome Hospital; aged 55; died, September 25, of heart disease.

Richard Oliver Phillips, Yonkers, N. Y.; New York Homeopathic Medical College, 1877; aged 75; for ten years on the staff of the Homeopathic Hospital, where he died, September 26, of acute dilatation of the heart and pneumonia, following an operation for gastric ulcer.

James Harrison Crawford, Martin, Ga.; University of Georgia Medical Department, Augusta, 1900; member of the Medical Association of Georgia, and the American Academy of Ophthalmology and Oto-Laryngology; aged 51; died, September 22, of appendicitis.

Edward Cornelius Conroy, Andover, Mass.; Baltimore (Md.) Medical College, 1897; member of the Massachusetts Medical Society; for twelve years member of the school board; aged 63; died recently, at Methuen, following an operation for gallstones.

Louie Picot Butler ⊕ St. Louis; St. Louis Medical College, 1888; formerly assistant in surgery at the St. Louis University School of Medicine; on the staffs of St. Louis Maternity, and St. Luke's hospitals; aged 57; died, September 29, of heart disease.

Alonzo A. Ward, Marquette, Neb.; Northwestern Medical College, St. Joseph, Mo., 1882; member of the Nebraska State Medical Association; aged 65; was killed, September 28, when the automobile in which he was driving overturned.

William J. Donahue, Plainview, Ill.; Barnes Medical College, St. Louis, 1898; member of the Illinois State Medical Society; at one time member of the state legislature; aged 66; died, September 26, at St. James' Hospital, Pontiac.

Minna May Austen, Halifax, Nova Scotia; Dalhousie University Faculty of Medicine, Halifax, 1903; for ten years a medical missionary for the Methodist Church of Canada, in China; aged 42; died recently, following a long illness.

Philander B. Wright, Berkeley, Calif.; Eclectic Medical Institute, Cincinnati, 1868; Civil War veteran; formerly a practitioner in Michigan, and member of the school board, Grand Rapids; aged 82; died, September 21, of senility.

William J. Awty ⊕ Fargo, N. D.; Trinity Medical College, Toronto, Ont., Canada, 1891; past president of the Clay County and the Becker County (Minn.) medical societies; aged 61; died in September, at Charleston, Ill.

William F. Hicks, Raymond, Ill.; Missouri Medical College, St. Louis, 1871; Chicago Medical College, 1880; formerly coroner and member of the board of education; aged 87; died, September 19, of senility.

John Edward Allport, Los Angeles; Baltimore (Md.) Medical College, 1897; member of the California Medical Association and the Ohio State Medical Association; aged 60; died September 20, of heart disease.

James Monroe Tibbits, West Fulton, N. Y.; New York University Medical College, 1881; Civil War veteran; formerly coroner and health officer; aged 82; died, September 6, of chronic nephritis.

John Luther Kelly, Hope, Ark.; University of Arkansas Medical Department, Little Rock, 1898; member of the Arkansas Medical Society; aged 55; died, September 22, following a long illness.

James F. Gard, Santa Ana, Calif.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1874; formerly a practitioner in Kansas and Missouri; aged 84; died in September, of senility.

Charles Stuart Menzies ⊕ Portland, Ore.; Rush Medical College, Chicago, 1909; served in the M. C., U. S. Army, during the World War; aged 38; died, September 13, of chronic nephritis.

William C. Leaman, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1889; member of the Medical Society of the State of Pennsylvania; aged 65; died, September 22.

Walter B. Vaughan, Honey Grove, Texas; Kentucky School of Medicine, Louisville, 1891; member of the State Medical Association of Texas; died, September 24, of cerebral hemorrhage.

Frank Edwin Castle ⊕ Waterbury, Conn.; Yale Medical School, New Haven, 1870; on the consulting staff of the Waterbury Hospital; aged 78; died, September 3, of chronic nephritis.

Albert J. Strain, London, Ohio; Miami Medical College, Cincinnati, 1873; member of the Ohio State Medical Association; aged 78; was found dead, September 24, of heart disease.

Thomas Francis Quinlan ⊕ New York; Bellevue Hospital Medical College, New York, 1895; at one time member of the board of health; aged 60; died, September 26, of heart disease.

James M. Slaughter, Wildwood, N. J.; University of Maryland School of Medicine, Baltimore, 1855; also a druggist; aged 89; was found dead in bed, October 8, of heart disease.

Rebecca C. Wolfe Brannon, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1895; aged 63; died, September 29, in New York City, of heart disease.

Edmund Douglas Welch, Washington, D. C.; Georgetown University School of Medicine, Washington, 1920; aged 27; died, September 26, of myocarditis, following influenza.

John H. Crozier, Cedar Springs, Ga.; University of Georgia Medical Department, Augusta, 1876 member of the Medical Association of Georgia; aged 69; died, September 22.

Elijah S. Smith ⊕ Urbana, Ill.; Chicago Homeopathic Medical College, 1896; Hahnemann Medical College and Hospital, Chicago, 1905; aged 67; died, September 24.

Sherman Ripperton, Wyndmere, N. D.; Keokuk (Iowa) Medical College, 1905; aged 57; died, September 17, at a hospital in Lidgerwood, of pernicious anemia.

Edwin D. Ward, Hillsboro, Texas; Chattanooga (Tenn.) Medical College, 1893; member of the State Medical Association of Texas; aged 53; died, July 27.

William F. Stokes, Norris City, Ill.; University of Tennessee College of Medicine, Memphis, 1882; aged 67; died, September 20, following a long illness.

George W. Clark ⊕ Waterloo, N. Y.; Detroit (Mich.) College of Medicine and Surgery, 1893; aged 51; died, August 16, at Detroit, of mitral regurgitation.

J. S. Wilson, Ferris, Texas; Kentucky School of Medicine, Louisville, 1879; formerly county health officer; aged 76; died, September 23, of senility.

Hays A. Compton ⊕ Bellingham, Wash.; University of Nashville (Tenn.) Medical Department, 1882; aged 59; died, September 19, of pleurisy.

Frank C. Hoffmeier, St. Joseph, Mo.; University of Maryland School of Medicine, Baltimore, 1867; aged 78; died, September 14, of senility.

John D. Irgens, Bergen, Norway (licensed, U. S. A., years of practice); formerly a practitioner in Sioux Falls, S. D.; aged 67; died recently.

C. G. Bradford, Reeds, Mo.; Missouri Eclectic Medical College, Kansas City, about 1880; aged 78; died, recently, of chronic nephritis.

Benjamin McClasky, Louisville, Ky.; University of Louisville Medical Department, 1880; aged 64; died, September 23, of heart disease.

William Lemuel Rogers, Houston, Texas; Kentucky School of Medicine, Louisville, 1883; aged 64; died, September 14, at a local hospital.

Charles C. Yeiser ⊕ Colbert, Okla.; Medical College of Evansville, Ind., 1878; aged 69; died, September 17, of pernicious anemia.

James Franklin Baker, Denison, Texas; Physio-Medical College of Indiana, Indianapolis, 1896; aged 61; died, September 16.

D. C. Bennett, Fountain Inn, S. C.; Atlanta (Ga.) Medical College, 1861; aged 80; died recently, of chronic endocarditis.

Palmer H. Irish, Akeley, Minn.; University of Minnesota Medical School, Minneapolis, 1900; aged 46; died, August 24.

David Owens Taylor, Sandusky, Mich.; Miami Medical College, Cincinnati, 1875; aged 77; died, September 18.

F. E. Hamilton, Parsons, Kan. (years of practice); Civil War veteran; aged 89; died, September 25, of senility.

David John Williams, Richmond, Ky.; Tennessee Medical College, Knoxville, 1895; aged 48; died, September 25.

John H. Randle, Knoxville, Tenn. (years of practice); Civil War veteran; aged 81; died, August 4, of senility.

B. F. St. John, Stonefort, Ill. (licensed, Illinois, 1877); aged 88; died, September 27, of senility.

The Propaganda for Reform

In This Department Appear Reports of The Journal's Bureau of Investigation, of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other General Material of an Informative Nature

MORE MISBRANDED NOSTRUMS

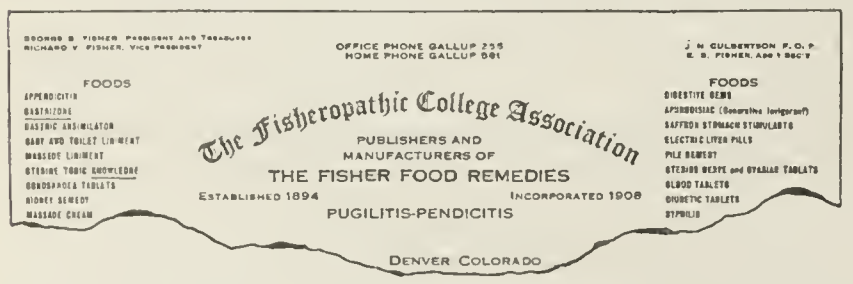
Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Fisher's Uterine Tonic and Fisher's Kidney Food.—A quantity of these two products were shipped in January, 1921, by the so-called Fisheropathic College Association of Denver, Colo. This is a crude piece of mail-order quackery operated by one George B. Fisher, a particularly blatant and persistent faker who has been in the courts more than once. In 1911 the papers reported that Fisher had been convicted of sending obscene matter through the mails, and that the federal judge, before whom the case was heard, had scathingly denounced Fisher for the filthy stuff he was distributing. The judge was quoted as saying from the bench that a man who was guilty of the practices of which Fisher had been convicted was of the lowest species of humanity, unfit to mingle with decent and respectable people. More than ten years ago the Propaganda department collected some of the advertising matter of Fisher's fakery. A letter was written to the concern purporting to come from a woman asking for particulars about a uterine tonic. A series of follow-up letters resulted. One of the series opens with the question:

"Did you take your Fisheropathic Nightcap before sleep last night? (motion 1). This is the motion that makes fat babies and new blood."

When the Bureau of Chemistry in the present case analyzed "Fisher's Uterine Tonic" they reported that it contained ammonia, traces of ammonium salts, including iodid and carbonate, vegetable extractives, glycerin and water. The federal authorities declared it misbranded because it was fraudulently represented as an effective cure for "lack of passion," absence of menstrual flow, blood poisoning, cancer of the uterus, gonorrhea, and various other conditions.

Analysis by the same chemists of "Fisher's Kidney Food" showed the stuff to contain a small quantity of vegetable extractives, citric acid, sugar, alcohol and water. This was



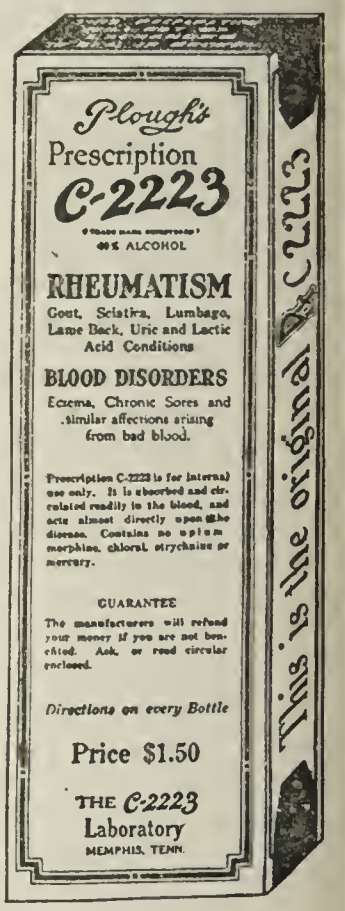
declared misbranded because the label declared the presence of only 6 per cent. alcohol when it contained more than 12 per cent. In January, 1923, the concern pleaded guilty and was fined $50.—[*Notice of Judgment No. 11402; issued Oct. 4, 1923.*]

San-Yak.—Edgar S. Burnham, Detroit, Mich., who did business under the name of Burnham Medical Co., shipped in December, 1918, a quantity of "Dr. Burnham's San-Yak" which was misbranded. When the preparation was analyzed by the federal chemists it was found to have essentially the following composition:

Alcohol	7.0 per cent.
Plant extracts, including cinchona and a laxative drug	2.4 per cent.
Water	92.0 per cent.

The preparation was falsely and fraudulently represented as an effective treatment, preventive, remedy and cure for Bright's disease, prostatic troubles of old men, rheumatism, tuberculosis, appendicitis, eczema, tired feelings, diseases of the nerves, hardening of the arteries and a dozen or more other conditions. In September, 1922, Edgar S. Burnham pleaded guilty and was fined $50.—[*Notice of Judgment No. 11421; issued Oct. 4, 1923.*]

Plough's Prescription C-2223.—The Plough Chemical Co. of Memphis, Tenn., shipped in December, 1922, and February, 1923, a quantity of "Plough's Prescription C-2223." This concern also puts out a line of nostrums that it calls the "Black and White Preparations." When the federal chemists analyzed "Plough's Prescription C-2223" they reported that the product consisted essentially of potassium iodid, extracts of plant drugs, including colchicum, a trace of salicylic acid, glycerin, alcohol and anise flavoring. Some of the claims made on the trade package for the product were:



"A Reliable Blood Purifier."

"A Treatment for Rheumatism. . . . Sciatica, Lumbago, Lame Back, Blood Disorders, Eczema, Chronic Sores and Similar Diseases Caused by Bad Blood."

"Men, women and even children, whose energy has been sapped and their life almost wrecked, who were troubled with festering sores or tortured with rheumatic pains, have been relieved from the grip of these diseases, after the continued use of our treatment with Prescription C-2223."

These and similar claims were declared false and fraudulent and in April, 1923, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 11418; issued Oct. 4, 1923.*]

Chicawampa Tea.—The Chicawampa Tea Co. of Reno, Nevada, shipped in December, 1922, and January, 1923, a quantity of its product, which the federal authorities charged was misbranded. When analyzed by the Bureau of Chemistry, the product was found to consist essentially of cut herbs, principally the *Ephedra nevadensis* (which seems to be known locally as "Caynote" or "Canutilo") with small proportions of peppermint and sage. The label of the product contained the following claims:

"Chicawampa Tea is one of the most energetic blood purifiers, vital restoratives, especially for old people, and is recommended as a means of invigoration in exhaustive diseases, loss of blood or general debility. It is used for Bright's Disease, Diabetes and Rheumatism; Liver, Bladder and Kidney Troubles; Helps in the elimination of Uric Acid from the blood and is recommended for all urinary troubles. A help in Female Troubles."

These claims were declared false and fraudulent and in April, 1923, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 11419; issued Oct. 4, 1923.*]

Man-Made Malaria.—A surprisingly large proportion of the mosquito breeding in malarious districts can be prevented by the simple and obvious expedient of forestalling the creation of artificial breeding places. Dr. Henry R. Carter estimates that 60 per cent., and in some places as much as 75 per cent., of the malaria is due to man-made breeding places. Railroads have been offenders, mainly by leaving borrow pits and interfering with natural drainage. In many cases highway construction has involved the same practices. By the use of improper methods, agricultural drainage projects have often created much malaria. The impounding of water for power or other industrial purposes is a prolific source of man-made malaria. Improperly constructed street gutters, faulty methods of irrigation and gold dredging, leaky hydrants and water mains, artesian wells, overflowing cesspools, abandoned wells, fire protection water barrels, water troughs, all contribute to the easily preventable *Anopheles* breeding.—Report of International Health Board of the Rockefeller Foundation, 1922.

Correspondence

"DEPILATORY AND ANTISEBACEOUS ACTIONS OF BORIC ACID"

To the Editor:—In a recent communication by Dr. P. J. Hanzlik (THE JOURNAL, September 29, p. 1134), he quotes a statement made incidentally in my textbook of "Physiological Chemistry" in the course of a discussion on surface tension. The statement is to the effect that sufficient ingestion of boric acid so prevents the secretion of oil in the skin that a rod touched to the skin and then to water no longer lowers the surface tension of water, and I put in the further statement that this loss of oil was accompanied by a falling out of the hair which might be total. Dr. Hanzlik criticizes this statement. He says: "This reference to the depilatory and antisebaceous actions of boric acid is not, however, supported by evidence in the book, *and one searches in vain for evidence in the existing scientific and clinical literatures* [italics mine], and in current works on toxicology and therapeutics." After making this statement, he quotes some observations of Evans that two patients who had taken boric acid showed a temporary loss of hair. Evidently Dr. Hanzlik does not consider Evans' statement that the hair on the face and head fell out as supporting my statement. He then closes with the remark: "It should be emphasized, however, that uncritical statements concerning the actions and therapeutic possibilities of drugs, especially of the new and untried variety, must be particularly deprecated in textbooks devoted to the fundamental medical sciences." Of course, Dr. Hanzlik does not mean that boric acid is a new untried variety of drug, although his statement would seem to imply as much.

If Dr. Hanzlik had written me personally I should have been glad to send him a reference to the evidence for my statement, but he did not do so. It is not always easy to find the observations back of a statement in a textbook, but I am surprised that in such a well known and much worked on subject as the physiologic action of boric acid he should have had any difficulty, since the observations of the action of borax taken internally on the skin have been made by many observers.

The particular paper that I had in mind when I cited this illustration to bring attention to a practical use of surface tension phenomena in medicine was that of C. Féré entitled "Note sur l'action du borax administré par la voie gastrique sur les sécrétions cutanées" (*Compt. rend. Soc. de biol.* **5**:987-989, 1893). In that paper Féré says, apropos of giving borax to epileptics in doses of from 2 to 20 gm. daily: "One of the cutaneous affections which most frequently occurs in the course of the boric treatment is a form of eczema which corresponds to the description of the eczema called seborrheic, but which takes very diverse aspects. . . . These eruptions are accompanied by a fine, dry desquamation of the skin of the scalp, the hair becoming brittle and falling out; it is not rare to see a generalized alopecia produced. The boric alopecia is not limited to the scalp, it extends to the hairs of the pubis and the axillae. *I have seen many sick completely dehaired* [italics mine]. The hairs on the pubis are not destroyed and grow out again like that on the head when one ceases the administration of borax, or even under the influence of intestinal antisepsis or by local treatment of the seborrheic eczema." And he goes on to point out the action on decreasing the secretion of sebum, just as I reported it in my textbook. He quotes also from the paper of Arnozan: "De la répartition des sécrétions grasses normales à la surface de la peau" (*Ann. de dermat. et de syph.*, 1892, p. 1) and from various other authors.

I trust that this reference will put Dr. Hanzlik on the track of the evidence he sought without success, and will remove from his mind the horrid suspicion that I conjured this alleged action of boric acid out of my inner consciousness.

ALBERT P. MATHEWS, PH.D., Cincinnati.

CONDITIONS IN THE INDIAN MEDICAL SERVICE

To the Editor:—I have read the communications of Mr. Hoffman and Dr. Darey on health matters relating to the government Indian Service in recent issues of THE JOURNAL which seem to indicate "open season" on this service. While I have no authority delegated by the latter to enter any controversial discussion of this subject, a rather long service as boarding school physician, agency physician, special physician in the field, and superintendent of both boarding school and agency has given me, I think, a thorough knowledge of Indian health conditions and the causes therefor, from which I beg to point out certain considerations that should not be excluded from the fair presentation of the subject.

Primarily, in medical and surgical practice, the physician is in a position analogous to that of the sportsman, who must catch his rabbit before he eats it. The physician must reckon with his patient's understanding to gain that control which is essential to successful administration. If the latter's intelligence is high, it is usually easy to order his therapy, his regimen, and his mode of living. In the utter lack of understanding and cooperation lies the stumbling block to the successful treatment and control of disease in the Indian population.

Obviously, congressional action, altruistic agitation, or greater efficiency in the professional effort that is now being expended cannot greatly change this phase of the problem. For example, if the ageney physician makes a hurried drive out twenty miles in answer to urgent representations that an Indian is dying across the prairie, and finds, on arrival, that his patient has gone visiting, or he finds on each visit to his tuberculous patients that they persist in expectorating against the walls or on the floors despite most earnest protests on his part, nothing short of a missionary spirit will serve to keep up professional interest, which observers too often find wanting, and attach the blame to government agencies not responsible.

Indian education, as fostered by the government for the last forty or fifty years, has done much to render medical effort availing; but a primitive race cannot be lifted to the plane of civilized living in a few years, especially when this primitive population is scattered widely and thinly. Educated Indian women are excellent mothers, and usually their homes are sanitary. There are fewer little Indian graves than formerly, as a result of better sanitation in such homes.

It may be conceded, perhaps, that by the expenditure of millions of dollars, housing conditions might be made adequate to modern sanitary requirements; but unless there is an understanding of household sanitation on the part of the occupants, disease will still exist. This, of course, is no argument against good houses for Indians if money could be had to provide them; but the lack of funds is a better reason for housing conditions, as they exist, than official indifference. I do not believe that the Commissioner of Indian Affairs, or his subordinates, lack sympathy or are derelict in health matters relating to their wards.

To persons familiar with Indian legislation, it is well understood that Congress scowls at adequate appropriations for the needs of the Indian Service. Economy is the word most heard by administrators in this service. Free the Indian from government supervision entirely and let him survive or become

extinct is a slogan in the Indian country, emanating, of course, from motives of plunder, and the feeling that the Indian has cost the government too much looms much larger in congressional circles than the aspect of a dying race, if the race may be said to be dying. It may be stated here, in passing, that by miscegenation and education the race is not only holding its own, but is gaining a little.

There is no doubt that the Indian Office is doing much with its small appropriations for health work, and that it would do more if funds were available. There is also no doubt that larger appropriations should be made for this work.

That the pay of workers in the Indian Service should be increased admits of no argument. However, living expenses in the field are low, and the usual inducements to spend, such as confront the urban dweller, are absent. So are the inducements to professional effort, which constitute a great drawback to the desirability of this work for professional men who aspire to great skill and renown.

It is doubtless true that there are instances in which physicians in the Indian Service are handicapped by higher authority, lack of equipment, and other conditions making their positions untenable; but there are also instances of physicians seeking authority not required by their professional duties.

Not all the cases of snobbery and injustice are confined to the other side, and I doubt whether there is any perfect government service in which friction never arises. I think it may be taken as a truth that no medical man or woman who is not imbued with a broad altruism should enter this Indian health work; but those seeking a field for missionary effort will find in plenty such scourges as tuberculosis and trachoma widespread and arousing the pity of friends of the race. But it may be truly inferred that the Indian Service is no "pink tea" affair; that it is hard going at times, and that the reward is not munificent so far as pay or fame is concerned.

Otis O. Benson, M.D., Floodwood, Minn.

[Note.—The letter by Dr. Benson, and the one by Dr. J. H. Darey published last week, were referred in proof to Dr. Hubert Work, Secretary of the Interior, who replies:]

To the Editor:—I have read with interest the communications in proof form entitled "Conditions in the Indian Medical Service," by Dr. Otis O. Benson of Floodwood, Minn., and by Dr. J. Herbert Darey of Sioux City, Iowa, and am pleased that the physicians are directing thought toward the activity of the government's dealing with human welfare.

In staccato form, to insure brevity: There are approximately 340,000 Indians in the United States, an increase of 13,500 during the last ten years. Over 100,000 Indians have been removed entirely from the jurisdiction of the Interior Department, so far as their individual property rights may be concerned, but some of these Indians still retain an interest in undistributed tribal property.

The records of the Indian Office show that for the fiscal year ended June 30, 1923, there were approximately 19,073 Indians suffering from active and latent tuberculosis, and 27,745 suffering from trachoma, including conjunctivitis follicularis.

The appropriation for health work in the Indian Service in 1911 amounted to $40,000; the current appropriation act carries $370,000 for this work, and we are asking in our estimates for next year $470,000.

In 1888 we had four hospitals in the Indian Service. This number has been increased to seventy-eight at this time. Our total hospital capacity amounts to 2,222 beds. During the fiscal year there have been cared for in different hospitals approximately 16,000 patients, giving a total of about 486,000 hospital days.

In 1895 we had seventy-four physicians in the Indian Service; we now have 208. In 1895 we had eight nurses; we now have 105. In 1895 we had seven other health hospital employees; we now have 100. In 1895 we had three field matrons; we now have eighty-seven. We also have seven traveling dentists who travel from one jurisdiction to another in their respective districts and perform dental work for the pupils in the schools and also for the reservation Indians.

The Public Health Service has cooperated closely with the Indian Service, and in 1913 submitted a report to Congress on "Contagious and Infectious Diseases Among the Indians." A copy of that report is enclosed herewith. The conclusions and recommendations are found, beginning with page 80.

The Red Cross has detailed three of its nurses to our service, who have been working among the Indians during the last year, and have rendered valuable service.

The National Tuberculosis Association made a careful investigation of the health conditions among Indians recently, and its report is published in Senate Committee Print, Sixty-Seventh Congress, Fourth Session. Attention is invited to the recommendations of that committee found on page 44 of that report; also their comment found in the paragraph on page 44 reading as follows:

> Of adverse critics there are still very many, but in view of the real accomplishments of the Indian Service during the last decade, in the face of the most adverse circumstances, it cannot be claimed that there has been a lack of intelligent and efficient direction in the health movement among the Indians. The efforts of the bureau and its health service naturally find their limitation in the lack of adequate funds, and all fair-minded critics will probably concede that what has been accomplished marks a new epoch in Indian history, and is a most encouraging indication of a still more bountiful harvest in the future.

An interesting history of the development of the Indian Service health activities is found in Indian Office Bulletin No. 11, 1922. There is also a photographic copy of a table showing the vital statistics, housing and diseases during the fiscal year ended June 30, 1923. The general death rate among Indians has decreased from 23.24 per thousand in 1913 to 19.31 per thousand in 1923.

The Indian Medical Service has been greatly handicapped because of lack of funds and the inability to pay higher salaries. It is hoped that the Reclassification Act will enable our service to pay the same salaries to physicians that are paid in other services of the government. We need larger appropriations for health work. We hope eventually to get hospitals at practically every Indian school and agency. We also need a materially increased number of physicians, nurses and field matrons to handle health and sanitary work among the Indians.

From copies of reports you may learn that the Indians are scattered through twenty-four states; that our authority over different tribes varies, and that over many of them we have none at all.

Fundamentally, our first embarrassment in this service is lack of adequate funds to employ necessary personnel to accomplish what seems to us necessary. Theoretically, all superintendents of Indian agencies should be physicians. That would obviate conflicts in authority between lay superintendents and medical policies. That solution of the question is impossible for the principal reason that the physician who joins medical skill with organizing administrative ability is very rare. You will see, however, by the memoranda and charts submitted, that the Indian Bureau is making progress, and it is hoped that the open publicity on the Indian question that I am inviting may have its influence in Congress, which necessarily dictates the total amount to be expended and the actual positions and salaries to be attached under civil-service law.

Hubert Work, Washington, D. C.
Secretary of the Interior.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DIFFERENCE BETWEEN TINCTURE OF IODIN AND COLORLESS IODIN

To the Editor:—Please state the therapeutic difference, if any, between the ordinary U. S. P. tincture of iodin and the colorless iodin. Is the latter as efficient locally and internally as the former? Please omit name. ———, M.D., Oklahoma.

ANSWER.—Tincture of iodin contains free iodin, whereas the so-called colorless iodin preparations do not contain iodin in the free state, but some form of combined iodin, chiefly iodid. For instance, Tinctura Iodi Decolorata, N. F., is a solution of sodium iodid and ammonium iodid obtained by mixing iodin and sodium thiosulphate, stronger ammonia water and alcohol.

When tincture of iodin is used externally, it is with the view of obtaining the therapeutic action of free iodin. Since the colorless iodin preparations do not contain free iodin, their external use as a substitute for tincture of iodin is irrational. When tincture of iodin is given internally, the free iodin contained in it is converted into iodid before absorption. Therefore, tincture of iodin and the so-called colorless iodin preparations given internally have essentially the same therapeutic effect. However, if a colorless iodin preparation is to be administered internally, it would be simpler and more rational to administer sodium iodid.

BEDBUG AS CAUSE OF DISEASE

To the Editor:—Please refer to literature that concerns the bedbug as a cause of disease. G. L. H. B., Boston.

ANSWER.—

Cornwall, J. W., and Menon, T. K.: Possibility of Transmission of Plague by Bedbugs, *Indian J. M. Res.* **5**: 137 (July) 1917.
Cumston, C. G.: Pathogenicity of Cimex Lectularius, *New York M. J.* **108**: 1082 (Dec. 21) 1918.
Friedman, G. A.: Possible Spread of Influenza Through Bedbugs, *M. Rec.* **95**: 14 (Jan. 4) 1919.
Relation of Bedbug to Public Health, Its Habits, Life History and Methods of Control, *Pub. Health Rep.* **35**: 2964 (Dec. 10) 1920.
Arkwright, J. A.; Atkin, E. E., and Bacot, A.: An Hereditary Rickettsia-Like Parasite of Bedbug, *Parasitology* **13**: 27 (March) 1921.
Francis, E., and Lake, G. C.: Transmission of Tularemia by Bedbug, *Pub. Health Rep.* **37**: 83 (Jan. 20) 1922.
Adie, H. A.: Development of Leishman-Donovan Parasite in Spleen Juice and in Alimentary Tract of Cimex Lectularius, *Indian J. M. Res.* **9**: 255 (Oct.) 1921.
Cornwall, J. W.: Note on Salivary Glands and Sucking Apparatus of Cimex Rotundatus, *Indian J. M. Res.* **10**: 687 (Jan.) 1923.

TREATMENT OF ROENTGEN-RAY BURN

To the Editor:—Please give duration and the most up-to-date treatment for a superficial roentgen-ray burn of the leg, through Queries and Minor Notes. Kindly omit name and address. M.D., Texas.

ANSWER.—The duration of a roentgen-ray burn is variable, and even a superficial burn may take several months to heal. Healing usually takes place most rapidly and the patient is rendered most comfortable by the use of wet dressings, such as calamine lotion, 0.5 per cent. aluminum subacetate solution, lead and opium wash, etc. Ointments should not be used if there is any discharge, but pastes, such as Lassar's paste made without salicylic acid, are often serviceable. The surface should be kept clean.

BENCE-JONES BODIES

To the Editor:—Please let me know the significance of Bence-Jones bodies, in what diseases they are found, and how to detect them.
A. P. BUTT, M.D., Elkins, W. Va.

ANSWER.—The Bence-Jones body, or protein, is probably a true albumin. Its exact chemical nature has not been determined, and little is known regarding its direct origin. It is excreted in cases associated with multiple myelomas of the bones, especially when they affect the thoracic skeleton. It has been observed in a few cases of leukemia and in a case associated with metastatic carcinoma. However, its presence in the urine may be regarded as practically pathognomonic of multiple myelomas, but a negative finding in the urine does not necessarily preclude this condition.

The specific reaction for the Bence-Jones body, says Webster, is observed on heating the acidified urine very slowly. At from 50 to 60 C. a slight cloud changing to a marked turbidity, then into a dense cloud is observed; when the boiling point is reached, the precipitate entirely or partially dissolves, especially if boiling is continued from one to three minutes. If the tubes are allowed to stand after boiling, the precipitate returns as the fluid cools. None of the other protein bodies give this sequence of precipitation, dissolving and reprecipitation. The literature, according to Webster, contains only about thirty-five cases showing the excretion of this body.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, November 13-14. Sec., Dr. J. W. Walker, Fayetteville.
CONNECTICUT: Hartford, November 13-14. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.
CONNECTICUT: New Haven, November 13-14. Sec. Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport.
MAINE: Portland, November 13-14. Sec., Dr. Adam P. Leighton, Jr., 192 State Street, Portland.
NEBRASKA: Lincoln, November 6-8. Supt., J. D. Case, Lincoln.
NEVADA: Carson City, November 5. Sec., Dr. Simeon L. Lee, Carson City.
SOUTH CAROLINA: Columbia, November 2. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
TEXAS: Dallas, November 20-22. Sec., Dr. T. J. Crowe, Dallas County Bank Bldg., Dallas.
WEST VIRGINIA: Charleston, October 23. Sec., Dr. W. T. Henshaw, Frankenberger Bldg., Charleston.

Maine July Examination

Dr. Adam P. Leighton, Jr., secretary, of the Maine Board of Registration of Medicine, reports the written examination held at Augusta, July 10-11, 1923. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Sixteen candidates were examined, all of whom passed. Two candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Boston University		(1923)	84.2
Harvard Medical College		(1884)	79, (1920, 2) 83.5, 87, (1921, 2) 85.6, 89, (1922) 84, (1923, 3) 82, 85, 87.2
Tufts College Medical School		(1921)	88
Jefferson Medical College of Philadelphia		(1923)	83.4
Laval University Faculty of Medicine		(1923)	79
McGill University		(1920)	80, (1923, 2) 83.5, 86

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Baltimore Medical College		(1903)	Maryland
University of Vermont		(1921)	Vermont

Utah July Examination

Mr. J. T. Hammond, director of the Utah Department of Registration, reports the written examination held at Salt Lake City, July 5-7, 1923. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Seven candidates were examined, all of whom passed. Six candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado		(1923)	82.3
George Washington University		(1923)	76.6
Northwestern University Medical School		(1923, 2)	76.5, 81.8*
Rush Medical College		(1922)	86.1
Harvard Medical College		(1923, 2)	78.7, 80.8

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado		(1901)	Wyoming
Northwestern University Medical School		(1922), (1923)	Illinois
Rush Medical College		(1921), (1923)	Illinois
Hospital College of Medicine, Louisville		(1888)	Texas

* This candidate has finished his medical course, and will receive his M.D. degree on completion of a year's internship in a hospital.

Book Notices

The Doctor Looks at Literature. Psychological Studies of Life and Letters. By Joseph Collins. Cloth. Price, $3, net. Pp. 317, with 12 illustrations. New York: George H. Doran Company, 1923.

During the last few years, literary magazines have been publishing a new type of literary sketch, and readers have been given a new point of view for the consideration of the work of many interesting and important writers. Several years ago, Albert Mordell wrote on the "Erotic Motive in Literature," and analyzed the novels of the period from the standpoint of the amateur psychanalyst; in Germany, Birnbaum, in a book called "Psychopathologic Documents," traced the illnesses of authors in their works; but apparently this volume by Dr. Joseph Collins is the first attempt to analyze the underlying motives of great writers, both from their works and from their biographies, that is worthy of quite serious attention. In his first chapter Dr. Collins shows that the fiction of today is marked by psychologic observation, not only intuitive psychology but the actual application of the psychologic method. He then proceeds to an analysis of some of the important writers of the period. He has not, however, included one American, so that the book is essentially a volume for the litterateur rather than for the average reader. The works of James Joyce, Marcel Proust, Amiel, Duhamel and even of Dr. D. H. Lawrence are not those that appeal to the multitude. Still less is this the case as regards Katherine Mansfield, Stella Benson or Dorothy Richardson. The outstanding sketch in the book is that relating to the Russian novelist, Feodor Dostoievsky, who was, as Dr. Collins rightly asserts, the great master in the depiction of psychopathic types. Dr. Collins' book has given great concern to the professional literary critics. Many of them have been confused at his manner of approach, and not a few have betrayed an unconscious resentment at the intrusion of the scientist into the field of literary criticism. This is the inevitable reaction of the standardized type of mind. The book marks Dr. Collins as a scholar, as well as a psychologist and psychiatrist, and he is to be congratulated not only on the literary style of his work but also on its timeliness and transcendent interest.

Manuel de Neurologie Oculaire. Par F. de Lapersonne, Professeur de Clinique ophtalmologique et A. Cantonnet, Ophtalmologiste de l'Hôpital Cochin. Second edition. Paper. Price, 20 francs, net. Pp. 416, with 113 illustrations. Paris: Masson et Cie, 1923.

A second edition of this model manual is most welcome. We call it a model manual because it is clear, concise and so well arranged that one gets oriented at a glance. The subject matter is treated from any point of view desired: anatomy; lesions and their symptoms; symptoms with underlying lesions and diseases in which they occur; diseases of all kinds with review of their ocular symptoms, etc. In other words, the cross index arrangement is perfect, and both ophthalmologists and neurologists may quickly inform themselves regarding matters wherein their subjects touch.

The Operative Treatment of Glaucoma. By H. Herbert, F.R.C.S., Consulting Surgeon to the Nottingham and Midland Eye Infirmary. Cloth. Price, $3 net. Pp. 152, with 31 illustrations. New York: William Wood & Co., 1923.

The number of operations done for glaucoma indicates the dissatisfaction of ophthalmic surgeons with the present methods of dealing surgically with increased intra-ocular tension of whatever type. Herbert here advocates the "iris inclusion operation" after twenty years' experience with this procedure. He is convinced that a successful iridectomy is in nearly all cases an example of subconjunctival drainage. From 1895 to 1900 he practiced the classical iridectomy with disheartening results. Since 1900 he has resorted to subconjunctival iris encleisis in a wound of moderate size, and feels that this type of operation holds out the greatest hope for the future, and that the danger of late infection and fistulization can be eliminated. The author uses either the broad keratome or the Graefe knife to make his incision, after having slid the conjunctiva toward the limbus. Iris forceps are passed down into the chamber quite close to one end of the sclerocorneal wound, and a small hold of the iris is taken midway between its base and the pupillary margin. The iris is drawn well through the angle of the wound; to be nipped there and released. The same thing is done at the other end of the wound. Then either a transverse or a vertical excision of the central portion of the iris is done. The author does not suture the conjunctiva over the wound. The book is divided into a preliminary chapter and chapters on general principles, practical application, technic, after-treatment and complications. It is largely a collection of papers already published, but revised and well connected. Details are not lacking where essential. There is much reference to the author's experience in India, where treatment must be immediate and permanent, and one must always keep in mind that the patients pass away from observation as do patients from out of the way places anywhere.

Erkrankungen des Rectum und Sigmoideum: Pathologie, Diagnostik, Verlauf, und klinische Therapie. Von Dr. H. Strauss, a. o. Professor an der Universität. Paper. Pp. 208, with 88 illustrations. Berlin: Urban & Schwarzenberg, 1922.

In a fairly concise and clear manner, Dr. Strauss discusses the various affections of the rectum and sigmoid. He points out, quite advisedly, that the statistics of frequency of these disturbances vary with the type of the practice of the physicians consulted. The internist sees fewer organic diseases of these parts than the gynecologist or the surgeon. The author lays stress on three important methods of examination: proctoscopy, digital examination and roentgenoscopy. In the description of mucous colitis, to which considerable space is devoted, he does not lay much stress, as do some of the other German gastro-enterologists, on the rôle of cathartics as an etiologic factor. He, like Van Noorden, favors an anticonstipation diet. While no space is devoted to surgical measures, for which the reader is referred to the proper sources, the author favors the injection method of treatment of hemorrhoids in selected cases. Appendicostomy, rather than ileostomy, is the method of choice in ulcerative colitis, on account of the lowered mortality rate. A full discussion of medical management of the various affections is given in detail. There are many illustrations. The legends are satisfying, and the subject matter is well handled. The author quotes freely from American and European writers. There is an extensive bibliography.

Sémiologie Oculaire. La Calotte Cornéo-Sclérale. Anatomie—Physiologie—Pathologie. Par Félix Terrien, Professeur agrégé à la Faculté de Médecine de Paris. Paper. Price, 25 francs, net. Pp. 260, with 144 illustrations. Paris: Masson et Cie, 1923.

This book deals with the subject matter in a manner too complex for the student and general practitioner and too sketchy for the ophthalmologist. The author considers the bulbar conjunctiva, the cornea, the sclera, the anterior chamber angle and the iris as a separate division of the eye, and treats of these tissues alone. The anatomy, physiology and diseases of these parts are dealt with in a rather haphazard manner, without the system and order that one expects to find in a textbook. The etiology of disease affecting the corneoscleral calotte is handled fragmentarily, so that that phase of the book is of but little use to either the ophthalmologist or the general practitioner. The printing is good, but the binding is characteristically European in that it falls to pieces before the book is half perused.

A Text-Book of Therapeutics Including the Essentials of Pharmacology and Materia Medica. By A. A. Stevens, A.M., M.D., Professor of Applied Therapeutics in the University of Pennsylvania. Sixth edition. Cloth. Price, $6.25 net. Pp. 793. Philadelphia: W. B. Saunders Company, 1923.

This well established textbook consists of two parts: one dealing with the remedies, and the other with the treatment, of various diseases. The first five hundred pages are devoted to a study of drugs, which are classified in accordance with their therapeutic uses and are given excellent practical discussion. Numerous additions have brought the book well up to date; and one notes, with pleasure, the acceptance of modern nomenclature—such as that used by the Council on Pharmacy and Chemistry—and of simplified spelling, e. g., elimination of the useless final "e" in the names of alkaloids and of salts, such as morphin and bromid. An attempt to

discuss remedial measures other than drugs in about thirty-six pages is naturally unsuccessful, as an adequate presentation of this subject would require much more space. Especially lacking is practical detail. Study of general dietotherapy is missing. The portion dealing briefly with some of the more important diseases is, on the whole, satisfactory; but hardly necessary, as the student obtains the same kind of information from his textbooks on the practice of medicine. It is this duplication of work that has led to the abandonment of special courses in therapeutics in many medical colleges, when instruction on general therapeutic management is greatly needed by our medical students.

Medicolegal

Physical Versus Mental Suffering

(McCracken v. Swift & Co. (Mo.), 250 S. W. R. 953)

The Springfield (Mo.) Court of Appeals, in affirming a judgment in favor of the plaintiff, says that this action was based on the allegation that unwholesome and foul odors were generated by the defendant at a poultry, egg and butter house maintained by it, which odors permeated the atmosphere in the vicinity of the plaintiff's property; that the crying of fowls and the handling of large numbers of milk cans created loud and unusual noises that disturbed the inmates of the plaintiff's houses; that the accumulation of filth by the defendant bred flies in large quantities, which swarmed around and got into the plaintiff's houses; and that the filth, odors, loud and unusual noises, and flies caused great suffering and discomfort to the plaintiff in the use and enjoyment of his home. The defendant suggested that the suffering shown was mental suffering, and that damages cannot be recovered for mental anguish alone when the injury is not accompanied by malice, insult or inhumanity. The stated legal proposition with regard to damages not being recoverable for mental anguish alone announces the rule adopted in this case. For physical suffering to warrant a recovery of damages, it must result directly from the tort or wrongful act. The court has found no case, however, which undertakes to formulate any rule by which a court or jury may be able, in all cases, to determine whether the suffering is, in a legal sense, mental or physical.

In a general way, the court may say that mental suffering affects the mind alone and physical suffering affects the body, but in applying that general formula to specific cases, the line of distinction between the two classes of suffering is not always clear. Fright, grief and sorrow are classified as mental suffering. This is clearly right, because the effect centers in the mind and is subject to the control of the mind. In one sense, all suffering is mental, because the consciousness of it rests in the mind. If an arm is paralyzed, a blow on it will not cause suffering of any kind, because the nerves fail to carry the sense of suffering to the brain; but if the arm is normal, the sense of suffering is felt and is located at the place at which the blow was struck, and we then say that the blow caused pain in the arm, not in the mind, and in that case no action of the mind can stop the pain. That suffering is, in a legal sense, clearly physical.

In the opinion of the court, the suffering caused by foul stenches, loud and unusual noises, and the pest of large numbers of flies, is just as real as that caused by a blow, and the sufferer is as clearly unable, by any mental action of his own, to relieve against it. It cannot be dispelled by the will power of the individual affected, and hence suffering caused by these agencies should be denominated physical rather than mental, and their consideration as an element of damage is not barred by the rule that, in the absence of malice, insult or inhumanity, recovery cannot be based on mental anguish or suffering alone. Furthermore, the court thinks that the real damages suffered by the plaintiff were what were suffered by himself and family in the use and occupation of his home on account of the nuisance of which complaint was made, and that that suffering—and not the diminution of the rental value of his property—should be made the basis on which to estimate the damages suffered.

Diagnosis and Treatment—Evidence and Instructions

(People v. Saunders (Calif.), 215 Pacif. R. 120)

The District Court of Appeal of California, Second District, Division 2, in affirming a judgment of conviction of the defendant of practicing a system and mode of treating the sick and afflicted without a license, says that it is an erroneous view that one does not practice medicine or treat the sick unless, as a preliminary to ministering to the necessities of his patient, he makes a diagnosis. The medical practice act of California, which the defendant was convicted of violating, provides that "any person who shall practice . . . any system or mode of treating the sick or afflicted in this state, or who shall diagnose, treat, operate for, or prescribe for, any disease, injury, deformity," etc., without having a license, shall be guilty of a misdemeanor. It is at once apparent from this language that the legislature intended to denounce the act of any one who, not having a license, might diagnose without treating or prescribing, or who might treat or prescribe without diagnosing. Not only so, but the enactment is based on reason and logic. Physicians are often called as consultants in cases in which diagnosis has already been made by others. They doubtless often prescribe for cases in which they never see the patient and on the diagnosis of others. Suppose a physician in Pasadena should write or telephone to a physician in Los Angeles, stating that he has under his care a patient who is afflicted with a certain disease, that he has prescribed certain remedies without avail, and asking the Los Angeles physician whether he can suggest a remedy. If the latter should thereupon write a prescription and send it to the Pasadena physician, could it possibly be said that he would not be practicing medicine in doing so? The answer to the question is manifest. The court concludes that a physician may treat or prescribe for a patient, within the meaning of the statute, without making diagnosis of his case.

The jury was instructed that it was not to be affected in its deliberations by any evidence to the effect that the defendant's practice of his system had succeeded with his patients. The instruction was entirely proper. There was some evidence in the record tending to show that his treatment of his patients had produced favorable results. It was not only proper, but necessary, to instruct the jury that this evidence must be given no weight in determining whether the defendant had practiced without a license. Otherwise, the jury might have lost sight of the real question in the case. Nor was it error to instruct the jury that it was not necessary for the people to prove that the defendant had no license to practice his system of healing, but that the burden was on him to prove that he had such a license.

Two other instructions given to the jury were:

> That a person is sick and afflicted who is suffering from a misplaced vertebra, and that any one who engages in the business or occupation of adjusting or replacing, or who in the pursuit of an occupation attempts to adjust or replace, such misplaced vertebra into its normal position, is practicing a system and mode of treating the sick and afflicted.
>
> That one who is suffering at all with nervousness, headaches, pains or any other malmental or malphysical condition whatever is sick and afflicted within the meaning of section No. 17 of the state medical practice act, and that any one who engages in the business or occupation of manipulating the bones or kneading the muscles or tissues of such person for the purpose of relieving or healing such person of any such condition is practicing a system and mode of treating the sick and afflicted.

If, for the sake of argument, it be conceded—what the court by no means decides—that these two instructions should be regarded as relating to matters of fact and not to matters of law, the giving of them was harmless. There can be no possible dissent from the proposition that one laboring under the disabilities named in the instructions is sick and afflicted, or that he who attempts to relieve such a one from his disabilities by means mentioned in the instructions is practicing a system and mode of treating the sick and afflicted.

It was not improper, even if it was not strictly necessary, to instruct the jury that "the word 'wilfully,' when applied to the intent with which an act is done or omitted, implies simply a purpose or willingness to commit the act, or make the omission referred to. It does not require any intent to violate law, or to injure another, or to acquire any advantage."

Society Proceedings

COMING MEETINGS

American College of Surgeons, Chicago, Oct. 22-26. Dr. Franklin H. Martin, 40 E. Erie Street, Chicago, Secretary.
Radiological Society of North America, Rochester, Minn., Dec. 3-7. Dr. M. J. Sandborn, Appleton, Wis., Secretary.
Southern Medical Association, Washington, D. C., Nov. 12-15. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.
Southern Surgical Association, White Sulphur Springs, W. Va., Dec. 11-13. Dr. H. A. Royster, 423 Fayetteville Street, Raleigh, N. C.
Tri-State District Medical Society, Des Moines, Iowa, Oct. 29-Nov. 1. Dr. William B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Terre Haute, Sept. 26-28, 1923

The President, DR. CHARLES H. GOOD, Huntington, in the Chair

Insulin in Diabetes

DRS. J. A. MACDONALD and C. L. RUDESILL, Indianapolis: The remarkable effects of insulin in diabetes should not divert us from the primary importance of a well balanced diet. Proper dietetic management of a patient with diabetes can be attained in most cases through investigation and training possible only in a well equipped institution.

General Management of Diabetes Mellitus

DR. B. M. EDLAVITCH, Fort Wayne: A properly balanced diet, low in protein and carbohydrate and high in fat, must be supplied to meet the requirements of each case, and a study of the blood sugar is essential. Mild diabetes may be controlled by dietary measures only. In severe cases diet should be supplemented by insulin when diet alone fails to control the disease.

Insulin in Surgery

DR. MILES F. PORTER, Fort Wayne: The use of insulin will render feasible operations of selection on patients with diabetes which before we had this agent were considered impracticable. In insulin also the surgeon has a remedy of promise in the prevention and cure of infections, and it is quite within the bounds of reason to hope that the morbidity and mortality that heretofore obtained in nondiabetic patients with low carbohydrate tolerance, goiter patients for instance, may be reduced. Obstetries also offers a promising field for the use of insulin. Like all potent remedies, insulin is dangerous and should never be given save by one thoroughly familiar with it, and it should be remembered that the danger from insulin is greater in the nondiabetic than in the diabetic patient.

Experimental Studies of Kidney Regeneration

DR. ERNEST RUPEL, Indianapolis: A kidney which by injury has suffered partial loss of function should not be removed, provided there is no complicating infection, stone, obstruction or the like, to hinder future activity. But a kidney that has irreparably lost its function (small, atrophied kidney excepted) should be removed. The blood supply to the kidney is entirely dependent on the renal artery, even though the capsule has been removed and the organ is covered with adhesions. Ligation of the ureter produces hydronephrosis, but the kidney undergoes repair after the release of pressure together with the gradual elimination of the other organ. One half of one kidney will supply the body needs, if the burden is gradually forced on it.

Importance of Anomalies in the Diagnosis and Treatment of Diseases of the Urinary Organs

DRS. H. G. HAMER and H. O. MERTZ, Indianapolis: Congenital anomalies of the kidney may be classified as anomalies of form and volume, number, and position. The more marked anomalies of form and volume may influence diagnosis and surgery, because (1) such a kidney is more vulnerable to bacterial invasion; (2) there may be faulty rotation of the organ, and (3) there is frequent association of variations from the normal in the arrangement of the blood supply. Of the anomalies of number, a supernumerary kidney must be exceptional; the congenital absence of one kidney is more frequent and has a diagnostic and surgical problem peculiarly its own. The single kidney may be diseased as is the normal kidney, but nephrectomy would result in death. Anomalies of position may consist in misplaced kidneys separate and distinct, and two kidneys misplaced but united. The surgical significance depends on the abnormal relation to other viscera and the alterations in the arrangement of its blood supply, when two kidneys are present, and on a proper understanding that such a misplaced kidney may be the only one. The most important anomaly of the ureter is the variation in number. In the double kidney with ureteral doubling heminephrectomy is now receiving considerable attention by urologic surgeons. The different degrees of proximity of the two ureters is the anatomic fact that renders heminephrectomy difficult in many cases. According to Braasch, heminephrectomy is limited to a few favorable cases.

Secondary Anemia

DR. CLYDE L. CUMMER, Cleveland, Ohio: The study of a case of anemia requires primarily a carefully taken history, including a consideration of the patient's occupation and a complete physical examination with particular reference to probable foci of infection and attention to be possibility of hemorrhoids and undue uterine bleeding. Oftentimes, exhaustive laboratory and roentgenologic examinations are required. An obvious prerequisite to excluding pernicious anemia is a count of the red and white blood cells, the estimation of hemoglobin, and the study of stained films. As part of the latter, search should be made for blood parasites, stippled red blood cells and nucleated red blood cells. A blood Wassermann test should be a part of the routine. The stools should be examined for occult blood, parasites and parasitic ova. The stomach contents obtained after a test meal may yield data of value in indicating the presence of gastric ulcer or malignancy. If definite information is not secured by other means, the teeth and nasal sinuses should be submitted to roentgen-ray examination, and if other lines of investigation prove fruitless the gastro-intestinal tract should be investigated by the same means.

Diphtheria Control

DR. L. POTTER HARSHMAN, Fort Wayne: Administration of antitoxin at the earliest possible moment not only will save life, but also will ward off complications and minimize the dosage necessary. Intubation as an operation needs more attention. Release from quarantine should be granted only after three or more negative cultures carefully taken, at consecutive twenty-four hours intervals, from both nose and throat. Toxin-antitoxin is efficient in causing an active immunity. The Schick test provides an easy means of determining susceptibility. Within six months after the administration of toxin-antitoxin the Schick test should be made again and the positive reactors given another series of injections.

Arthritis of the Spine

DR. GRACE LINE HOMMAN, Laporte: Infectious arthritis of the spine is of not infrequent occurrence, but it is not always easy to differentiate a pyogenic from a tuberculous lesion. A careful history and thorough examination are of the utmost importance. All foci of infection should be removed, and a roentgenogram of the spine should be made in all cases of sciatica, repeated attacks of lumbago, and more or less persistent backache. Early diagnosis and treatment not only may mean an economic saving to the individual by preventing a long illness and loss of earning power, but also may prevent much suffering and permanent disability.

Frequency of Thymic Hyperplasia in Toxic and Nontoxic Goiters

DR. ALFRED S. GIORDANO, South Bend: The thymus is invariably hyperplastic in toxic goiters and not in nontoxic goiters. Thymic hyperplasia is the result rather than the cause of the toxic goiters in the majority of cases, as shown by the curative effects of partial thyroidectomy, especially in toxic adenoma. Age is not an important factor in the frequency or degree of hyperplasia of the thymus gland. It has not been proved that the fatal cases of toxic goiters are due to the associated hyperplastic thymus, but it may be an important contributory factor to the cause of death.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

26: 195-289 (Sept.) 1923

*Kidney Function in Acute Disease. H. B. Wilcox and J. D. Lyttle, New York.—p. 195.
Reflexes of the New-Born. F. De Angelis, Naples, Italy.—p. 211.
Exophthalmic Goiter in Childhood with Some Unusual Manifestations. H. Heiman, New York.—p. 216.
*Experimental Observations on Etiology of Chorea. E. C. Rosenow, Rochester, Minn.—p. 223.
*Birth Hemorrhage into Spinal Cord with Resultant Bladder and Kidney Complications. Report of Case. C. O. Kohlbry, Duluth, Minn.—p. 242.
Fatal Case of Thrush Involving Skin, Lungs and Nails. J. T. Christison, St. Paul.—p. 250.
Physiology of Exercise in Children. Part 2. Study of Collapse in Normal Children. M. Seham and G. Egerer-Seham, Minneapolis.—p. 254.
*Calcium and Phosphorus Determinations in Blood Plasma in Rickets and Tetany. J. H. Hess, J. K. Calvin, C. C. Wang and A. Felcher, Chicago.—p. 271.
*Shadowgraph Method of Recording Outlines of Hands. G. N. Hoeffel, Boston.—p. 280.
Rickets in Relation to Inorganic Phosphate and Calcium in Maternal and Fetal Blood. A. F. Hess and M. J. Matzner, New York.—p. 285.

Kidney Function in Acute Disease.—In a series of 217 acute infections (including twelve postoperative noninfections), retention of nitrogenous waste products was found by Wilcox and Lyttle in about one half of the cases. This retention is thought to be due to simple impairment or depression of kidney function, though in some groups of cases the possibility of nephritis could not be ruled out. Of the three nitrogenous waste products studied, total nonprotein nitrogen, uric acid and creatinin, the uric acid was above normal in a greater number of cases than were total nonprotein nitrogen and creatinin. This selective retention is shown especially well in the group of twenty-six miscellaneous infections, seventy cases of pneumonia and sixteen cases of tonsillitis. The type and degree of retention in these groups suggest early but definite acute nephritis. It is clear from the evidence that in many cases of acute infection there is definite impairment of kidney function which may not be evident clinically. Certain of these cases may go on to actual nephritis. Emphasis is laid on the necessity for more careful consideration of the kidney in all acute infections and its routine protection from all unnecessary strain.

Chorea Caused by Streptococcus.—The theory is advanced by Rosenow that chorea is due to a streptococcus having peculiar neurotropic, immunologic and other properties.

Birth Hemorrhage into Spinal Cord.—In a case of hemorrhage into the cervical cord at birth, reported by Kohlberg, the child was born by breech extraction, some difficulty being encountered with the aftercoming head. There were no evidences of hemorrhage elsewhere. The hemorrhage was evidently below the level of origin of the phrenic nerves as the diaphragm functioned normally. The child showed the typical picture of cervical cord injury. The position of the arms was characteristic. The breathing was entirely diaphragmatic, there being paralysis of the thoracic and abdominal muscles. The legs were paralyzed. As a result of bladder paralysis with back pressure, the child developed double hydro-ureters and hydronephrosis. Infection of bladder and kidneys resulted. Necropsy revealed a complete degeneration of the cord in the lower cervical region.

Calcium and Phosphorus in Blood Plasma in Rickets and Tetany.—The evidence presented by Hess et al. is as follows: In moderate rickets, the phosphorus or calcium, or both, may be moderately lowered. In severe rickets, the phosphorus is markedly reduced, even in children exclusively breast fed, while the calcium may or may not be lowered. In approximately 40 per cent. of the cases of tetany studied severe rickets was present. In rickets complicated by tetany, the calcium is considerably reduced. The phosphorus may or may not be reduced. Under treatment, in the severe cases of rickets complicated by tetany, the phosphorus content at first shows a tendency to decrease or to remain stationary. These studies demonstrate that there is a more or less definite blood picture in rickets and in rickets associated with tetany, but the authors feel that these represent two phases of the same disorder rather than two distinct types, and that the blood picture may be affected by extraneous factors and may vary according to the activity or healing of the process.

Shadowgraph Records of Hands.—Hoeffel uses a sensitized printing paper to make a permanent record of the shape and size of the hands of children. The method is simple, speedy and inexpensive.

American Journal of Hygiene, Baltimore

3: 1-127 (July) 1923

Control of Hookworm Disease. XXIV. Hookworm Cultures with Humus, Sand, Loam and Clay. N. R. Stoll, Baltimore.—p. 1.
Id. XXV. Use of Egg Counting Method in an Intensive Campaign. R. B. Hill, Baltimore.—p. 37.
Id. XXVI. Epidemiologic Study of Small Village on North Coastal Plain of Porto Rico. W. W. Cort, W. A. Riley, G. C. Payne and R. B. Hill, Baltimore.—p. 61.
Id. XXVII. Study of an Area in Mountains of Porto Rico, Which Had Been Influenced for Twenty Years by Hookworm Control Measures. W. W. Cort, W. A. Riley and G. C. Payne, Baltimore.—p. 73.
Id. XXVIII. Study of Heavily Infested Group of People on Sugar and Coffee Estate in Porto Rico, Before and After Treatment. W. W. Cort, G. C. Payne and W. A. Riley, Baltimore.—p. 85.
*Id. XXIX. Relation of Coffee Cultivation to Spread of Hookworm Disease. W. W. Cort, W. A. Riley and G. C. Payne, Baltimore.—p. 111.

Relation of Coffee Cultivation to Hookworm Disease.—In order to study the relation of coffee cultivation to the spread of hookworm disease, two areas were studied by Cort, Riley and Payne on coffee estates in the mountains near Utuado, Porto Rico. Evidence is brought forward that the present degree of human infestation showed a considerable reduction over former conditions, due to the effect of treatment and sanitation. The heavy infestation of coffee workers indicated that work in the coffee was an important source of infestation. Soil infestation was widespread in polluted areas near houses without latrines. A comparison of the degree of human infestation and soil infestation, at those places where definite centers of soil pollution were found, emphasizes the favorableness of the coffee environment for the development of hookworm larvae. Evidence of the importance of the washing by the rains in disseminating hookworm eggs and larvae was gained from these areas. A consideration of the habits of the workers during the coffee picking season shows conditions very favorable for the spread of hookworm disease. The cultivation of coffee seems to be such an important factor in the spread of hookworm disease in the mountains of Porto Rico that in the development of control measures special attention should be paid to the coffee workers and their environment.

American Journal of Public Health, Detroit

13: 723-805 (Sept.) 1923

Report of Committee on Venereal Diseases of State and Provincial Health Authorities. M. J. White, Washington, D. C.—p. 723.
Team-Play for Better Dispensary Service. Associated Out-Patient Clinics of New York. M. M. Davis, Jr., New York.—p. 738.
Status of Rabies in United States in 1921. T. F. Sellers, Atlanta, Ga.—p. 742.
Influence on Morphology and Staining of B. Diphtheriae by Growth in Mixed Cultures with Staphylococci and Streptococci. W. D. Stovall, E. Scheid and M. S. Nichols, Madison, Wis.—p. 748.
Report of Committee of State and Provincial Health Authorities on Relation of Medical Men and Health Officials. W. S. Rankin, Raleigh, N. C.—p. 753.
Child Health Work in Pennsylvania. M. R. Noble, Harrisburg, Pa.—p. 756.

American Journal of Roentgenology and Radium Therapy, New York

10: 593-680 (Aug.) 1923

Roentgen-Ray Study of Nonsyphilitic Periosteal Bone Lesions. R. G. Giles, Boston.—p. 593.
*Intestinal Rate and Form of Feces. F. L. Burnett, Boston.—p. 599.
Bucky Diaphragm with Wide Slits. W. L. Snider, Hot Springs, Ark.—p. 604.
Mesenteric Cyst; Patent Omphalomesenteric Duct: Duodenojejunal Diverticulum. C. H. Park, Pasadena, Calif.—p. 605.
Localization of Brain Tumors by Cerebral Pneumography. W. Dandy, Baltimore.—p. 610.

Dermatitis Artefacta Simulating Roentgen-Ray Dermatitis. G. M. Mackee and G. C. Andrews, New York.—p. 617.
Influence of Roentgen-Ray Therapy on Benign and Malignant Growths Dependent on Apparent Valid Distinction Between Them. G. Schwarz, Vienna, Austria.—p. 622.
Recent Developments in Protective Methods and Appliances as Used in Radium Therapy. C. F. Burnam and C. E. Ward, Baltimore.—p. 625.
*Resistance of Thyroid to Action of Radium Rays. Experimental Implantation of Radium Needles in Thyroid of Dogs. J. O. Bower and J. H. Clark, Philadelphia.—p. 632.
Radium Applicator for Small Lesions. N. T. Beers, New York.—p. 643.
Automatic Operation of Potter Grid. P. C. Hodges, Peking, China.—p. 645.
Simplified Roentgenographic Technic Based on Experimental Evidence. F. Liberson, New York.—p. 647.
Results of Skin Tests Made to Determine Objective Dose for Radium Radiations. A. L. Dean, Jr., New York.—p. 654.

Intestinal Rate and Form of Feces.—From the investigation made by Burnett of the intestinal rate, it is evident that there is a definite relation between the time taken by the ailment to pass through the gastro-intestinal tract and the form of the feces. Stools having an initial rate of fourteen hours and a final rate of sixty-two hours are soft and formless; those with a rate of twenty-five and ninety-seven hours, respectively, are formed with marks, and those at about sixty-two and 134 hours, respectively, are entirely composed of units. Accelerated and retarded rates are associated with stools of distinctive features. Again, these rates and features of the feces evidently bear some relation; and as one entirely composed of units is similar to the normal form of the higher animals; as it conforms to the physiology of the intestine; as the requirements necessary to produce it are exacting and when not fulfilled it changes to a soft and formless mass; and finally; as certain patients, changed by a course of treatment from dejecting a soft and formless stool to one composed entirely of units, become relieved of some very resistant forms of disease, it is difficult not to say that the unit form of the feces is normal. Accordingly the form of the feces affords a means of determining two heretofore unrecognized conditions of the body; one is intestinal indigestion with soft and formless stools; the other is an improved state of well being with fecal units and an intestinal rate of about sixty-two and 134 hours, respectively, always accompanying this form.

Resistance of Thyroid to Action of Radium.—Bower and Clark noted that the primary changes induced by radium in the thyroid are hemorrhage and necrosis. Organization and healing are evident in the third week and complete at about the twelfth week. The normal thyroid is distinctly resistant to the action of radium; it is not a good tissue for the study of the finer histologic changes produced by radium; the nuclear degenerative changes, characteristic of radiated malignant tissue, were never seen. No toxic symptoms of any sort were observed. No changes were demonstrable in the parathyroids. The apparent resistance of the thyroid tissue to radiation would make it appear that implantation would be superior to surface applications, and that relatively large dosage must be employed to assure any extensive effect on the gland.

American Review of Tuberculosis, Baltimore

7: 375-487 (Aug.) 1923

*Treatment of Severe Diabetes, Complicated by Severe Tuberculosis, with Insulin. W. D. Sansum, Santa Barbara, Calif.—p. 375.
*Case of Diabetes Complicating Chronic Pulmonary Tuberculosis Treated with Insulin. A. L. Hart and Erchal Creel, Albuquerque, N. M.—p. 386.
*Some of More Fundamental Reactions of Body Cells in Tuberculosis. F. M. Pottenger, Monrovia, Calif.—p. 389.
*Standardization of Tuberculin. P. A. Lewis and J. D. Aronson, Philadelphia.—p. 404.
*Immunologic Studies in Tuberculosis. S. A. Petroff, Trudeau, N. Y.—p. 412.

Insulin in Diabetes Complicated by Tuberculosis.—Sansum describes the results obtained in three extremely severe cases of tuberculosis complicated by extremely severe degrees of diabetes mellitus, showing that by the use of insulin the nutritional problem can be cared for adequately regardless of how grave the diabetes may be. Sansum believes that by the use of insulin a patient will have the same chance of recovery as he would have had if his tuberculosis had not been complicated by diabetes.

Id.—By the use of insulin, controlled by blood sugar estimations, Hart and Creel have succeeded in handling a severe case of diabetes complicating chronic, active pulmonary tuberculosis; it brought the blood sugar down within nine days from 0.4 to 0.1 and rescued the patient from the brink of diabetic coma.

Reactions of Body Cells in Tuberculosis.—The problem as stated by Pottenger is this: "If ever we are to understand why one patient breaks down with active clinical tuberculosis, while another with the same infection does not; or, if we are to understand why one lesion will heal, while another one with apparently the same extent of infection will not; in short, if we are to understand the principles which underlie the defense of the body against the bacillus, we must not be satisfied with the usual conception of tuberculosis, but we must understand what cellular activity means; what causes it; what interferes with it, and what part it takes in the bodily reaction of disease." The points dwelt on by Pottenger are these: The cell and cellular activity; the effect of nerve stimulation on cells; protein digestion and tuberculous toxemia; the toxemia of tuberculosis and the nervous system; toxic systems of tuberculosis and the reflex symptoms of pulmonary tuberculosis. He also reviews the more important facts which have been brought out in recent years in physiologic and biochemical laboratories, and shows the important bearing which they have on the understanding of clinical tuberculosis.

Standardization of Tuberculin.—Roemer's work on the intracutaneous tuberculin test in guinea-pigs, Lewis and Aronson believe, forms the basis for an improved method of standardizing tuberculin. If the test animals are infected intraperitoneally with 0.1 mg. of a virulent culture, they may be fit for use (sufficiently sensitive, that is) in three weeks. In other instances, this point may take longer to reach. Renewed attention is called to the skin reaction in the belief that all of the essential facts are at hand which would permit a revised method which might, perhaps, be economical of time and animals and which might in practice be more accurate than that at present in use.

Immunologic Studies in Tuberculosis.—The work recorded by Petroff concerns itself with the reaction of the animal body to injections with substances extracted from pulverized tubercle bacilli, and a comparison of these reactions with those induced by the injection of dead tubercle bacilli and by infection with living bacilli. The work is a direct continuation of a general plan for the investigation of immunity in tuberculosis. So far the following facts have been demonstrated: Manifestations of skin hypersensitiveness may be elicited in animals infected with living tubercle bacilli, not only with old tuberculin and the tuberculins hitherto in general use, but also with a fraction of powdered tubercle bacillus extracts ("nucleoprotein" fraction) which is precipitable by acetic acid in the cold. It may also be elicited by the "residue" antigens, described by Zinsser, from which all "nucleoproteins" and coagulable proteins have been removed; the skin reactions produced with these so-called "residue" materials are qualitatively identical with the reaction produced with old tuberculin and "nucleoprotein," but they are sometimes a little weaker. When guinea-pigs are systematically treated with considerable quantities of the so-called "nucleoprotein" fraction of the extracts, skin hypersensitiveness of a mild type may be elicited in many of the animals. Such skin hypersensitiveness, however, cannot definitely be claimed to be identical with tuberculin hypersensitiveness. The reactions are usually less marked than similar ones produced with the same materials in tuberculous guinea-pigs; they fade more rapidly, and they never lead to deep injury of the tissues. It will remain uncertain, until further studies have been carried out, whether these reactions are a specific nucleoprotein hypersensitiveness that has no immunologic relationship to the skin reactions observed in tuberculous animals, or whether they represent a milder form of the typical tuberculin reaction. The so-called "residue" materials injected in considerable quantities have never elicited any kind of skin hypersensitiveness to any of the various preparations used. Complement fixing and precipitat-

ing antibodies may be produced in rabbits by the injection of dead tubercle bacilli, living bacilli and the "nucleoprotein" fraction. In no case have the "residue" materials induced any kind of demonstrable antibody formation.

Annals of Medical History, New York

5: 95-188 (June) 1923

Chinese Household Manual of Obstetrics. J. P. Maxwell, London.—p. 95.
Joseph Leidy, Scientist. W. S. Middleton, Madison, Wis.—p. 100.
Lewis Hermann, Surgeon in United States Navy. F. L. Pleadwell and W. M. Kerr.—p. 113.
Dr. John Memis and His Title. J. H. Lloyd, Philadelphia.—p. 146.
Overlooked Painting of Saint Roch. C. G. Cumston, Geneva, Switzerland.—p. 149.
Outlines of History of Medicine in Lower Canada, Under French Regime. M. Charlton.—p. 150.

Boston Medical and Surgical Journal

189: 303-334 (Aug. 30) 1923

Differential Diagnosis of Acute Abdominal Conditions in Childhood. J. S. Stone, Boston.—p. 303.
*Diverticulitis of Cecum; Report of Three Cases. R. W. French, Fall River.—p. 307.
*Drop Wrist. E. M. Ellison, Washington, D. C.—p. 309.
Determination of Standard (Basal) Metabolism of Patients by Recording Apparatus. A. Krogh, Copenhagen.—p. 313.
Who Should Be "Pay Clinic Patients"? R. E. Chaddock and M. M. Davis, Jr.—p. 317.

Diverticulitis of Cecum.—Diverticulitis of the cecum, though rare, commands interest because of the difficulty of its differentiation from carcinoma, tuberculous or appendical abscess. In two of the three cases cited by French the preoperative diagnosis was chronic appendicitis and malignant disease of the ascending colon, respectively. In the third case the diagnosis was diverticulitis of the cecum and ascending colon.

Traumatic Drop Wrist.—Ellison reports a case of drop wrist occurring in boy, aged 7, whose mother had seen fit to bind him with a small rope about his chest, tying the arms two inches above the elbows securely behind his back, and to suspend him bodily from the ceiling in the furnace room for approximately forty minutes. The boy struggled rather constantly during this period but was unable to extricate himself. When he was finally "cut down," his "executioner" found him absolutely helpless so far as his hands were concerned. He recovered the use of his hands after five months.

Bulletin Lying-In Hospital of City of New York

12: 219-265 (Aug.) 1923

Problems of Obstetric Practice. W. W. Chipman, Montreal.—p. 219.
Functional Dystocia in Normal Pelves: Recognition and Management. J. A. Harrar.—p. 239.
Fibroid Tumors Complicating Pregnancy and Their Treatment. G. W. Kosmak.—p. 245.
*Hemorrhages in New-Born. L. A. Wing.—p. 253.
*Bacterial Endocarditis Complicating Pregnancy. M. Rosensohn.—p. 259.
Placenta Praevia in Twin Pregnancy. M. Rosensohn.—p. 260.
*Rupture of Uterus Through Scar of Former Cesarean Operation. G. W. Kosmak.—p. 261.
*Analysis of Mortality Statistics of Lying-In Hospital for 1922. M. Rosensohn.—p. 264.

Hemorrhages in New-Born.—The following points are emphasized by Wing: Hemorrhages developing in the infant during birth or shortly after, are of greater frequency than was formerly believed; they often occur in babies born spontaneously. Sudden or severe compression of the child's head, either by the natural forces of labor or by some obstetrical procedure, is the chief mechanical cause of intracranial lesions. Asphyxia of the infant during birth has an influence on the stability of the blood and impairs the clotting power. This renders these infants especially susceptible to both immediate and delayed hemorrhagic lesions. Therapeutic measures, to be effective in these cases, should be employed early in their development; the attending obstetrician should thoroughly appreciate his responsibility for the early recognition of hemorrhagic conditions in the new-born.

Bacterial Endocarditis Complicating Pregnancy.—Rosensohn's patient gave a history of several attacks of rheumatism. Her chief complaint during pregnancy was shortness of breath on exertion. She was delivered by a low forceps operation of a full term living child, there being a first degree laceration which was immediately repaired. Her temperature, which was normal on admission, rose to 100 F. on the second day, fluctuating for the first ten days with slight remissions around 101 F., after that with greater remissions around 103 F. When first seen, the patient showed the evidence of a decompensated double mitral lesion, tachycardia, marked anemia with pulsating jugular vessels and a liver which reached about 6 cm. below the free border of the ribs in the midclavicular line. There was no splenic or bone tenderness, and there were no petechiae anywhere. A specimen of urine by catheter showed no red blood cells. The leukocytes numbered 10,000. The appearance of the patient, the febrile reaction, the cardiac lesion and the negative pelvic condition rendered the diagnosis of bacterial endocarditis most likely. A blood culture taken a few days later showed the presence of a nonhemolytic streptococcus. Fifty-four days postpartum the patient died with evidence of gradual cardiac failure. Necropsy was not obtained.

Rupture of Uterus Through Cesarean Section Scar.—Only seventeen months had elapsed between the birth of the last child and the present accident in the case cited by Kosmak. On opening the abdomen he found an intact amniotic sac, with a fetus apparently at term, occupying the greater portion of the right half of the abdominal cavity. The placenta was at the lower pole of the sac and slightly attached to a rent in the anterior surface of the uterus. The child was dead.

Mortality Statistics of Lying-In Hospital.—Rosensohn reports twenty-two obstetric deaths for 1922 out of 5,467 cases cared for by the Lying-In Hospital. This is a mortality of 0.4 per cent., or one for about every 248 cases. There were 137 cesarean operations, with five deaths, a mortality of 3.65 per cent., or one in 27.4 cases; 26 cases of placenta previa, with six deaths a mortality of 23 per cent., or one in 4.3 cases; three deaths from ruptured uterus, a mortality of 75 per cent.; four deaths from postpartum hemorrhage; one death from necrosis of the liver with toxemia of pregnancy; one death from pyelonephritis and perinephric abscess; postpartum sepsis with *Bacillus coli* and streptococcus in the blood; one death from puerperal sepsis, and one death from eclampsia.

Florida Medical Association Journal, St. Augustine and Jacksonville

10: 1-32 (July) 1923

Endocervicitis, or Infected Cervix Uteri. W. M. Rowlett, Tampa.—p. 1.
Immediate Effect of Radium Treatment on Symptoms of Uterine Cancer. G. R. Holden, Jacksonville.—p. 3.
Some Ocular Complications Observed in Dengue Fever. S. A. Richardson, Jacksonville.—p. 5.
Insulin in Diabetes. S. Harris and J. P. Chapman, Birmingham, Ala.—p. 8.
Control of Diphtheria. B. L. Arms, Jacksonville.—p. 10.
Superstition and Medicine. R. H. Knowlton, St. Petersburg.—p. 13.
Obstetric Anesthesia. Why and How. C. D. Rollins, Jacksonville.—p. 15.
Relation of Local Surgeon to Railroad. T. M. Rivers, Kissimmee.—p. 18.
Useful Leg Splint. J. H. Pierpont, Pensacola.—p. 21.

California State Journal of Medicine, San Francisco

21: 237-276 (June) 1923

Certain Factors to be Considered in Judging Effects of Prohibition in Relation to Use of Narcotics. L. D. Volk, New York.—p. 237.
Surgical Treatment of Duodenal and Gastric Ulcer. W. B. Coffey, San Francisco.—p. 242.
Osteitis Fibrosa Cystica Occurring in Flat Bone (Inferior Maxilla). Report of Case. A. H. Galvin, Anaheim, Calif.—p. 244.
Choice of Method of Surgical Delivery at Near Full Term. L. Peters, Alameda, Calif.—p. 246.
*Case of Human Actinomycosis. F. W. Rinkenberger.—p. 249.
*Tuberculin in Tuberculous Iritis. L. S. Mace.—p. 251.
Classification of Physiotherapy Apparatus and Suggestions for Standard Equipment. M. Penfield, San Francisco.—p. 253.

Actinomycosis.—Rinkenberger's patient had a lesion on the right hip, midway between the greater trochanter and the crest of the ilium, which progressed slowly. There were three or four open sinuses, in the discharge from which the granules were found. The mass was thoroughly cleaned out and packed with iodoform gauze, which, however, in about forty-eight

hours, caused symptoms of iodoform poisoning, so from that time on the wound was packed with plain gauze. The man also received about 300 grains (19.5 gm.) of iodids daily for many days at a time, and heavy roentgen-ray treatment. The lesion cleaned up rapidly under daily packing with balsam of Peru alternated with swabbing out with 33⅓ per cent. silver nitrate solution.

Tuberculin in Tuberculous Iritis.—Mace endorses the use of tuberculin in iritis. He says that in eye tuberculosis, as in throat tuberculosis, the physician can watch from day to day the effect of his dosage. He can see the reactions and accurately gage and space his doses accordingly.

Illinois Medical Journal, Oak Park

44: 77-152 (Aug.) 1923

Narcotic Drug Addiction and Narcotic Laws. E. S. Bishop, New York. —p. 107.
Lamentable Social Facts. L. A. Stone, Chicago.—p. 116.
*Association of Life Insurance with Medical Profession. O. F. Maxon, Springfield.—p. 119.
Present Status of Venereal Disease Control. C. C. Pierce, Chicago. —p. 124.
Corneal Injuries in Industrial Occupations. F. Allport, Chicago. —p. 128.
Practical Points of Interest in Embryology and Their Relation to Kidney Surgery. G. V. A. Brown, Detroit.—p. 133.
Radium Emanation Ampoules in Treatment of Cancer of Tongue. F. E. Simpson, Chicago.—p. 139.
Adventitious Sounds. W. H. Watterson, LaGrange.—p. 143.
Medical Men Who Have Attained Fame in Other Fields of Endeavor. W. M. Thompson, Chicago.—p. 144.

Medico-Actuarial Life Insurance Statistics.—Maxon says that the medico-actuarial investigation of the mortality of life insurance companies has placed at the door of preventive medicine statistical material and facts of the utmost value. They can offer statistical material showing the remote effects of disease and symptoms in classes that run into the thousands and in some instances the hundred thousands, covering long periods of time. Those records are now available to all who may be interested in public health, health conservation or similar work and it is the sincere wish of the life companies that the medical profession call upon them at any time for this information.

Journal of Bone and Joint Surgery, Boston

5: 397-628 (July) 1923

*Loose Bodies in Joints and Bursae Due to Synovial Osteochondromatosis. M. S. Henderson and H. T. Jones, Rochester, Minn.—p. 400.
Evolution of Fracture Treatment, or What Have Been Real Changes. S. L. McCurdy, Pittsburgh.—p. 425.
*Treatment of Tuberculosis of Knee Joint in China. T. Stearns, Tsinan, China.—p. 437.
*Bilateral Asymmetrical Cessation of Growth of Unknown Etiology in Epiphyses. R. D. Severance, Rochester, N. Y.—p. 443.
*Some Etiologic Factors in Surgical Tuberculosis of Childhood. W. H. Cole, St. Paul.—p. 445.
Arthrodesing Operation on Feet. E. W. Ryerson, Chicago.—p. 453.
*Hamstring Transplantation for Quadriceps Paralysis. P. C. Colonna, New York.—p. 472.
*Experimental Incision on Cadaver for Drainage of Ankle Joint. S. D. David, Boston.—p. 480.
*Surgical Approach for Step Operations on Femur. A. Krida, New York.—p. 484.
Dorsal Wedge Operation for Metatarsal Equinus. R. Stephens, New York.—p. 485.
Postoperative Retentive Apparatus (Adhesive Plaster) for Torticollis Cases. R. M. Hoover, New York.—p. 490.
Treatment of Chronic Bone Abscesses by Simple Evacuation Through Small Drill Hole. Its Application in Nonsterile Abscesses. W. M. Brickner, New York.—p. 492.
New Portable Plaster-of-Paris Spica Frame. L. A. O. Goddu, Boston. —p. 501.
*Case of Osteomyelitis of Ulna, with Complete Regeneration, in Old (66) Patient. L. A. O. Goddu, Boston.—p. 502.
*Study of Necropsy Specimens of Fused Spines and Cases Subjected to Secondary Operation. A. DeF. Smith, New York.—p. 507.
Flattened Hip Socket and Its Sequelae. M. Jansen, Leiden, Netherlands.—p. 528.
Measurement of Range of Motion of Joints. D. Silver, Pittsburgh. —p. 569.
*Relation of Lesions of Transverse Processes to Pain in Back and Legs. G. I. Bauman, Cleveland.—p. 579.
*Nonspinal Psoas Abscess. W. S. Baer, G. E. Bennett and I. W. Nachlas, Baltimore.—p. 590.

Loose Bodies in Joints.—It is the opinion of Henderson and Jones that osteochondromatosis of the synovial membrane is one of the causes of osteocartilaginous loose bodies in the joints, and probably the sole cause of the bodies in the bursae and tendon sheaths. They believe that the condition should be classified as a benign neoplasm. Trauma is a secondary factor. One of their cases was associated with a malignant chondrosarcoma in the lower end of the femur. No malignancy was discovered in the knee joint. Removal of all the bodies relieves the patient in the majority of instances. Amputation or resection has not been found necessary for synovial osteochondromatosis.

Treatment of Tuberculosis of Knee Joint in China.—Records of six cases are cited by Stearns, in all of which there is a good functional result from nine months to four years after operation. In one case, now under observation and in good general condition, there is almost firm union and a favorable result is to be expected. The report of one case received indirectly gives complete healing and firm union, but the patient experiences some difficulty in doing her work. Stearns urges that both with adults and children in poor economic condition, with no pulmonary contraindication, joint resection be done as soon as a positive diagnosis is made. In adults, during the early stage with good economic conditions, conservative treatment (splint or cast) may be used as long as there seems to be no progression of the disease. In children in the early stage, with economic and home conditions good, the conservative treatment should be given a trial. Should there be no improvement after nine months or a year, or should progression of the disease be evident, resection is advised, provided there is no pulmonary contraindication. In adults, with general condition poor, or with incipient pulmonary tuberculosis, amputation above the knee is indicated. In children, in poor general condition or with incipient pulmonary tuberculosis, conservative treatment should be attempted for about six months. Should the general condition not improve, amputation should be advised. When the general condition of the patient is good, the presence of a sinus from the joint is not a contraindication for resection of the joint. The mortising of the two bones is the operative choice. The joining of the two bones together by bone plates gives a quicker bony union than uniting the bones with kangaroo sutures passed through holes on the two sides of the leg.

Bilateral Asymmetrical Cessation of Growth in Metacarpals.—Severance records a case of asymmetrical bilateral cessation of growth of the metacarpals. The deformity was first noticed in the left hand about one year before, and shortly afterward in the right. Both have progressively increased. There was no history of injury, disease, malnutrition, or other etiologic factor. No hereditary influence was obtainable in the history.

Etiologic Factors in Surgical Tuberculosis of Childhood.—Poor home conditions, insufficient or improper food, lack of fresh air and sunshine, and the presence of unhygienic surroundings, in general, Cole says, seems to be as important, if not more important in the etiology of surgical tuberculosis, than tuberculosis in the immediate family.

Hamstring Transplantation for Quadriceps Paralysis.—Careful study of twenty-four cases which returned for examination and the records of seventy-seven others has convinced Colonna that satisfactory functional results with hamstring transplantation for quadriceps paralysis are the rule rather than the exception. Any accompanying deformity should, if possible, be corrected before transplantation. If sufficient strength exists in the biceps, transplantation of this muscle usually gives better results than those obtained by using the inner group of hamstrings. Negative results are apt to follow if the extensors of the hip are also paralyzed. From a physiologic standpoint it is interesting to consider how the afferent stimuli, accustomed as they are in initiating the motor response to "flex," can be reeducated and taught to produce what would appear to be contradictory effects.

Drainage of Ankle Joint.—In thirteen experiments on thirteen ankle joints of the cadaver David proved that the posterior external approach was reliable and safe, as far as encouraging important structures is concerned. The joint cavity is easily accessible by this route, and with the foot dorsiflexed to a right angle, evacuation of fluid was complete.

The posterior compartment is formed by the posterior surface of the trochlea, the anterior being formed by the relaxation of the anterior ligament over the neck of the astragalus.

Surgical Approach for Step Operations on Femur.—Krida makes a curved skin incision on the front of the thigh. Beginning in the upper third of the thigh in the midline, it curves externally, then downward, then inward, to a point one inch above and internal to the patella. The skin flap is reflected. The first incision in the deep fascia is made in the line between the vastus externus and the rectus femoris. Beginning from below, these muscles are separated to a point rather above the middle of the thigh. This exposes the lateral surface of the crureus. The lateral surface of the femur is exposed by an incision through the crureus and periosteum. A saw cut of the required length is made with the motor saw. The saw cut should be sufficiently long to allow at least a two-inch approximation of the two halves of the step. The second incision in the deep fascia is made in the line between the vastus internus and the rectus femoris. These muscles are then separated, beginning from below and extending upward as high as the separation on the outer side. This exposes the medial surface of the crureus. The medial surface of the femur is exposed by an incision through the crureus and periosteum, and a saw cut of equal length to the first and opposite to it is made. The step is completed by passing a Gigli saw subperiosteally and sawing from behind at the upper end, and from before at the lower end.

Complete Regeneration of Ulna in Aged After Removal.—In April, 1922, Goddu removed the entire ulna subperiosteally for osteomyelitis. This was the only operation that the condition of the patient seemed to permit. Within two months an entire new ulna regenerated. The patient was 66 years of age.

Ultimate Results of Operation for Fusion of Spine.—Examination of ten necropsy specimens and clinical cases has convinced Smith that fusion of the spine may be accomplished by the Hibbs operation in practically all cases. In a series of 221 operated cases, including both those of scoliosis and tuberculosis, failure of fusion occurred in only one case. The cause of failure to obtain fusion is either inaccurate operative technic in securing bone contact, or infection.

Lesions of Transverse Process Cause Leg Pains.—In cases of lumbosacral pain and in cases with pain referred down the leg, whether with or without definite history of injury, Bauman urges that the possibility of anomalies of or injury to transverse processes should be given careful consideration in differential diagnosis. Twenty cases are reported. Operation was done in nineteen with good results.

Nonspinal Psoas Abscess.—Baer et al. point out that there exist a large group of cases of psoas abscess which originate from sources other than spinal or pelvic bone involvement; that lymphadenitis of the retroperitoneal lymph glands exists with either a tuberculous or a septic organism as the infecting agent; and that these conditions are to be clearly differentiated from spine or hip involvement.

Journal of Experimental Medicine, Baltimore

38: 117-232 (Aug.) 1923

Presence of Bacteria in Lungs of Mice Following Inhalation. E. G. Stillman, New York.—p. 117.
Production of Heterogenetic Antibodies with Mixtures of Binding Part of Antigen and Protein. K. Landsteiner and S. Simms, New York.—p. 127.
Infectious Ophthalmia of Cattle. F. S. Jones and R. B. Little, Princeton, N. J.—p. 139.
*Studies on Pneumococcus Immunity. II. Active Immunization of Monkeys Against Pneumococcus Types II, III and IV Pneumonia with Homologous Pneumococcus Vaccine. R. L. Cecil and G. I. Steffen, New York.—p. 149.
*Id. III. Nature of Pneumococcus Antigen. W. A. Perlzweig and G. I. Steffen, New York.—p. 163.
*Conditions Determining Transplantability of Tissues in Brain. J. B. Murphy and E. Sturm, New York.—p. 183.
*Enzymes of Pneumococcus. IV. Bacteriolytic Enzyme. O. T. Avery and G. E. Cullen, New York.—p. 199.
Studies on Bacterial Nutrition. IV. Effect of Plant Tissue on Growth of Pneumococcus and Streptococcus. H. J. Morgan and O. T. Avery, New York.—p. 207.
*Complement Fixation Reaction as Applied to Leprosy. P. A. Lewis and J. D. Aronson, Philadelphia.—p. 219.

Active Immunization of Monkeys Against Pneumonia.—The results of subcutaneous or intravenous injection of monkeys with pneumococcus Types II, III and IV are reported by Cecil and Steffen. Three subcutaneous injections of pneumococcus Type II vaccine conferred on monkeys a complete immunity against experimental pneumococcus Type II pneumonia. A similar protection can be bestowed on monkeys against pneumococcus Type IV pneumonia by three subcutaneous injections of a vaccine prepared from the corresponding strain of pneumococcus. The subcutaneous injection of monkeys with three doses of pneumococcus Type III vaccine confers a complete immunity against this type in only 50 per cent. of cases (four out of eight monkeys vaccinated). In spite of the immunity induced in monkeys by three subcutaneous injections of pneumococcus Types II, III and IV vaccine, specific protective bodies against the homologous types are not demonstrable in their serums when the vaccine is so administered.

Nature of Pneumococcus Antigen.—From the experiments reported by Perlzweig and Steffen it appears that pneumococcus antigen is nonlipoidal, that it probably adheres to the protein fraction in a loose chemical or physical union rather than representing a protein complex of a large molecular size, as shown by its solubility in alcohol, its thermostability, and its resistance to proteolytic digestion. Some of the antigens studied have been shown to contain a nonspecific factor promoting the growth of bacteria. The purified pneumococcus antigen solutions are nontoxic for mice.

Transplantability of Tissues in Brain.—In confirmation of Shirai's observation, Murphy and Sturm have found that transplantable mouse tumors grow actively when inoculated into the brains of rats, guinea-pigs and pigeons, whereas subcutaneous or intramuscular grafts in the same animals fail. This growth of foreign tissue in the brain, however, takes place only when the grafted material lies entirely in the brain tissue; if it comes in contact with the ventricle a cellular reaction takes place with resultant destruction of the graft. The growth of foreign tissue in the brain may be completely inhibited by simultaneous inoculations of a small bit of autologous but not by a bit of homologous spleen tissue. Mice highly immune to subcutaneous transplants of mouse cancer show no resistance to such tumors when the inoculation is made into the brain. Although the brain is without obvious power of resistance to implants of transplantable heteroplastic mouse tumors, yet grafts of spontaneous tumors fail to grow there, as a rule, when the tumor implanted and the animal host are of the same species.

Enzymes of Pneumococcus.—Avery and Cullen assert that pneumococci possess an active intracellular enzyme which causes lysis of heat-killed pneumococci of the same and heterologous types and to a less degree of a closely related organism, *Streptococcus viridans*. The optimum reaction for lysis lies between p_H 6 and 8. The bacteriolytic action is proportional to the concentration of the enzyme. Heating the enzyme for thirty minutes at 60 C. destroys its activity. The possible relation of the enzyme to autolysis is discussed.

Complement Fixation Reaction in Leprosy.—Of the forty-five specimens of serum obtained by Lewis and Aronson from thirty-nine cases of leprosy, four were anticomplementary in a dose of 0.1 c.c., but smaller quantities, except with one specimen, were not anticomplementary. A comparison of the anticomplementary property of nonleprous serum with that of leprous serum shows that while the nonleprous serums were anicomplementary in 2.3 per cent. of 604 serums examined, serums from leprosy cases were anticomplementary in 8.8 per cent. of forty-five cases studied, when the same dose of serum was employed. Control serums from normal persons, from cases of tuberculosis, or from cases of syphilis failed to react with certain antigens, whereas serums from cases of leprosy have so reacted in more than 93 per cent. of those tested. The most characteristic fixation given by the leprosy serum is that with *Bacillus leprae* (Clegg) used as antigen, either in the form of a bacterial emulsion or of an alcoholic extract of the dried culture. Leprosy serum is not deprived of the complement-fixing body when treated with either *Bacillus tuberculosis* or *Bacillus leprae* (Clegg).

Kentucky Medical Journal, Bowling Green

21: 439-516 (Sept.) 1923

Diseases of Gallbladder. E. W. Northcutt. Covington.—p. 478.
Review of Gallbladder Anatomically and Physiologically. J. D. Northcutt, Covington.—p. 483.
The M. D. Doctor. W. A. Bush, Winchester.—p. 487.
Typhoid Fever Then and Now. W. Byrne, Sr., Russellville.—p. 489.
Eyestrain and Its Causes. A. L. Bass, Louisville.—p. 492.
Nervous Phenomena Relieved by Removal of Septal Spur: Case Report. S. G. Dabney, Louisville.—p. 493.
Roentgenographic Gastro-Intestinal Survey. C. D. Enfield, Louisville.—p. 494.
Prevention of Disease. J. W. Barnhill, Owensboro.—p. 497.
Detached Gangrenous Epiploic Appendage. Case Report. G. P. Grigsby, Louisville.—p. 499.
Cerebrospinal Fluid and Its Relation to Diagnosis and Treatment of Neurosyphilis. C. Thompson, Louisville.—p. 500.
Pyloric Stenosis. Report of Case. F. G. Speidel, Louisville.—p. 512.

Nebraska State Medical Journal, Norfolk

8: 261-300 (Aug.) 1923

Nature and Treatment of Interstitial Goiter. A. E. Hertzler, Kansas City, Mo.—p. 261.
Appendicitis or What? J. M. Mayhew, Lincoln.—p. 265.
Perforated Gastric and Duodenal Ulcer. A. C. Stokes, Omaha.—p. 267.
Transverse Incision in Surgery of Kidney. J. E. Summers, Omaha.—p. 273.
Some of Problems in Caring for Insane. D. G. Griffiths, Lincoln.—p. 276.
Specific Hypersensitiveness or Allergy as Common Cause of Illness. W. W. Duke, Kansas City, Mo.—p. 279.
Syphilis and Syphilis-Like Affections of the Mouth. A. Sehalek, Omaha.—p. 285.
Management of Acute Sinus Infections. J. C. Tucker, Beatrice.—p. 287.
Missed Abortion. C. H. Water, Omaha.—p. 289.

New Orleans Medical and Surgical Journal

76: 57-110 (Aug.) 1923

*Etiology of Rickets. L. v. Meysenbug, New Orleans.—p. 57.
Headaches with Reference to Some Phases of Refraction. M. F. Meyer, New Orleans.—p. 61.
*Case of Silent Calculous Pyonephrosis. H. B. Gessner, New Orleans.—p. 66.
Charity Hospital of Louisiana. A. E. Fossier.—p. 67.
Smallpox. J. G. Stulb, New Orleans.—p. 75.
Carbon Tetrachlorid in Treatment of Hookworm Disease. Report of Cases. S. Hobson, New Orleans.—p. 80.
One Hundred Per Cent. Results in Treatment of Typhoid (Rest, Diet; Balneotherapy; Elimination). S. J. Couvillon, Moreauville, La.—p. 84.
Treatment of Tetanus. A. A. Herold. Shreveport, La.—p. 88.
Conception of Psychoneuroses and Some Errors to Be Avoided in Their Diagnosis. E. McC. Connely, New Orleans.—p. 91.
Practical Points on Signs and Symptoms in Diagnosis of Early Pulmonary Tuberculosis. E. A. Bertucci, New Orleans.—p. 95.

Etiology of Rickets.—The greatest advance in the rickets problem, Meysenbug says, has emanated from the laboratory within the last half decade. Investigations both here and abroad are bringing more sharply into focus the importance of sunlight and the ultraviolet rays of artificial light and the substance or substances in cod liver oil which exercise such a profound influence over the calcium and phosphorus metabolism of the body.

Silent Calculous Pyonephrosis.—Gessner reports a case in which, notwithstanding the efforts of medical men armed with the equipment of a good hospital, a diagnosis was arrived at only at necropsy. Evidence on which the diagnosis might have been made, though this was not strong or conclusive, was the pain in the back, described as "terrible backache" which was complained of on the day of onset, but not again during the remaining eighteen days. Another sign was bloody looking urine reported by the practitioner in charge of the case as occurring on the first three days following the onset, but not present thereafter in the gross, nor confirmed by microscopic examinations. Gessner feels that no doubt jamming of the stone into the apex of the pelvic funnel accounts for the complete absence of pus and blood from the urine. Reexamination of the roentgenograms after the necropsy showed the shadow of the stone very clearly.

South Carolina Medical Association Journal, Greenville

19: 529-556 (July) 1923

Difficult Feeding Case Principles. W. P. Cornell, Columbia.—p. 532.
Artificial Feeding of Well Child During First Year. W. Rhett, Charleston.—p. 535.
Feeding During Second Year. S. G. Glover, Greenville.—p. 540.

Southwestern Medicine, Phoenix, Ariz.

7: 273-312 (Aug.) 1923

*Hay-Fever in Central Arizona. E. W. Phillips, Phoenix, Ariz.—p. 273.
Dependence of Surgical Procedures on Biologic Processes. J. S. Horsley, Richmond, Va.—p. 282.
Prognosis and Treatment of Chronic Arthritis. E. D. Kremers, Pasadena, Calif.—p. 285.
Type and Topography in Tumor Prognosis. A. E. Hertzler, Halstead, Kan.—p. 293.
Easily Overlooked Condition. A. W. Vanneman, Cumpas, Sonora, Mexico.—p. 297.

Hay-Fever in Arizona.—Phillips says that the irrigated valleys of Arizona have a continuous hay-fever season of nine months. The common shade trees, cottonwood and ash, account for the first two months of this, and Bermuda grass, the chief offender, covers the remaining seven months, sharing the latter half of its period with the pigweeds. Minor and local causes are rabbit bush, Johnson grass and the saltbushes. In the hill country, the main hay-fever season begins in June with the pollens of the Russian thistle and the pigweeds. In August the bur ragweeds come on, much as do the true ragweeds in the East. Minor and local causes include the wormwoods, the saltbushes and the western ragweed. Wherever Bermuda grass is abundant, it causes trouble all summer. Northern Arizona, and northern New Mexico so far as that has been studied, have a similar arrangement, except that Russian thistle is the chief hay-fever plant, while the wormwoods take rank over the ragweeds.

U. S. Naval Medical Bulletin, Washington, D. C.

19: 115-256 (Aug.) 1923

Compression Fractures of Lower End of Radius. J. H. Stevens.—p. 115.
Juxtapyloric Ulcer. G. P. Cottle.—p. 128.
Samoan Medicines and Practices. D. Hunt.—p. 145.
Deformities of Nose. F. E. Locy.—p. 152.
Surgical Solution of Chlorinated Soda. J. Holden.—p. 156.
Stone in Right Kidney Diagnosed Appendicitis. A. H. Robnett.—p. 158.
Two Cases of Arsphenamin Poisoning. J. Buckley.—p. 162.
Lipoma of Ischiorectal Fossa. L. Humphreys.—p. 164.
Method of Boiling Drinking Water for Use in Camp. C. I. Wood.—p. 166.
Fatal Case of Caisson Disease. C. P. Archambeault.—p. 167.
Foreign Body (Calcified Cork) in Nares. C. B. Camerer.—p. 168.
Nasal Polyp with Unusually Long Pediele Originating in Antrum and Extending Back Into Pharynx. P. M. Albright.—p. 169.
Report on Sanitary Conditions of Second Brigade, U. S. Marines, Santo Domingo, for 1922. J. J. Snyder.—p. 170.

Virginia Medical Monthly, Richmond

50: 351-426 (Sept.) 1923

Treatment of Certain Types of Goiters. S. McGuire, Richmond.—p. 351.
*Treatment of Lobar Pneumonia Due to Pneumococcus Infection. L. F. Barker, Baltimore.—p. 356.
Intradural Surgery in Its Relation to Abscess of Brain. W. P. Eagleton, Newark, N. J.—p. 367.
Recent Advances in Diagnosis and Treatment of Syphilis. W. T. Vaughan, Richmond.—p. 372.
Some Results of Protein Sensitization Work in Bronchial Asthma, Hay-Fever and Allied Conditions. Report of Cases. G. T. Brown, Washington, D. C.—p. 379.
Fever. W. B. Blanton, Richmond.—p. 384.
Mental Diseases. J. A. Strickland, Norfolk.—p. 389.
Physical Examination of Lungs in Diagnosis of Pulmonary Tuberculosis. D. B. Cole, Richmond.—p. 393.
Prophylaxis of Tuberculosis. H. R. Edwards, Richmond.—p. 395.
Differential Diagnosis of Pulmonary Tuberculosis. W. N. Mercer, Richmond.—p. 397.
Granuloma Inguinale. C. F. Ross, Richmond.—p. 401.
Empyema. J. K. Gray, Marion.—p. 404.
Renal Tuberculosis. W. O. Poindexter, Newport News.—p. 407.
Bacillus Acidophilus as Therapeutic Agent. G. F. Reddish, Richmond.—p. 409.
Contused Abdomen. E. B. Claybrook, Cumberland, Md.—p. 411.
Tracheotomy; Improved Technic. E. G. Gill, Roanoke.—p. 413.

Treatment of Pneumococcus Pneumonia.—Though even with the use of quinin and ethylhydrocuprein the mortality rate in lobar pneumonia is still high, nevertheless, Barker points out, the reduction indicated by statistics would make it seem worth while to make a trial of the quinin therapy, at any rate until sufficiently large numbers of cases have been treated in different epidemics and in different places (with adequate control) to establish the value or the worthlessness of the remedy. It is conceivable, too, that further experimental work may yield a quinin derivative that is even more efficacious than any thus far tried. "Until the proof has been

brought, however, that quinin or some quinin derivative has, in reality, a specific effect in lobar pneumonia, let us remain sceptical, bearing in mind the fate of the long series of attempts at systematic therapy of this disease in the past."

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Medical Psychology, London

3: 1-80 (Jan.) 1923

*Causal Factors of Juvenile Crime. C. Burt.—p. 1.
Influence of Affective Factors on Measurement of Intelligence. C. A. Richardson.—p. 34.
Suggestion. J. C. Flower.—p. 39.
Freud's Theory of Wit. J. Y. T. Greig.—p. 51.

Causal Factors of Juvenile Crime.—Nearly 200 cases of juvenile delinquency, and, as a control series, 400 normal children have been investigated by Burt in parallel inquiries; and the various adverse conditions, discoverable in their family history, in their social environment, and in their physical, intellectual and temperamental status, have been ascertained and tabulated for each group. Delinquency in the young seems assignable, generally, to a wide variety, and, usually, to a plurality of converging factors; so that the juvenile criminal is far from constituting a homogeneous psychologic class. To attribute crime, in general, to either a predominantly hereditary or a predominantly environmental origin appears impossible; in one individual the former type of factor may be paramount; in another, the latter; while, with a large assortment of cases, both seem, on an average and in the long run, to be of almost equal weight. Heredity appears to operate, not directly through the transmission of a criminal disposition as such, but rather indirectly, through such congenital conditions as dulness, deficiency, temperamental instability, or the excessive development of some single primitive instinct. Of environmental factors those centering in the moral character of the delinquent's home, and, most of all, in his personal relations with his parents, are of the greatest influence. Psychologic factors, whether due to heredity or to environment, are supreme both in number and strength over the rest. Emotional conditions are more significant than intellectual; while complexes provide everywhere a ready mechanism for the direction of overpowering instincts and of repressed emotionality into open acts of crime.

British Medical Journal, London

2: 399-444 (Sept. 8) 1923

*Treatment of Acute Salpingitis. A. W. Bourne, V. Bonney, W. B. Bell and L. Phillips.—p. 399.
*Innervation of Uterus. B. Whitehouse and H. Featherstone.—p. 406.
*Treatment of Severe Uterine Hemorrhage by Radium. S. Forsdike.—p. 409.
Menorrhagia Treated by Intensive Roentgen-Ray Therapy. Report of Twenty Consecutive Cases. L. Martindale.—p. 411.
*Rupture of Abdominal Aorta: Death from Acute Intestinal Obstruction. C. Nicory.—p. 413.
*Three Cases of Gastric Carcinoma Presenting Unusual Features. C. E. S. Jackson.—p. 414.
Antistreptococcus Serum in Erythema Nodosum. A. H. Carter.—p. 414.
Harvest Bug. H. B. Gladstone.—p. 415.
Passing of Lower Denture. W. G. Pridmore.—p. 415.
*Diaphragmatic Hernia of New-Born. G. C. Adeney.—p. 415.

Treatment of Acute Salpingitis.—Many cases of acute salpingitis occur in young women soon after marriage in whom the certainty of future sterility is a real tragedy. Surgeons are sometimes apt to regard the "recovery" of the patient as the chief if not the only aim of treatment. Bourne claims that treatment should be designed for further results than "recovery." These (nonpuerperal) patients will frequently recover whether the gynecologist is present or not, but if treatment is not intelligent and prospective, the patient is condemned to the prospect of certain sterility and frequently to pelvic invalidism. If the tube is treated early, salpingostomy will give her a chance for childbirth, and if it is already too much damaged, salpingectomy will prevent permanent ill health.

Id.—If, Bonney says, it be shown that tubal function lost by inflammation can be restored by surgical means in a fair percentage of patients, then the case for conservation of the tubes at the primary operation is strengthened, for the surgeon, having failed in his first endeavor to restore the reproductive organs to their normal state, would still have another bolt to shoot. Removal of the tubes at the earliest possible moment is the least disastrous way out of a situation laden with disasters.

Id.—In acute salpingitis in which there is a febrile reaction, and in which the presence of pus in the pelvis demands interference, Bell limits operative procedures to posterior colpotomy. With regard to pure gonococcal infection the case is different; there is little danger to life, and in this condition operation may be tried. Undoubtedly some mild cases of gonorrheal salpingitis recover spontaneously. In most cases it does not appear likely that a cure will be effected by operation, since the interstitial portion of the tube will generally be occluded. Moreover, Bell doubts whether incision of the tube will lead to the disappearance of the organisms located in the mucosa.

Id.—Twenty-five cases were subjected to laparotomy by Phillips and reconstructive operations were performed in twenty cases. Of the twenty cases in which a working set of reproductive organs was left, five pregnancies have occurred. Except in one case no operation was performed more than two years ago. Three successes were in cases of bilateral salpingostomy, for closed club-ended tubes—one in a case of bilateral resection and anastomosis, and one in a case of bilateral incision and suture after separation of adhesions with resection of one ovary. No successes have so far followed in cases of partial salpingectomy and in operations performed at the uterine end of the tube.

Innervation of Uterus.—The clinical material on which Whitehouse and Featherstone based their observations was selected to ascertain the character and nature of uterine contraction at various periods of pregnancy, when the nervous impulses from the lumbosacral cord were eliminated by means of spinal anesthesia. Animal experiments were also made. The results confirm Fellner's views with regard to the corpus uteri, but differ from him on the question of the lower uterine segment and the cervix. The authors believe that the circular fibers of the uterus, both in corpus and cervix, are stimulated by the sympathetic system, and inhibited by the lumbar cord. The longitudinal fibers, on the other hand, both corporeal and cervical, also the longitudinal muscle in the vagina in the case of the rabbit, appear to be stimulated by lumbar cord impulses, and inhibited by the sympathetic. In other words, local paralysis of the lumbar cord, whether permanently by trauma or temporarily by spinal narcosis, produces marked contraction of the circular muscle fibers of the uterus as a whole, owing to uncontrolled sympathetic impulses, but the expulsive power is lost owing to paralysis of the longitudinal fibers. Similarly, weak or absent sympathetic impulses produce overaction of the longitudinal fibers and increased expulsive efforts. The tone of the uterus as a whole, however, is lost and the organ is "flabby" owing to paralysis of the circular fibers. There is a good deal of evidence, both experimental and clinical, which indirectly tends to confirm these suggestions. A note of warning is sounded in connection with the employment of spinal anesthesia in normal cases of labor. By its use dilatation of the cervix will be delayed, and even if administered at the commencement of the "second" stage, the expulsive power of the uterus is diminished. Consequently forceps delivery with its attendant risks will in all probability be required.

Radium Therapy of Uterine Hemorrhage.—Forsdike asserts that radium arrests uterine hemorrhage solely through its action on the endometrium. If a prolapsed ovary is lying near the uterus exposure to radium would certainly affect the ovary; chronic pelvic peritonitis would also be an absolute contraindication for the use of radium.

Rupture of Abdominal Aorta.—Nicory relates the case of a man, aged 52, very stout, a moderate drinker, without history of syphilis, who while walking was seized with severe intermittent pain in the right testis. On the following morning the pain had almost subsided, but returned on his attempting to walk. There was a slight rise of temperature each evening.

Two weeks later the pain in the testis returned suddenly, and he was admitted to hospital. The radial arteries were found to be rather rigid; the systolic blood pressure was 200 mm. The patient had passed a restless night owing to abdominal distention and the frequent eructation of gas by the mouth; later he commenced vomiting greenish fluid, which later in the day became brownish and of markedly fecal odor. Death occurred the same day. The Wassermann reaction was negative. The heart was markedly hypertrophied, but the valves were normal. Macroscopically, the thoracic aorta showed no abnormalities. The intestines were greatly distended with gas. A dark blue mass was bulging the parietal peritoneum in the right half of the abdomen. The ascending colon was embedded in the retroperitoneal mass, but the cecum and appendix were recognizable. Incision of the peritoneum revealed a large blood clot reaching to the upper pole of the right kidney and downward into the pelvis. The ascending colon had been separated from its peritoneal covering and was so completely surrounded and compressed by the clot that its lumen was almost obliterated. A portion of the clot in the immediate vicinity of the aorta was dark brown and harder than the rest; it was probably older and due to an earlier leak, which may have been responsible for the collapse and pain referred to the testis a fortnight before death. After clearing away the clot, there was found in the right wall of the aorta, 15 mm. above its bifurcation, a hole 12 by 6 mm.; and a calcareous plaque, beyond which the aorta had given way, and which was still attached to the edge of the perforation. The wall of the abdominal aorta above and below the site of rupture was almost completely calcified.

Cancer of Stomach.—One of Jackson's cases simulated chronic intestinal stasis; one simulated gallstones and the third simulated acute intestinal obstruction.

Diaphragmatic Hernia of New-Born.—Adeney's patient died three hours after birth. Postmortem examination showed a deficiency in the left side of the diaphragm, which was large enough to admit three fingers. The entire bowel, accompanied by the spleen, had herniated, and occupied the left thorax, displacing the heart to the right of the sternum, and reducing the left lung to two small tags of tissue. The contents of the hernia could be reduced easily, but soon returned to their thoracic lodging.

Lancet, London

2: 371-438 (Aug. 25) 1923

The Students' Number, 1923-1924.

2: 439-492 (Sept. 1) 1923

*Chronic Mastitis. G. Keynes.—p. 439.
*Operative Treatment of Vesical Diverticula. J. Swift Joly.—p. 445.
*Striae Distensae. F. B. Hobbs.—p. 452.
*Home Disinfection and Control of Scarlet Fever. K. Simpson.—p. 455.

Aberrant Physiology Cause of Chronic Mastitis.—It has commonly been held that chronic mastitis is caused by the presence of some obscure bacterial infection. Keynes cannot, however, discover any evidence in favor of the view that the inflammation is bacterial. In fact, he believes that bacteria take no share in the disease. All the available evidence seems to point to the conclusion that the breast is itself continually pouring into the lumen of its ducts and acini a possible source of irritation to which pathologic changes may be attributed. Should there be a partial failure in the process of reabsorption of fluid and scavenging of epithelial debris, then any such irritation will become accentuated. This, in its turn, will further interfere with absorption and may initiate abnormal cellular activity, and so a vicious circle will become established. There are very wide variations in the degree of irritation produced, and this variation occurs only as between individuals but also in different parts of the same breast. The variation may be both in the concentration of the irritants formed in the secretions and in the susceptibility of the cells exposed to its action. The reaction of one individual may lie chiefly in the direction of fibrosis; in another it may produce the various forms of abnormal epithelial activity. In one case, the results of irritation may become apparent after it has been acting for a relatively short time; in another it may be thirty or forty years before any pathologic change can be appreciated. But whatever the source of irritation may be, it is clear that the time factor is of great importance. It has been very commonly observed that an advanced degree of chronic mastitis is seen at an earlier age in women who have never borne children than in women who have passed through the healthful process of pregnancy and lactation, and this is confirmed by the figures already recorded. The explanation of this is to be found in the fact that during lactation the mouths of the mammary glands become unsealed, and the products of activity are removed. If a woman has a large family of children, this natural drainage is established with intermissions for a period of many years, and only as middle age approaches do the breasts again begin to feed on themselves. For this reason, chronic mastitis has been called a disease of the climacteric; but the condition really has its first beginnings when lactation ceased for the last time, perhaps ten years before. The normal nonlactating breast has no outlet through the nipple for the discharge of its secretions. Secretion must, therefore, be balanced normally by reabsorption. Chronic mastitis, though often associated with carcinoma, has not been proved to be "precancerous." Both may be due to the same cause. Chronic mastitis in its more advanced stages must be treated by operation. At an earlier stage natural drainage may be tried, or roentgen rays may be applied.

Invagination and Inversion of Vesical Diverticulum.—In one of the fourteen cases described by Jolly, he did a combined invagination and inversion of the sac, a method which, he says, can be employed in diverticula springing from any part of the bladder, but is particularly useful for dealing with large sacs situated deep in the pelvis. It is said to be eminently safe, as the outer surface of the diverticulum is well seen while the adhesions are being separated from it. It cannot be employed when the wall of the sac is too stiff to allow of invagination, but this is the only definite contraindication. Joly emphasizes the fact that no single operation is suitable for all cases. A preliminary cystotomy does more harm than good in most cases. The presence of a calculus either in the bladder or in the sac is an indication for excision of the diverticulum.

Cause of Striae Distensae.—In Hobbs' opinion, striae distensae are confined almost entirely to young adults between the ages of 12 and 22. At this age the skin is delicate and is growing rapidly, and the elastic tissue fibers rupture, allowing the white fibrous tissue and overlying epidermis to stretch, giving rise to striae distensae. Striae distensae may be associated with almost any febrile illness. The distention and ultimate cleavages of the skin may be caused in healthy individuals by the rapid accumulation of fat in the subcutaneous tissues of the axillae, thighs, etc. In other cases, it is due to a simple distention following an effusion into the subcutaneous tissues. Often the nutrition of the skin is impaired by some constitutional disease, and the main factor in these cases is the effect of posture—the striae occurring at the position of maximum tension.

Control of Spread of Scarlet Fever.—Simpson stresses the present inadequacy and inutility of home disinfection as a means of controlling the spread of scarlet fever. At best it is little more than a formal, much less than a complete proceeding, and, consequently, can neither reasonably prevent subsequent infection occurring in an already apparently disinfected home among susceptibles — susceptibles of school age being meanwhile excluded from school—nor the subsequent spread of the disease, once an outbreak has occurred which is almost entirely dependent on carriers and school attendance, rather than fomites, leaving out of account, for the present, sporadic cases met with from time to time in adults. Simpson is strongly of opinion that much of the funds at present spent on disinfection could be employed more usefuly in creating a healthier state of the nasopharynx of the schoolchild by directing greater precision to the examination and treatment of all such defects discovered on routine medical inspection of schoolchildren, by preventing overcrowding in schools and by the prompt closure of all schools or school departments—public, private, and Sunday—in any area threatened with an outbreak of scarlet fever.

Archives des Maladies du Cœur, etc., Paris

16: 561-624 (August) 1923

Congenital Mitral Stenosis with Interauricular Insufficiency. A. Cramer and E. Frommel.—p. 561.
*Edema of Lung with Mitral Stenosis. C. Saloz and E. Frommel.—p. 570.
*Aneurysm of Aorta. C. Saloz and E. Frommel.—p. 578.
Trocar for Evacuation of Cardiac Edema. G. Galli.—p. 591.
Medical Oscillometry. R. Alexandre and R. Moulinier.—p. 593.

Acute Edema of Lung in Course of Mitral Stenosis.—Saloz and Frommel ascribe acute edema of the lung under these conditions to weakness of the left ventricle. Necropsy in a case described in detail showed that the heart of the small woman, aged 37, measured 14.5 by 18 cm. The mitral orifice was only 4 by 11 mm. in diameter.

Aneurysm of the Aorta.—This is a study of eighty-six cases of aneurysms above the diaphragm, with necropsy findings in sixty-nine. The clinical pictures with the different locations of the aneurysms are compared.

Archives de Médecine des Enfants, Paris

26: 329-392 (June) 1923

*Erythema Nodosum in Children. J. Comby.—p. 329.
*Epidemic Meningitis in Children. S. Samet-Mandels.—p. 343.
*Generalized Polyarthritis. A. Trèves.—p. 365.
*Congenital Hyperkeratosis. J. Comby—p. 370.

Erythema Nodosum in Children.—Comby's study of this subject is based on 172 personally observed cases. He regards it as an acute febrile disease resembling more the eruptive than an ordinary skin disease. The lower limbs alone were affected in 104 of the children, and both arms and legs in 67; in 1 case the arms alone, and in 2 children the erythema was unilateral. The nodules all gradually subsided without leaving a trace, and, except for albuminuria in 3 cases, there were no complications. It sometimes displayed a seasonal, epidemic and contagious character, which imposes the necessity for isolation although the contagiousness is slight. The child should be kept in bed during the febrile stage. He wraps the limb in cotton. An almost extinct tuberculosis may be fanned into a flame by it, and we know that the tuberculous child is particularly susceptible to all infections. Comby thinks that this is the extent of the connection between tuberculosis and erythema nodosum. Only 5 of the children were infants; 48 were between 2 and 5, and 42 between 10 and 15. There were 113 girls to 59 boys. One attack usually confers immunity, but convalescence is long and tedious.

Epidemic Cerebrospinal Meningitis in Children.—A children's hospital at Lodz had 74 cases in 1919 and 1921, and the disease seemed to be mostly a general infection, the meningitic symptoms predominating in the majority. In some cases, meningococcus pneumonia was the first localization and children succumbed to this when the meningitis had subsided under serotherapy. Started early, and kept up long enough, with adequate doses, serotherapy arrests the disease and cures it. Daily hot baths relieve the pains and the stiffness. The diagnosis is seldom clear in infants. When an infant becomes restless, with slight signs of dyspepsia, and the anterior fontanel is taut, lumbar puncture should be done at once. Tension of the fontanel is never misleading. The early diagnosis is even more important for infants than for older children, as from 90 to 100 per cent. die of those not given treatment. In 14 cases in infants not seen till the tenth day, all died but 3. In some of the children the mind seemed affected; in one case the mind seemed stimulated, the girl, aged 12, becoming a more zealous student after recovery. In one case acute pneumonia, in another typhus, and in a third meningeal hemorrhage simulated epidemic meningitis. The disease sometimes assumed a fulminating form, with death in less than twenty-four hours. In others, the disease dragged along for months to final fatal cachexia. Ten cases have been recorded in which the lumbar puncture fluid contained both meningococci and tubercle bacilli. If the dural sac is obstructed or the pus is too thick to flow, the antiserum should be injected at once into the ventricles. In France, type B predominates, but at Lodz type A, and a polyvalent antiserum was preferred. The final conclusion from the experiences related is to give large doses and keep them up a long time. In one case a total of 190 c.c. of the antiserum was injected intraspinally in ten days, with complete recovery of the 10 months' infant.

Generalized Polyarthritis.—At the age of 2 the joints swelled in turn and became painful; the child was treated for tuberculosis of the joints, but tuberculin tests have been constantly negative. Notwithstanding the absence of signs of syphilis in the family, neo-arsphenamin treatment was pushed and the child, now over 13, is practically cured. Growth of the right tibia was arrested by destruction of its epiphysis. This knee was the joint first affected and it had been immobilized in plaster for several months. The head of the fibula reaches nearly to the interline of the knee joint. The polyarthritis was evidently due to an infection which yielded to neo-arsphenamin after improvement under heliotherapy.

Congenital Keratosis.—Comby reviews some recent publications on hyperkeratosis, dyskeratosis and ichthyosis, and the relations between them.

Bulletin de l'Académie de Médecine, Paris

90: 113-131 (July 31) 1923

Autochthonous Kala-Azar in Four Children at Marseilles. d'Astros, P. Giraud and J. Raybaud.—p. 114.
Sarcoma of Spleen in Girl Aged 12. F. Ladreyt.—p. 118.
*Cancer in Southern France. A. Rémond.—p. 119.
Obstetric Practices in Tunis. Dinguizli.—p. 120.
Smallpox Vaccine Made from Rabbits' Brains: Neurovaccine. A. Marie. p. 123.
Influence of Heterografts on Anaphylactic Shock. A. Kotzareff.—p. 126.
Systematic Education of the Public Against Mushroom Poisoning. L. Azoulay.—p. 129.

Cancer in Southwestern France.—Rémond's collective inquiry in the Toulouse district confirms the regular increase in the number of cases of cancer, and the larger numbers in the young, since 1918. There were only 2 cases under 20 in the 528 cases of 1919 and 1920 in which the age was specified; 2 under 20 in the 493 of 1921, but there were 3 under 10 and 15 between 10 and 20 of the 695 cases in 1922. In these last two years there were also 22 cases in persons between 20 and 30.

Néoplasmes, Paris

2: 145-192 (Aug.) 1923

*Heredity of Cancer. W. F. Wassink and C. P. W. van Raamsdonk.—p. 145.
*Secondary Cancer of Lung. Montel and Hauvuy.—p. 155.
*Radium Treatment of Rectal Cancer. C. Schmitt.—p. 166.

Heredity of Cancer.—This article is based on 258 cases of mammary cancer. In 76 of the cases, other members of their families had cancer, 30 families, with a total of 40 cases having cancer in the breast. The 76 with cancer in other members of the family had 62 relatives with cancer elsewhere than in the breast (including 31 men). Similar data from 274 cases of cancer of the uterus show 66 with cancer in other members of the families. The list included 24 cases of cancer of the uterus among the 42 women. The data of 247 cancers of the skin, 46 of the lips, 69 of the tongue, 89 of the mouth, and 110 of the larynx and pharynx are tabulated. They demonstrate beyond question a familial predisposition to cancer, site variable, in from 13 to 39 per cent. of these groups, and a predisposition on the part of a certain organ in from 9 to 39 per cent., with the exception of cancers of the lip. Local irritation superposed on the familial predisposition brings the familial incidence to 50 per cent. for cancer of the lip. The work issues from the Netherlands Cancer Research Institute, and cites Maud Slye's and Roger Williams' publications as confirming the importance of heredity and organic predisposition in malignant disease. Williams found heredity in 28.2 per cent. of 136 cases of mammary cancer; and in 19.7 per cent. of 142 cases of uterine cancer. The predisposition of the organ was 39 per cent. for the breast and 34 per cent. for the uterus. These figures are strikingly concordant with those given in the table here, 39 per cent. for the breast and 36 per cent. for the uterus. This same predisposition of one organ is evident in statistics published in various countries, as in Manichon's family with 69 cancer cases of which 57 were in the stomach; Korteweg's mother, daughter and grandchild with mammary cancer; Paget's family with cancer of the uterus, and Warren's with cancer of the penis in three successive generations. By calculating the presumable incidence in a predisposed family, the results work out about the

same as if heredity alone were responsible for the incidence. Maud Slye's research has apparently determined that cancer heredity is a recessive quality. Consequently we will always find less evidences of heredity than actually exist.

Secondary Cancer of the Lung.—In the case described, a sarcoma of the thigh had been developing for four or five months without attracting attention when suddenly dyspnea from a hemorrhagic purulent pleural effusion from metastasis in lungs and pleura proved rapidly fatal. The diagnosis was made from cancer cells in sputum and puncture fluid. The latter contained streptococci and other micro-organisms, and a mouse inoculated with the fluid died within twenty-four hours.

Radium Treatment of Rectal Cancer.—Schmitt remarks that the same reasons which contraindicate surgical measures demand gentleness in the application of radium treatment. He describes with illustrations the technic which, he says, accomplishes most with least trauma of the region, and least danger of causing metastasis.

Presse Médicale, Paris

31: 669-680 (Aug. 1) 1923

*Puerperal Eclampsia. Lévy-Solal and A. Tzanek.—p. 669.
Insufficiency of the Heart with Chronic Lesions in the Lungs. R. Lutembacher.—p. 671.

Puerperal Eclampsia.—The blood serum from women with eclampsia, injected into the hearts of guinea-pigs, in doses of 1 or 2 c.c. per kilogram, always killed the animals, while normal human or animal serum was borne without harm in doses six or eight times larger. Lévy-Solal and Tzanck found further that two toxic elements can be isolated from the serum of eclampsia patients. One induces a slow, torpid kind of intoxication, the other, a sudden, rapidly fatal syndrome, with convulsions and features suggesting an anaphylactic shock. This conception of eclampsia as an anaphylactic shock was confirmed by their successful prevention of the experimental convulsions by injecting the animals beforehand with a minute dose of the same eclampsia serum. This realized a specific desensitization, in accordance with Besredka's theory, so that the attack of convulsions was often warded off. They also succeeded in saving 80 per cent. of the animals by mixing 1 mg. of pilocarpin hydrochlorid with the eclampsia serum. The animals had no convulsions, and soon recovered. On this basis they injected 5 mg. of pilocarpin hydrochlorid, in an eclampsia patient. The woman was at the seventh month, and had had nine convulsions. They did not return after the injection; this small dose was repeated three times in twenty-four hours. The aim was to modify the vagus-sympathetic tonus, and this seemed to have been accomplished.

31: 681-688 (Aug. 4) 1923

*Serotherapy of Pseudarthrosis. L. Imbert.—p. 681.
The Oculocardiac Reflex in Asthma. R. Castelnau.—p. 682.
Rehabilitation of Squill. L. Cheinisse.—p. 684.

Serotherapy of Pseudarthrosis.—Imbert reports four cases which seem to establish that pseudarthrosis can sometimes be effectually modified and started on the road to healing by subcutaneous injection of serum from the blood of a donor who has had a fracture which is healing well, at about the thirtieth day.

31: 689-696 (Aug. 8) 1923

*Tests of Kidney Functioning. Vaquez and Saragea.—p. 689.
The Function of the Spleen. P. Chevallier.—p. 691.

Tests of Kidney Function in Hypertension.—Vaquez expatiates on the advantages of the induced diuresis test as the simplest and most dependable means for estimating the functional capacity of the kidneys. It is as sensitive and as reliable for prognosis as any other test, while it discriminates between cardiac and renal disturbances. He tabulates the findings in twenty-eight cases of extreme hypertension. The habitual renal function is recorded for two days, the patient drinking only 500 gm. of water at meals and none between, and reclining the second day. The morning, day and night urines are collected separately. The third day, fasting, he drinks 600 gm. of Evian mineral water, and is up and about. The fourth day he drinks the same amount, but stays in bed. The findings are said to harmonize exactly with those of other tests, while avoiding their drawbacks.

31: 697-704 (Aug. 11) 1923

*Nourishment of the Bones. G. Mouriquand, P. Michel and R. Sanyas.—p. 697.
The Respiratory Output with the Pech Mask. J. Beyne.—p. 698.

Adjuvants and Antagonists for the Nourishment of Bone Tissue.—The extensive experimental research reported suggests that in all disturbances in the bones, of noninfectious origin, search should be made for some contributing or causal factor in the diet.

Revue de Médecine, Paris

40: 321-384 (June) 1923

Pathogenesis of Erythema Nodosum. E. Ledoux.—p. 321.
The Physiopathologic Mechanism of the Nitritoid Crisis. Juster and Balalian.—p. 354.

Revue Médicale de la Suisse Romande, Geneva

43: 337-416 (June) 1923

The Surgical Diagnosis from Medicolegal Standpoint. Reinbold.—p. 337.
*Action of Heat on Digitalis. M. Brot.—p. 350.
*Blood-Producing System in Tuberculosis. G. Bickel.—p. 357.
Treatment of Paralysis by Dead Tendon Grafting. G. L. Regard.—p. 364.
Modern Prophylaxis and Treatment of Diphtheria. Gautier.—p. 375.

Action of Heat on Digitalis.—Brot reports two series of tests with digitalis of the 1922 crop which demonstrated that addition of alcohol, far from rendering the drug more active, reduced its action materially. The minimal amount arresting the frog heart was 140 c.c. of the aqueous extract; 176 c.c. of the alcohol extract, and 245 c.c. after heating the aqueous extract for thirty minutes. The digitalis thus lost 43 per cent. of its potency by heating in an aqueous extract, and 16 per cent. from treatment with alcohol. It seems evident that the drug loses its potency least in pulverized form. Similar tests of adonis vernalis showed that the active principle is damaged by heat. Wide variation in the potency of different specimens of the drug from different crops was demonstrated, showing the effect of ageing. These differences may explain the conflicting reports on adonis by various writers.

Lymphocytosis in Tuberculosis.—Bickel recalls that lymphocytosis is usually a sign that the organism is opposing considerable resistance to invasion with tuberculosis, but in a case described the blood-forming apparatus seemed to be completely paralyzed. The deficit was slight for the polymorphonuclear leukocytes but extreme for erythrocytes, and the deficit in lymphocytes was even more pronounced. The anemia became extreme in the woman, aged 37, and enlarged mediastinal and mesenteric glands could be palpated. Under treatment with an arsenical preparation the blood count returned rapidly to normal as the general health improved, with final complete recovery.

Schweizerische medizinische Wochenschrift, Basel

53: 701-724 (July 26) 1923

First Case of Creeping Disease in Man in Switzerland. G. Galli-Valerio and M. de Werra.—p. 701.
Keratitis from Occupational Injury from Gases. P. Knapp.—p. 702.
*The Goiter Question. O. Bayard.—p. 703. Conc'n, p. 732.
Intra-Abdominal Hemorrhage from Corpus Luteum. M. Kranzfeld.—p. 707.
Hemoclastic Crisis in Epidemic Encephalitis. Mercio Xavier.—p. 709.

The Goiter Question.—Bayard discusses the changes in the thyroid with increasing age and with varying supply of iodin. Endemic goiter is a hyperplasia of the thyroid induced by lack of the normal supply of iodin. It is characterized histologically by the early and pronounced changes which otherwise are not observed in the thyroid till much later in life. The secretion suffers from the substandard functioning of the parenchyma. Besides cretinism and deafmutism, the thyroid insufficiency is liable to entail a predisposition to cancer. Senility and myxedema have so many points in common that myxedema has been defined as "premature senescence," and senility as "intensified myxedema." Figures have been published showing that the average weight of the thyroid at the ages of 6 to 10 is 18.58 gm. at Berne; 11.9 gm. at Munich, and 7.4 gm. at Kiel. The corresponding figures for cancer mortality per hundred thousand inhabitants, in the year 1900, were: Berne, 132; Munich, 98, and Kiel, 57. When malignant disease develops in the thyroid, there is always a history of preceding goiter; the prematurely aged organ seems

to invite cancer. Years of research have convinced Bayard that addition of 20 mg. of potassium iodid (15 mg. iodin) to each 5 kg. of table salt (a year's consumption, averaging 13.7 gm. a day) is ample to prevent development of goiter, and to cause the retrogression in school children of visible goiter. Five families were given salt with varying iodin content, 2, 4, 6, 8 or 10 cg. of potassium iodid in each 5 kg. of salt. The families were all photographed before and after five months' use of the iodized salt. All showed retrogression of the numerous goiters, but this was as pronounced with the smallest amounts as with the larger, even in the adults. These and other tests showed that even the largest amounts were well borne, without disagreeable by-effects. In conclusion he urges that the use of iodized salt should not be left optional. A law should be passed that the salt on the market must contain 0.5 mg. of potassium iodid per kilogram at first, gradually increasing the iodid content to 2 mg. per kilogram.

Policlinico, Rome

30: 389-440 (Aug. 15) 1923. Surgical Section

*Duodenal Ulcer. P. Bastianelli.—p. 389.
Radiography of Gallstones. A. Bianchini.—p. 400.
*Kidney Tumors. G. Carisi.—p. 411.
*Cancer of the Pancreas. G. Pisanò.—p. 426.

Duodenal Ulcers.—Bastianelli urges that clinicians should call the surgeon in consultation much earlier than is now the rule. After the operation, the clinician should keep the case under supervision far longer than is customary. He says that any one who has had a duodenal ulcer is still diseased, and with a Damocles' sword suspended over his head. He has operated for gastric ulcer in thirty-one and for duodenal ulcer in seventeen cases, and has never had a peptic ulcer develop afterward or the tumor return. He supplements the gastroenterostomy with exclusion of the pylorus, suturing with silk. The normal size of the stomach testifies in favor of a duodenal rather than a gastric site for the ulcer.

Kidney Tumors.—Carisi analyzes eight operative cases of tumors in the kidney, with recovery of all but one patient who had a cancer in both throat and kidney. Hematuria was present in all but one of the six adults but not in the two children. Two of the three hypernephroma cases presented the classic triad of pain, hematuria and tumor, but in one case a very large hypernephroma had developed silently; the man, aged 39, had consulted the physician only on account of transient jaundice. One child is now apparently in the best of health nearly two years after removal of an adenocarcinoma of the kidney at the age of 20 months, followed by roentgen exposures of the region. In the other child, aged 3, the sarcoma recurred in a year in an inoperable form.

Cancer in the Pancreas.—In one of the two cases described, the possibility of a cancer in the pancreas had been discussed and excluded, as the symptoms seemed to indicate that the tumor was in the kidney. Even with all modern diagnostic measures, pancreas disease still has a grave prognosis owing to the advanced stage of the lesions when the diagnosis is made. Other diagnostic measures must be found, as an early operation would have every chance of a complete cure.

Brazil-Medico, Rio de Janeiro

2: 53-68 (July 28) 1923

*Protein Therapy in Ophthalmology. Gabriel de Andrade.—p. 53.
Traumatic Hydrops of Antrum of Highmore. Alvaro Tourinho.—p. 60.
*Production of Antitoxic Serums in Large Animals. R. Kraus.—p. 61.

Protein Therapy in Ophthalmology.—De Andrade reports some cases of postoperative iridocyclitis, three cases of severe gonococcus conjunctivitis and cases of other ocular lesions in all of which prompt recovery followed parenteral injection of 8 or 10 c.c. of freshly drawn milk, boiled only for three or four minutes. The intramuscular injection was repeated the following day and again after a pause of two or three days. The results were always highly gratifying, whether there was a febrile reaction or not. He usually combines it with the ordinary local measures, but in one of these cases, under the protein therapy alone, the pain from the gonococcus conjunctivitis subsided completely, three hours after the first injection, and the urethritis and an old suppurating otitis media promptly healed at the same time. The effect is generally produced by the second injection. He never made more than eight injections, and never witnessed any untoward by-effects, except in one case in which the needle had evidently entered a vessel.

Production of Antiserums in Large Animals.—Attenuation of tetanus toxin with formaldehyd yields toxoids which can be used in production of antitoxins, but Kraus warns that the potency as an antigen is liable to be impaired. He also presents evidence that beginning with small progressive doses gives a larger yield of antitoxin units than can be obtained when large doses are used from the first.

Archiv für Verdauungs-Krankheiten, Berlin

31: 253-374 (July) 1923

*Bilirubin and Liver Function. G. Felsenreich and O. Satke.—p. 253.
Chemical and Clinical Study of Plastein. E. Hesse.—p. 275.
Serologic Study of Digestion of Fat. E. Levinger.—p. 285.
*Retention Stomach Tube. K. Diehl.—p. 293.
*Titration of Hydrochloric Acid. G. Kelling.—p. 307.
*Symptoms of Duodenal Ulcer. J. Dillon.—p. 313.
*Gastric Ulcer Visible in Roentgenogram. J. Büscher.—p. 327.
*Predisposition to Gastric Ulcer. R. Tscherning.—p. 351.
Importance of Hematoporphyrin in Dubious Cases of Occult Blood in Stools. W. Löwenberg.—p. 361.
Esophageal Cancer Close to Old Lipomatous Polyp. Schirmer.—p. 365.
Esophageal Cancer in Old Cicatrix. Idem.—p. 370.
Research on Means to Influence Secretion of Bile. S. Okada.—p. 373.
Reply. G. Singer.—p. 374.

Bilirubin as Index of Liver Functional Capacity.—Felsenreich and Satke compared the findings in regard to bilirubin and its derivatives in serum, duodenal juice, stool and urine, in thirty-eight cases of simple jaundice. Abnormally high urobilinogenuria is a sign of injury of the liver, as also normal urobilinogenuria when the bile is deficient in salts and pigments. The degree of the liver impairment can be estimated by comparing the urobilinogenuria and the elimination of bilirubin in the bile from the duodenum.

Research with Continuous Aspiration from the Stomach.—Diehl's research on twenty-two persons with healthy stomachs and a stomach tube left continuously in the stomach has revealed, among other things, that abnormally high hydrogen ion concentration can occur. His findings conflict in certain points with those of others who examined only pathologic stomachs.

Titration of Hydrochloric Acid.—Kelling states that Dresden water contains lime to a 9 or 10 degree of hardness. The stomach content is diluted with this water after an Ewald-Boas test meal, and the color reaction from the hydrolytic splitting of the albumin and hydrochloric acid compounds gives a fairly accurate idea of the proportion of free and albumin-bound hydrochloric acid present.

Symptomatology of Duodenal Ulcer.—Dillon's experience with 64 cases of duodenal ulcer tends to sustain the assertion that lack of appetite rather testifies against duodenal ulcer. The appetite was excellent in 81.5 per cent. of his duodenal ulcer cases, and in 68 per cent. of the gastric ulcers. Intestinal bleeding was evident in 25 per cent. of the duodenal ulcer cases but only in 8.5 of the gastric cases. He does not ascribe any importance to occult blood, saying that he found traces of blood after introducing the stomach tube in 7 of 15 persons with healthy stomachs and the stools free from occult blood. He cites further Kuttner's 9 cases and others in which, after fatal hemorrhage from the stomach, the gastric mucosa was found absolutely normal, even under the microscope. He insists that the course of a duodenal and of a gastric ulcer differ so essentially that the treatment of each requires revision.

Treatment of Gastric Ulcer.—Büscher was formerly assistant at the Erlangen medical clinic, and his article is based on roentgen-ray examination of 345 women and 298 men—all with gastric ulcer casting a shadow under the roentgen rays. In 14.4 per cent. the patients were over 60. The old rule "Long duration of the disturbances speaks for ulcer, short duration, in the elderly, for cancer" is a good guide, especially a history of recurring periods of stomach disturbances. The subsidence of all symptoms is no criterion of the healing of an ulcer. Pregnancy does not seem to rouse a latent ulcer; this seems to be connected more with hormonal waves, especially in the spring. Only one instance of a tuberculous gastric ulcer was found in operating. Familial predisposition was

manifest in some cases. In one family a professor, his sister and a cousin required operative treatment for gastric ulcer, and the grandfather had had stomach disturbances. In the total 643 cases there was only one child and one youth. With severe pain radiating to the nipple, an ulcer close to the pylorus was always found. Hunger pain was observed with both gastric and duodenal ulcers; daily recurrence is instructive, as also the relative bearableness of the pains in comparison with gallbladder pains. The latter are sometimes compared to labor pains, as also the pains with stenosis of the pylorus. Tenderness of vertebrae was never observed, but Boas' tender point was found in 25 per cent. The vomiting with bile-duct disease generally occurs from a fasting stomach. A gastric or duodenal ulcer may run its course without vomiting. When it occurs, there is usually obstruction of the pylorus or an organic hour-glass stomach. With hypersecretion and hyperacidity, obstinate constipation is frequent, but subsides after removal of the ulcer. Patients frequently ascribe to the stomach the disturbances from remote lesions; kidney calculi in one case. A tender point moving with the stomach is instructive. Of 173 patients treated by operative measures ten years or more ago, 3 of the 21 treated by gastro-enterostomy required resection later; 2 died from gastric cancer. The ulcer recurred in 3 of the 4 treated by excision, as also in 6 of the 126 with circular resection. The Krönlein operation, resecting the distal end of the stomach, suturing to the stump a loop of small intestine, was applied in 16 cases and has given the most constantly favorable results to date, but the interval since has been less, not over four years; no instance of recurrence is known. After the Billroth II, some of the 6 patients still complain of some disturbance, and recurrence has been observed.

Physical and Mental Constitutional Predisposition to Gastric Ulcer.—Tscherning admits that not all gastric ulcers fit into his frame, but it includes the overwhelming majority. The main type is tall, slender, with a blending of asthenic and athletic elements, vasomotor instability and, in a large proportion, endocrine-genital anomalies tending to the eunuchoid type. The persons examined were all men under social insurance, and he tabulates the body measurements by the averages for the group. Decided vagotonia or sympatheticotonia was never observed. There were only two instances of another gastric ulcer in the family.

Deutsche Zeitschrift für Chirurgie, Leipzig

180: 1-200 (June) 1923

Operative Treatment of Gallstones. Ringel and Kleinschmidt.—p. 1.
*Phlegmon in Ascending Colon. H. Sauer.—p. 27.
*Splenectomy in Blood Diseases. R. Vogel.—p. 37.
*Prolapse of Rectum in Children. E. Weber.—p. 107.
Unusual Forms of Peritonitis. E. Weber.—p. 113.
*Tuberculosis of Male Gonads. R. Reinecke.—p. 130.
Successes with Albee's Operation. E. Gnant.—p. 158.
*Cervical Sympathetic and the Thyroid. W. Reinhard.—p. 170. Also p. 177.

Phlegmon in Ascending Colon.—The streptococcus phlegmon developed secondary to an inflammatory tumor for which the trichocephalus was responsible. The youth, aged 16, died seven hours after removal of the loop involved. The first symptoms had been noticed seven days before. Sauer has been able to find records of only forty cases of phlegmon in the bowel, and this is the only case of which he knows traceable to the trichocephalus. He suggests that possibly helminths may be often responsible for chronic inflammatory tumors in the intestines.

Splenectomy in Blood Diseases.—Vogel reviews this entire field comparing personal experiences at Hamburg with the literature on the physiology, on hemolytic jaundice, Banti's disease, Gaucher's disease, pernicious and pseudoleukemic anemia, leukemia, purpura, isolated tuberculosis of the spleen, and hypertrophy of the spleen in malaria, syphilis, sepsis and infectious diseases. He gives the tabulated details from a number of personal cases before and long after splenectomy, and describes the clinical picture in each type of blood disease, the indications for splenectomy, and the probable outcome. He comments on the surprising fact that the resisting power of the erythrocytes in hemolytic jaundice is not modified by the splenectomy, although the disease is clinically cured by it. In pernicious anemia, the beneficial effect is transient, but it demonstrates that splenectomy has a stimulating influence on the bone marrow. Splenectomy induces an almost clinical cure in Werlhof's disease, but the number of blood platelets is not modified; injury of the walls of the blood vessels, rather than the lack of platelets, is the main factor. One practical conclusion from his research is the necessity for removal of the enlarged spleen in endocarditis lenta, as soon as this disease is diagnosed. In lymphatic leukemia, removal of the overlarge spleen is only a palliative operation, and it is contraindicated in case of a hemorrhagic diathesis, and when the spleen is bound down by adhesions. In one case of pseudoleukemic anemia in an infant of 18 months, no effect from splenectomy was apparent beyond the subsidence of the relative lymphocytosis, but polycythemia was evident a year later, and the general health was good.

Prolapse of Rectum in Children.—Weber reports recurrence of the prolapse in 6 per cent. of 34 children treated by colopexy, and in 27.3 per cent. of the 44 cases treated by running a silver wire around the anus. The outcome is not known in 17 and 44 other cases in these two groups. The intervals since average four years. The two recurrences in the colopexy cases occurred at once after the operation. No by-effects from the colopexy were observed in any of the total 51 cases. The sigmoid loop was fastened to the peritoneum of the left anterior wall of the abdomen with silk button sutures, including the musculature of the wall in the sutures, separating the fibers lengthwise for this.

Tuberculosis of Male Genital Organs.—Reinecke denounces castration alone as not an adequate treatment for tuberculous epididymitis. At necropsy of eleven men thus treated by unilateral castration, and another treated by bilateral castration, the intra-abdominal genital organs were always found involved, and without a trace of tendency to healing. On the other hand, two patients treated by removing the seminal vesicles in addition seem to be entirely cured, in the best of health over three years later. In one, a unilateral radical operation had been done; in the other case, the operation on the other side followed six months later. He has applied this radical operation in eleven cases, and advocates it as the only logical procedure. It should be followed by tuberculin and heliotherapy.

Innervation of the Thyroid.—Reinhard experimented on dogs to determine the relations between the cervical sympathetic and the thyroid. His photomicrographs demonstrate that chronic irritation of one cervical sympathetic induced hypertrophy of the corresponding lobe of the thyroid. Total extirpation of the cervical sympathetic on one side was followed by a reduction in the size of the corresponding lobe of the thyroid, and reduced colloid content.

Sympathectomy in Treatment of Exophthalmic Goiter.—Reinhard's charts and tables showing the anatomic bases and the results in eight cases apparently justify his claim that the logical, harmless and effective treatment of exophthalmic goiter is by resecting the superior and middle ganglions of the cervical sympathetic, and total extirpation of the cervical trunk. The only by-effect was transient lacrimation and transient congestion of the conjunctiva on that side. The exophthalmos, motor restlessness and palpitation of the heart showed pronounced improvement at once, and this was followed by gradual subsidence of all the symptoms to a complete cure. His experimental and clinical experiences, he adds, cannot fail to convince the most skeptical that the cervical sympathetic is especially responsible for the pathogenesis of exophthalmic goiter, as he explains in detail.

Jahrbuch für Kinderheilkunde, Berlin

52: 1-128 (May) 1923

Congenital Tricuspid Insufficiency. A. Hotz.—p. 1.
*Percussion of Children's Skulls. H. Koeppe.—p. 13.
*Nutritional Disturbances in Infants. E. Schiff and J. Caspari.—p. 53.
*Colloids of the Blood in Tuberculous Infants. J. Duzar.—p. 69.
*Calcium in Blood in Fatal Disease. G. Genek and K. Blühdorn.—p. 83.
*Digestion in Infants. K. Scheer and F. Müller.—p. 93.

Percussion of the Skull in Children.—Koeppe, in 1907, first found tympany and the cracked-pot sound, on percussion, in a boy, aged 11, with brain tumor, and then in four children

with choked disk. Subsequent study showed that tympany and cracked-pot sounds cannot be produced after death, but section proved that they are not always due to air in the cranium. In eighty-five of 100 children tested for these sounds they were positive, and lumbar puncture showed an intracranial pressure of 190-300 mm. of water. They were found in healthy infants, on percussion (tympany being normal in the second to third years), in ten children with pathologic conditions of the fundus oculi, in eight with hydrocephalus, and in various diseases in different intensity, the degree in some instances varying from day to day. Skull sounds alone indicate only increased intracranial pressure and they are not pathognomonic of any particular disease. In connection with a positive Pirquet reaction and other signs of tuberculosis, they aid in the early diagnosis of tuberculous meningitis.

Pathogenesis of Digestive Disturbances of Infants.—Schiff and Caspari, investigating the share of the colon bacillus in the pathogenesis of acute digestive disturbances in infants, found that these bacilli split albumin bodies and also peptone, with formation of basic products. Nutrient media to which products of peptic digestion were added gave an acid reaction, while the reaction was alkaline when products of trypsin digestion had been added. Bacterial fermentation of glucose is stronger with trypsin than with peptic digestion. They describe other chemical actions of the colon bacillus, especially its influence on proteins and fats and the higher fatty acids under varying conditions.

The Colloidal Blood Test in Infantile Tuberculosis.—Duzar made the colloid flocculation test of the blood, according to the Darànyi method, in nineteen healthy children, in five with nontuberculous febrile diseases and twenty-six tuberculous infants. The reaction in all the healthy infants was constantly negative, and in the tuberculous infants constantly positive, and it increased in intensity parallel with the pathologic process. One infant, aged 6 months, in whom all tests for tuberculosis had been negative, gave a positive colloid lability reaction, and necropsy showed the hilum infiltrated with cheesy nodules. He obtained transiently positive reactions, also, in an infant, aged 11 months, with diffuse bronchitis since birth, in whom tuberculin tests had been negative. Here section showed no tuberculosis, but bronchiectasis with putrid bronchitis and active pneumonic foci. He recommends this colloid instability test as a useful aid in diagnosis when the tuberculin reaction and other tests give dubious findings. The Darànyi test is made with 0.2 c.c. of the serum to be examined, added to 1.1 c.c. of 96 per cent. alcohol diluted with 2 per cent. sodium chlorid solution (4.1 c.c. of the saline solution to each 1 c.c. of the alcohol). The mixture is well shaken and heated in the water bath at 60 C. for twenty minutes. The tubes are then kept slanting at room temperature against a dark background, and are inspected without disturbing. When flocculation occurs at the half or first hour, this is a four plus reaction. The negative reaction is recorded at the twenty-fourth hour if no floculation has occurred. It is important to titrate the alcohol dilution each time with control serums.

Calcium Content of the Blood and Spinal Fluid in Fatal Diseases of Infants and Children.—Genck and Blühdorn in one case found the postmortem calcium content of the heart blood to be eighty times normal. The calcium content in one case two hours before death was only half that of the postmortem, and in one the calcium content of 5.6-6.2 in the fluid from puncture of the ventricle increased to 110 mg. per cent. after death. Among the cases showing this great calcium increase were three cases of toxicoses, with increasing hyperacidity which ended in sepsis: one meningitis, one pneumococcus sepsis and one hydrocephalus in which stupor had preceded death. The death struggle had been unusually protracted in all. The postmortem calcium content in lung affections was normal in the majority.

Physiology and Pathology of Digestion in Infants.—Scheer and Müller show tables of various kinds of experiments in feeding twenty-six infants, with tests of the feces. They say that, assuming the degree of acidity and time in the intestine to be constant, the question is resolved to the relation between the quantity of the fermentable material and the buffer capacity of the chyme. When carbohydrate is too abundant in the intestine, the acidity increases during the fermentation until the bacteria necessary for splitting albumin cannot exist and acid stools result. When the quantity of carbohydrate in relation to the buffer potency is small, the acidity does not increase, splitting of albumin takes place, acidity decreases, and alkaline stools result. Use of sugar increases the formerly slight albumin decomposition. Acid stools evacuated before fermentation is completed increase in acidity for some hours. Evacuated during the second stage of the process, the stools are alkaline and do not become acid. Increased content of sugar difficult to absorb prolongs, while increased buffer potency (in the form of albumin, and salts, especially phosphates) shortens fermentation. The first condition causes acid and the second alkaline stools. Calomel, stimulating peristalsis, yields acid stools, while opium, retarding the peristalsis, yields alkaline stools.

Monatsschrift für Kinderheilkunde, Leipzig

26: 321-432 (July) 1923

*Vitamins and Calcium and Phosphorus Balance. P. Rupprecht.—p. 321.
*Atropin, Pilocarpin and Gastric Motor Function. M. Löwy and O. Tezner.—p. 378.
Technic and Aims in Mixed Infant Feeding. M. Schmalfuss.—p. 387.
*Bacteriophagy in Infants' Stools. L. Suranyi and E. Kramár.—p. 392.
*The Wildbolz Urine Reaction in Tuberculosis. W. Marcus.—p. 401.
*Prophylaxis of Whooping Cough. E. Stransky.—p. 410.

Influence of Vitamins on the Calcium and Phosphorus Balance, and Their Mutual Relations.—Rupprecht does not theorize but presents a long series of tests on infants with rachitis and other disorders, tabulating the metabolic findings over long periods. He was able to demonstrate that carrot juice, cod liver oil and extract of skimmed milk induced retention of calcium. Butter did not display this property, and carrot juice lost it on heating to 130 C. but in cod liver oil this property seemed to be heat-stable.

Influence of Atropin and Pilocarpin on Motor Function of Healthy Child Stomach.—Löwy and Tezner examined with the roentgen rays the behavior of the stomach in eighty-five children between 5 and 14 after subcutaneous injection of atropin or pilocarpin. Atropin retarded the evacuation of the stomach in every case when 2 mg. was given. Pilocarpin retarded it in 50 per cent.

Bacteriophagy in Infants' Stools.—Suranyi and Kramár examined fifty filtrates of stools from infants between 2 and 18 months old, sick or well. Fifty-two different strains of bacteria were used in the tests. A pronounced bacteriophagic lytic action was manifest in 46 per cent. The strongest lytic action was in stools from healthy infants. Bacteriophagy was noted in only 14.2 per cent. of the cases of the exudative diathesis, but in 56.7 per cent. of the healthy, mostly between 6 and 12 months of age. The bacteriophagy did not seem to have any connection with the kind of feeding. The lytic action was most pronounced with dysentery bacilli, next with colon bacilli. Members of the typhoid group were only exceptionally affected.

The Wildbolz Urine Reaction.—Marcus' tables of the findings in nearly 100 children show that the Wildbolz urine reaction is certainly specific, but that it does not distinguish between active and inactive processes.

Prophylaxis of Whooping Cough.—Stransky reports that the box system for the infants in his institution answered the purpose of preventing the spread of whooping cough in a ward containing six boxes with glass walls and five beds each. The imported pertussis was not recognized until eleven infants had contracted it. The course could be traced from child to child, but once recognized and close contact prevented, there were no further cases.

Münchener medizinische Wochenschrift, Munich

70: 865-898 (July 6) 1923

*Decoloration of Hemoglobin. F. Müller.—p. 865.
*Defensive Processes in Tissue Cells. F. Sauerbruch.—p. 866.
*Modification of Streptococci. R. Schnitzer and F. Pulvermacher.—p. 866.
*Medical Supervision of Printers. L. Schwarz.—p. 868.
*Reaction in Blood of the New-Born. K. v. Oettingen.—p. 869.
Albumin Content of Spinal Fluid at Different Levels. Jacobi.—p. 870.
Serologic Research in Dermatology. A. Memmesheimer.—p. 872.
*Signs of Meningism After Infections. J. Schwab.—p. 872.
The Tonsils in Tuberculosis. P. Fischer.—p. 873.
Congenital Ankylosis of Finger Joints. Brügger.—p. 874.

A Malpractice Suit in 1911. A. Döderlein.—p. 875.
*Technic for Intraspinal Arsphenamin Treatment. E. v. Thurzó.—p. 876.
Water-Glass to Fasten Microscopic Sections. F. Windholz.—p. 877.
Foreign Body in Rectum. K. Wisotzki.—p. 878.
Torsion of Ovarian Tumor in Child. J. P. zum Busch.—p. 878.
Neuritis and Polyneuritis in General Practice. H. Curschmann.—p. 881.
Heredity from Standpoint of School Medical Inspection. Welde.—p. 883.
Advantages of Advice Stations for Venereal Disease. L. Görl.—p. 885.

Decoloration of Hemoglobin by Leukocytes, Spleen and Liver Cells.—Müller traces the history of the assumption that the spleen is involved in the transformation of hemoglobin.

Defensive Processes in Cells.—Sauerbruch protests against the view that immunity processes and defensive reactions are restricted to the blood serum. His experiments with animals in parabiosis have shown an increase in the function and a hyperplasia of the mesenchymal cells which he regards as highly significant. He is inclined to accept the mesenchyma as the determining element for the constitution.

Modification of Streptococci.—The viridans changed to the hemolytic type, among other modifications, in the bacteriologic research reported.

Medical Supervision of Printing Establishments.—Schwarz examined for signs of lead poisoning 135 workers from the composing rooms of three newspapers. No suggestion of lead absorption was discovered in the 33 engaged in stereotyping work, and only 3 of the 101 handling melted metal showed the lead line on the gums, but one in this group and 5 others had more than 100 : 1,000,000 granulated erythrocytes, and he and 17 others had the characteristic porphyrinuria. Those handling melted metal are thus the ones most endangered.

Reaction in Blood of the Newly Born.—Oettingen found that the plasm of the new-born infant behaves entirely opposite to the mother's plasm in the response to the silver bromid, light sensitizing test.

Meningism Persisting After Infections.—Schwab discusses the headache, depression, nervous irritability and loss of appetite which so often follow for months or years an attack of bronchitis, influenza or even coryza in older children. In ten boys and seven girls presenting this persistent meningism, the Kernig sign was positive in all. Lumbar puncture in eleven of the children showed albumin and sugar constantly in the fluid, and lymphocytosis in ten, ranging from 1 to 966 lymphocytes. In the recent cases he ordered the child kept in bed, often for weeks.

Treatment of Neurosyphilis.—Thurzó injects air by lumbar puncture the day before he gives the intravenous injection of the arsphenamin preparation in treatment of neurosyphilis. This preliminary irritation of the meninges prepares them better, he thinks, for the action of the drug.

70: 1005-1040 (Aug. 3) 1923

*The Arndt-Schulz Law. F. Martius.—p. 1005.
*Delay in the Effect from a Stimulus. A. Bier.—p. 1006.
The Question of Dosage. M. Cloetta.—p. 1010.
*Sloughing of Entire Lung. F. Sauerbruch.—p. 1011.
*Artificial Pneumothorax. W. Jehn.—p. 1012.
*Serodiagnosis of Ocular Tuberculosis. Römer and K. vom Hofe.—p. 1014.
*Blister Test for Sugar. M. Gänsslen.—p. 1015.
*Meningitis Symptoms in Epidemic Encephalitis. H. E. Lorenz.—p. 1018.
*Prophylaxis of Typhus. E. Grahe.—p. 1020.
Beware of Term "Evident Impossibility" in Expert Testimony. W. Zangemeister and F. Leonhard.—p. 1021.
*Functional Versus Organic Hypertension. L. Roemheld.—p. 1022.
Mechanism of Tortuous Winding of Arteries. A. Winkler.—p. 1023.
General Principles for Treatment of Fractures. E. Lexer.—p. 1024.

The Arndt-Schulz Law.—Martius extols the importance of this law, as a tribute to Schulz on his seventieth birthday. According to this law, every drug has a stimulating action in small doses, while larger doses inhibit, and much larger doses kill.

Interval Between Application and Appreciable Manifestations of Action of Stimulus.—Bier remarks that this delay before the effect becomes apparent has an importance for biology and therapeutics which had been overlooked until attention was called to this unsuspected hidden activity by the burns and ulcers that developed long after an apparently harmless roentgen-ray exposure. Phosphorus is another instance of this tardiness in the apparent effect. The phosphorus necrosis may not develop until years after cessation of work with phosphorus. A carious tooth or trauma then may be occasion for its development. The effect of a course of spa treatment may not become apparent until after the return home. The reaction after injection of formic acid may take weeks before it becomes manifest, but the phenomena of fertilization of animals and plants offer the most striking examples of this retarded action of the stimulating substance. He regards this retarded action as a phenomenon common to all stimuli. By study of it we can learn how to break some link in the chain and thus ward off the impending damage, or by interposing new links induce benefit otherwise unattainable.

Necrosis of Lung.—Sauerbruch reports the apparently complete clinical recovery of a young woman who had a ganglioneuroma, 8 by 12 by 17 cm., removed from the posterior mediastinum. The lungs seemed normal, but suppuration followed, and the entire left lung was expelled in sequestrums, the largest 4 by 8 by 12 cm. The debilitating empyema required thoracoplasty, and the bony framework of practically the entire left half of the chest was removed. He does not know of any similar instance of the casting off of the entire sound lung. Its circulation was impaired at the operation; several branches of the bronchial arteries had been ligated. No bronchial fistula developed, and the patient now, nine months later, is in excellent health, with only a small fistula at the lowest point of the operative wound. Sauerbruch comments that this case is very instructive and encouraging from several standpoints.

Artificial Pneumothorax.—Jehn protests against the present tendency to extend the field of artificial pneumothorax, saying that often valuable time is wasted on it, blocking the more effective thoracoplasty.

Tuberculin Tests in Tuberculosis of the Eyes.—Römer and vom Hofe remark that the prognosis with "scrofulous" eye affections is more favorable than with most intra-ocular tuberculous lesions. The differential diagnosis is difficult, but they have found that the nature of the process can be determined by the difference in the reaction to simultaneous inoculation with tuberculin alone on one arm and with tuberculin, mixed with the patient's own serum, on the other arm. No attenuation of the tuberculin reaction from the dilution was manifest in the cases with graver lesions; the intensity of the reaction even seemed to be enhanced by the admixture of the active serum.

The Blister Test.—Gänsslen applies at night a plaster (2 by 3 cm.), or a row of such plasters at hour intervals, on the outer side of the leg or arm, and next day draws off the fluid and tests it for sugar. It is possible in this way to demonstrate the passage of sugar into the tissues and thence into the tissue fluid (blister fluid) after intravenous injection of the sugar. He tabulates averages from 300 readings in health and 100 in diabetics. In pancreas diabetes, the sugar content was found higher in the tissue fluid than in the blood, while the reverse was observed with mild, transient glycosuria. The tissue sugar content was abnormally low late in pregnancy, in grave exophthalmic goiter, and in wasting diseases.

Abnormal Spinal Fluid in Epidemic Encephalitis.—In six of twenty-five cases, Lorenz found the lumbar puncture fluid hemorrhagic and yellow. In one case there was a fine fibrin network. In this group the onset had been sudden, with vertigo or unconsciousness, passing into the typical lethargy. The meningitic symptoms misled the diagnosis at first.

Prophylaxis of Typhus.—Grahe describes the measures adopted in his large rural district under very primitive conditions. There were 82 cases of typhus in 67 homes, but in 58 of the homes, with a total of 276 inmates, the disease was restricted to a single case. Every one in the family was required to rub a small amount of mercurial ointment (about as much as a hempseed) into the hairy regions of the body every day for thirty days, and to wear a band around the neck, wrist and ankle which had been dipped in a compound solution of cresol and dried. Strips of paper and rags, dipped in the same, were spread around under beds, mattresses and wherever clothes and bed clothes were kept. Mercurial poi-

soning was never observed. In treatment he found useful a level tablespoonful of magnesium sulphate, three times a day, for two, three or four days from the start of the disease. A weak infusion of ipecac in a suspension of kaolin often regulated the bowel, and moist heat proved a useful adjuvant.

Differentiation of Functional and Organic Hypertension.—Roemheld says that the blood pressure in the morning, before rising or eating, gives the most reliable insight into the actual conditions in the circulation. If the pressure is found approximately normal, hypertension at other times is probably merely functional.

Geneeskundige Gids, The Hague

1: 149-174 (Aug. 3) 1923

*The Blood Pressure in the Pregnant. K. de Snoo.—p. 149.
Acute Pericarditis with Effusion. D. H. Klinkert.—p. 157.

The Blood Pressure in the Pregnant.—De Snoo declares that eclampsia practically never occurs without hypertension. Consequently, a rise in the blood pressure should warn of possibly impending eclampsia. He regards 130 mm. mercury as the limit of physiologic blood pressure. A pressure above this in the last months of the first pregnancy is a sign of beginning intoxication. If it goes above 150, the woman must stay in bed, with strict salt-free diet, and the danger of eclampsia thus is averted in previously healthy women. With menacing eclampsia, he allows nothing but water. Of the thousands of women tested, only one developed eclampsia of those with normal blood pressure on fortnightly reexamination. In this case, the pressure had been normal ten days before, and there were only two mild convulsions, and the traces of albumin in the urine had disappeared by the next day. In this one case the woman's weight had increased by 2 kg. at the last examination, ten days before the eclampsia developed. If this sudden increase in weight had been accepted as a warning, and the woman had been told to return in a week for a new examination, and restrict intake of salt in the interim, the eclampsia might have been warded off. Parturition itself is liable to raise the blood pressure, and thus aggravates conditions. When the blood pressure falls in the course of eclampsia, the convulsions cease, but the patient succumbs to heart failure unless the blood pressure is closely supervised and the weakening of the heart combated. Venesection with a falling blood pressure is as wrong as stimulants with a climbing blood pressure. Determination of the blood pressure in the pregnant is thus useful not only for diagnosis but as a guide to treatment, and for the prognosis.

Finska Läkaresällskapets Handlingar, Helsingfors

65: 297-398 (May-June) 1923

*Albee's Operation in Tuberculous Spondylitis. Langenskiöld.—p. 297.
*Chorio-Epithelioma. B. Nyström.—p. 306.
*Intestinal Perforation in Typhoid. T. Sandelin.—p. 323.
*Thyroid Influence on Pernicious Anemia. W. Kerppola.—p. 330.
*A Case of Parotid Cyst. P. E. A. Nylander.—p. 339.
Medical Use of Yeast Preparations. J. Grönberg.—p. 344.
*Blueberries in Treatment of Oxyuriasis. C. Nyberg.—p. 354.

Albee Operation in Tuberculous Spondylitis.—Langenskiöld, on the basis of his own 19, Faltin's 10 and the Maria Hospital's 5, Albee operations on patients aged from 14 to 50, says that the operation can replace plaster jackets and immobilization but not dietetic and hygienic measures. Adult patients can more readily receive air and sunlight treatment, and the majority are able to resume work in six months. Cervical spondylitis and extremely prouounced, solid kyphosis should be excluded from this operation, and gravity abscesses should be cured before it is performed. Slight pulmonary tuberculosis or fistulas, except those at the site of operation, constitute no contra-indication.

Chorio-Epithelioma.—Nyström describes three cases and suggests that the main factor is the abnormal tax on the endocrine glands during pregnancy. He indicates the infrequency of the disease in Finland by referring to Engström's six cases among 4,000 peritoneal operations, 1890-1916. Of Sunde's compilation of 38 patients, 45 per cent. had borne six or more children, while only 23 per cent. of the 56,397 women with normal pregnancies had given birth to so large a number of children. One of Nyström's three patients had passed through twelve, another eleven, and the third two pregnancies. He asks that in reporting cases, close attention be given not only to the growth itself and surrounding tissues but also to organs outside the affected region, especially to the endocrine system.

Intestinal Perforation in Typhoid.—Sandelin recommends operation as soon as palpation of the abdomen reveals tenderness and muscular tension with constant pain; even doubtful cases should be sent to the surgical ward. With early operation, Frank had 60 per cent. recoveries; Watson reported recovery in all cases operated on in from two to nine hours after perforation, and death in all in which intervention took place after more than twelve hours. Prognosis for women is better than for men, and it is good for children. In his patient, aged 40, the appendix had adhered to the intestine at the place of perforation and thus prevented the escape of feces into the abdominal cavity. "She owed her life probably to her appendix."

Connection Between Pernicious Anemia and the Thyroid.—Kerppola in reviewing the literature found 107 cases of pernicious anemia in which the thyroid was mentioned, but with enlargement only in three. Pernicious anemia is scarcely attributable to thyroid hyperfunction, and is only exceptionally connected with goiter. From the combination of pernicious anemia with myxedema, the appearance of myxedema in two cases of exophthalmic goiter after operative and roentgen reduction of the thyroid, and from the symptomatology of myxedema, which in many points resembles that of pernicious anemia, he advances the hypothesis that, at least in some cases, thyroid hypofunction plays a certain part. As increased thyroid function favors blood formation, he advises tentative administration of thyroid extract in pernicious anemia and even in simple anemia.

A Case of Parotid Cyst.—Nylander describes the case of a physician, aged 50. In the fall of 1920, a movable flat tumor the size of a pea appeared 0.5 cm. in front of the right ear. By 1922 this had become as large as a plum. It caused no pain except on pressure and was, at operation, found to be a unilocular cyst attached to the parotid gland. It contained a milklike fluid. The cyst was evidently of congenital origin.

Blueberries as Remedy for Oxyuriasis.—Nyberg, in 1921, had his attention directed to the effect of blueberries on helminthiasis. He found that some patients were freed from the helminths and there had been no recurrence during the year; in others the oxyuriasis returned, possibly through reinfection. In 1922 he treated all members of the families of his eleven patients with good results in all known instances. Large children and adults were told to eat 0.5 liter of fresh blueberries three or four times a day the first day, and for the next six days blueberries constituted one meal a day.

Norsk Magazin for Lægevidenskaben, Christiania

84: 521-608 (June) 1923

*Extrapleural Thoracoplasty in Lung Tuberculosis. P. Bull.—p. 521.
General Blastomycosis with Clinical Picture of Meningitis. J. A. Voss.—p. 550.
Sclerema Neonatorum. C. Johannessen.—p. 560.
Hydatid of Morgagni as Cause of Disease. N. Quisling.—p. 564.
*Intestinal Intussusception in Infants. G. Lützow-Holm.—p. 566.

Extrapleural Thoracoplasty in Tuberculosis of the Lungs.—Bull, during the period 1914-1922, performed this operation on 37 men and 38 women, with tubercle bacilli in the sputum in all cases except two who showed other signs of tuberculosis. He made the thoracoplasty 46 times on the left and 29 times on the right side, and presents tables of the results. Of 52 patients on whom the operation was made in two stages, 2 died; among 21 on whom it was completed at one sitting, 6 died. The sputum of 37 contained no tubercle bacilli on departure from hospital, and in 18 none were found on reexamination from one to eight years later. Of 64 patients observed from one to eight years after operation, 59 per cent. are still living, and 39 per cent. are free from symptoms; 9 have progressing tuberculosis and the condition of 4 is unknown. Of the 41 per cent. who have died, the deaths of 5 were attributable to the operation, 20 to tuberculosis and 1 to influenza. This operation during the above period has been

applied by 9 other Norwegian surgeons to 88 patients, with a mortality of 8 per cent. He devotes 24 pages to the tabulated details of his own 75 cases.

Intestinal Intussusception in Infants.—Lützow-Holm shows by collected statistics that in other countries invagination of the intestines is far more prevalent than in Norway, and that 55 per cent. of all cases occur in infants in the first year; 26 per cent. in children from the second year to puberty, and 19 per cent. in adults. He comments on the extensive use of castor oil and calomel in England and Denmark as a possible explanation of the frequency of intussusception among children in these countries. In Norway this condition is so rare that during the period 1910-1919 the Rikshospital reported only six cases and he has seen it only in four. The main symptoms are sudden pain, vomiting, mucous and bloody stools, and a tumor palpable from the rectum or the exterior. After operation, his four patients immediately received 0.5 liter salt solution subcutaneously; in severe cases he gives this both before and after the intervention. To avoid intoxication and the accompanying rise in temperature, Danish clinicians flush the bowel with a laxative solution. In his patients, intestinal function was resumed in twelve to eighteen hours without enemas. He mentions that Clubbe of Sydney in 1908 reported 157 personally treated cases. One hospital in London has a record of 374 operated cases of intususception, 1898-1917, and Hirschsprung reported from one hospital in Denmark, 107 cases. Two other surgeons have compiled 397 Danish cases in children under 15. In Norway only twenty-nine cases have been published, the first in 1848.

84: 609-696 (July) 1923

*Suprarenal Virilism. A. Collett.—p. 609.
*Intraperitoneal Hemorrhage from Corpus Luteum. Hesselberg.—p. 625.
*Chondromatosis of Skeleton. C. Johannessen.—p. 629.
Two Operative Cases of Spondylolisthesis. S. Widerøe.—p. 640.
Early Roentgen Treatment of Inoperable Cancer. N. Paus.—p. 661.
The Drainage Question After Laparotomies. N. Paus.—p. 664.

Suprarenal Virilism in Infant.—Collett reports presumably the first instance of the suprarenal genital syndrome in a child who survived the removal of the hypernephroma responsible for the virile characteristics. Five other cases in children, from 14 months to 14 years old, have been published, but the children all died at or soon after the operation. Collett's patient was 23 months old, a female pseudohermaphrodite of healthy, overplump aspect, with a heavy hair growth on the genital organs and a deep voice. The suprarenal tumor measured 3.5 by 2.5 cm. The abnormal hair growth had nearly disappeared when recently reexamined, two years later. The voice was still low and the child was nervous and sometimes depressed, but otherwise lively and intelligent.

Intraperitoneal Hemorrhage from Menstrual Rupture of Corpus Luteum.—Hesselberg queries whether such an occurrence is possible, and reports a case in which nothing to suggest pregnancy could be discovered at the laparotomy. The profuse intraperitoneal hemorrhage occurred spontaneously two weeks after the last menses, which had always been regular in the woman, aged 29.

Chondromatosis of Long Bones.—Johannessen adds a case —in a girl, aged 10—to the fifteen or twenty on record of the unilateral disturbance in growth which Ollier described as dyschondroplasia.

84: 697-760 (August) 1923

*Treatment of Scoliosis in Norway. P. E. Giertsen.—p. 697.
*Puncture of the Ventricle. G. H. Monrad-Krohn.—p. 711.
*Dissociation in Facial Paralysis. G. H. Monrad-Krohn.—p. 715.
Elements in Tuberculosis Pathology in Children. Hamburger.—p. 719.
Paroxysmal Hemoglobinuria from Chilling. Bjørn-Hansen.—p. 729.

Treatment of Scoliosis in Norway.—Giertsen remarks that curvature of the spine can be attacked by treating the scoliosis or by treating the child that has the scoliosis. When the curvature is corrected passively, the development of the thorax is interfered with, and the muscular system is weakened. The other system, training the child to hold himself straight, was applied systematically by Kjølstad eighty years ago, and this is the Norwegian method still applied to some extent. Kjølstad's "self straightening" method of walking is combined with the Swedish gymnastic exercises for treatment of scoliosis, and passive correction. Kjølstad taught his patients to concentrate their attention on four points, the heels, the toes, the vertex and the navel. The vertex point had to be directly over the heel point, moving it forward between the two toe points. From the navel, an imaginary weight was suspended, touching the floor, and the child was trained to try to raise this imaginary weight a few inches off the floor by the play of the abdominal muscles. Another exercise was with a broad belt around the hips. The child tried to raise himself by pushing down on a loose extension strap on the belt on each side, always holding his vertex point directly over and between his toe points. In another exercise, the child slowly rose on his toes and slowly dropped back, keeping the vertex point directly over the toe points. The whole system aimed to concentrate the child's attention and will power on holding his body absolutely straight, erect or reclining, and remarkable results were realized. But it is hard nowadays, Giertsen remarks, to find persons capable of applying it properly, and patients capable of such mastery over their will power.

Puncture of the Ventricle and Lumbar Puncture.—Monrad-Krohn compares the findings in the fluid from the ventricle and from lumbar puncture in three cases of spinal obstruction and one of general paralysis. He mentions the American work in this line, and extols the value of puncture of the ventricle in cases of subarachnoid block which otherwise might escape detection. It is such a grave procedure, however, at the best, that he is trying to work out a method of colorimetric differentiation by intraspinal injection of phenolsulphonephthalin. To date it seems quite promising.

Dissociation in Facial Paralysis.—Monrad-Krohn reports some further cases to illustrate that the emotional innervation in facial paralysis may be less affected than the voluntary innervation. This dissociation is not very pronounced in peripheral facial paralysis, but in central facial paralysis the emotional innervation is not only unimpaired but is even exaggerated and more rapid on the side of the paralysis. In a case of postencephalitic parkinsonism there was reversed dissociation, the emotional innervation being decidedly more pathologic than the voluntary.

Casopis lekaruv ceskych, Prague

62: 529-584 (May 19) 1923

*Action of Strychnin on Vasomotor Center. B. Boucek.—p. 531.
Thermic Coefficients of Heart Under Action of Different Substances. V. Freund.—p. 535.
*Action of Diuretics on Metabolism. V. Laufberger.—p. 537.
Reform of the Teaching of Pharmacology and Medicine. K. J. Lhotak. —p. 552.
*Action of Tetrahydro-Beta-Naphthylamin on the Heart and Its Antagonism with Strophanthin. B. Polak.—p. 559.
*Action of Cold on Kidneys. O. Rybak.—p. 564.
Kidney Function Tests in Urologic and Gynecologic Literature in 1922. M. Janu.—p. 566.

Action of Strychnin on Vasomotor Center.—Boucek finds that larger doses of strychnin increase the blood pressure by their action on the vasomotor center. Yet there is a distinct tendency toward a paralyzing effect. The toxic effect and the paralyzing action of strychnin are less pronounced if oxygen is inhaled, while the stimulating action is more marked. Internal doses above 0.005 gm. are not rational.

Action of Diuretics on Metabolism.—Laufberger found no changes in noncoagulable nitrogen and uric acid in blood after intravenous injections of caffein and theobromin derivatives. The creatin, creatinin and calcium content of the plasma were increased.

Action of Tetrahydro-Beta-Naphthylamin on the Heart and Its Antagonism with Strophanthin.—Polak finds that this drug injures in the first line the heart muscle. An incomplete block is a characteristic result of its action. It is due to a lowering of conductivity, and probably also to a decreased irritability of the heart muscle. The heart can recover only in the first stages of poisoning. Epinephrin and atropin enhance, pilocarpin removes the block. The drug is not a complete antagonist of strophanthin, since combination with it makes the block stronger.

Action of Cold on Kidneys.—Rybak's experiments show that even a prolonged application of cold to the renal region does not injure a normal kidney, though the examination of the urine indicated marked vasomotor changes in the kidneys during the experiment.

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FUNDAMENTALS OF RURAL HEALTH WORK *

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In the presence of a medical audience it is unnecessary to emphasize the need for public health work in the rural sections of our country. It is now a well known fact that the natural advantages which the rural districts possess in favor of a healthful existence are more than offset by the better health protection afforded the city dweller. Malaria and hookworm diseases are almost entirely of rural origin, and there is much more typhoid fever and dysentery in the country than in cities. Tuberculosis also is surprisingly prevalent in rural districts. Rural health work is bound to experience a tremendous development during the next ten years, and as the work grows it is important that certain fundamentals be borne in mind. These I shall deal with briefly.

The first and greatest need is for the coordination of the health activities which are being introduced into rural communities. Under present conditions many rural districts are periodically aroused by a campaign in the interest of some particular health problem. The arguments put forth in favor of each immediately win the sincere support and interest of various elements in the community. Tuberculosis stands third as a cause of mortality in the United States; yet there are many rural communities in which little or nothing is being done to combat this disease. Surely a campaign directed toward its control and eradication should be most welcome. The venereal diseases bear a most important relationship to the welfare of the family and the progress of the race. Syphilis alone, if we are to accept the estimate of Osler, is responsible for approximately 125,000 deaths each year. Certainly the campaign to control venereal diseases should have every encouragement. But there are 50,000 mothers and infants dying each year from preventable causes; and there is the big problem of school health work, which must be encouraged if we are to develop a citizenry of young Americans 47 per cent. of whom will not be physically defective as was the case among the men of the recent draft. Mental hygiene is important in rural communities, and sanitation work and malaria control are entitled to all of the militant enthusiasm of the various other campaigns.

Should an expert in each of these branches seek a hearing before the county commissioners? Should health authorities encourage such efforts in the hope that rural health work will thus be rapidly extended?

The earnestness of purpose among advocates of special lines of health activities is deserving of great commendation, but the policy of conducting campaigns each dealing with some particular problem regardless of its relation to other similar problems is productive of confusion. National and state legislative bodies are asked for appropriations in behalf of special programs of work, and it is not unusual to find in the communities themselves several persons, each representing a different health activity, vying with one another for local appropriations to carry on their work.

The usual result of this state of affairs is that the advocates with the most active support, or with the most attractive and convincing method of presentation, win the laurels. Few, if any, are given what they ask; and often the appropriations allowed, while making a fair sized total, are so divided and apportioned that the results are far less than might be obtained from the expenditure of the same amount under a systematic plan of work.

The time is at hand when legislative bodies and the people themselves should thoroughly understand that no special line of health work can be complete in itself; that the whole problem of health and disease is so interrelated and complex that it is impossible to make satisfactory progress along one line unless it is conducted in a definite and proper relation with all others.

What worth while results can be accomplished in tuberculosis, for example, unless conditions affecting the spread of all the communicable diseases that lower the vitality and render the individual an easy victim to tuberculosis are controlled? Safe milk and water supplies must be assured. Satisfactory methods of sewage disposal must be installed. Infants must be properly reared. Personal and school hygiene must be taught and observed. Medical examinations of school children must be made, and defects and abnormalities corrected. In short, the control of tuberculosis is not a problem by itself, but depends on all the varying activities that go to make up a well balanced public health department.

Likewise, an important part in the protection of the health of mothers and infants lies in the control of communicable diseases, especially venereal diseases, the provision of safe water and milk supplies, adequate methods of sewage disposal, and a generally healthful environment.

The fundamental need is not for the development of numerous specialties to be introduced into local communities independently, but for the establishment of an efficient, whole-time local health service through which the measures necessary for the benefit and protection of the public health may be conducted in logical

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

sequence and in proper relation to one another. Until such a single definite program of local, state and federal health work is generally recognized and adopted, different agencies will continue to work at cross purposes, appropriating bodies will lack confidence and withhold support, the medical profession will be subjected to constant irritation from many sources, and the general public will remain confused and skeptical.

As long as these conditions exist there is little hope of greatly extending the work of preventing disease and promoting health to the 90 per cent. of our rural population which is yet unreached. On the contrary, enthusiastic individuals are prone to exaggerate the results to be derived from their specialties to such a degree that their claims are not substantiated, and the consequent disappointment and disillusionment tend to discredit not only the particular line of work in which they are actively interested but all other health activities as well.

Notwithstanding the present unsatisfactory situation, the solution of the problem has been carefully and painstakingly worked out during the last ten years through the cooperative efforts of federal, state and county authorities with generous assistance from certain nonofficial agencies. The plan provides:

1. That the health needs of every community be administered through a whole-time local health organization with a competent public health director at its head, to be paid in large part from local taxes.

The various lines of work to be established and the order in which they should be taken up depend entirely on local conditions and resources, and can be determined best by the man on the job, who understands these conditions and the temper of his people.

Only one annual appropriation covering all health activities embodied in the budget of the health department need be made by the county authorities who have one responsible head to look to for results.

2. That the state department of health procure the initial establishment of local health departments, and give financial assistance in the beginning when necessary, but always maintain sufficient influence to insure the efficiency of the work and to protect the local health officer from removal except for just cause. The state should contribute toward the salary of the health officer a sufficient amount to compensate him for certain duties which such an official is usually required to perform for the state board of health, and it should contribute toward the support of the health department the proportionate share which the state owes the county for its work in the prevention of the intrastate spread of disease. It is the further duty of the state board of health to act in a consulting and an advisory capacity, and to furnish educational material.

The several divisions or bureaus of the state board of health should be equipped to provide the local health departments with the expert assistance that is needed to enable them to establish and maintain the various special lines of work as it becomes necessary and desirable to take them up.

It is the function of the federal government to cooperate with the states in carrying out their laws and regulations for the protection of the public health. The interests of the federal government in preventing the spread of disease between the states and in promoting general health and prosperity are best served by aiding in establishing, developing, strengthening and maintaining the efficiency of state and local health departments, and all governmental health activities in cooperation with the states should be conducted toward this end.

The federal government should be in a position to work out with each state its own peculiar problems, and to extend the kind of assistance that is most needed. Appropriations specifically for the control of malaria, tuberculosis, hookworm disease or any other single branch of health work are not conducive to the best interests of the country as a whole. They lead to the overdevelopment of certain kinds of work, while the greatest needs of the community may be along entirely different lines.

A national program of public health work that would enable the federal government to work out with each of the states the best plan for meeting the problems of that particular state and then to assist in putting it into effect would be simple and rational. If all of the separate appropriations for various lines of cooperative health work with states were combined and administered in accordance with such a plan, the cause of public health would be immeasurably advanced and much needless overhead would be eliminated.

While the official health agencies are concerned with things and conditions affecting the health of all alike and over which the individual has no control, it is the practicing physician who should determine the health needs of the individual and prescribe the measures necessary in each specific case. In other words, the public health official creates a favorable environment in which the individual may carry out the instructions of his physician—his personal health adviser. It is the aim of the public health official to have the fewest possible deaths in the community, while the skill of the practicing physician is devoted to saving the lives and maintaining the health of the individuals of which the community is composed. Both are working toward the same end; both attain the highest degree of success by similar achievement—the saving of human life and the protection and promotion of health.

With this conception of the relationship between the public health official and the private practitioner, the existence of other than the most cordial cooperative relation is inconceivable. The field of each is separate and distinct; the one supplements the other and contributes to his success. It would be absurd to hold that the public health official, whose entire time and thought and energy are invariably demanded by his own specific problems, is capable or desirous of interfering with the work of the private physician. It is equally absurd to hold that the busy practitioner wants to perform the duties of the health department, or that he resents the work of that agency because an unhealthful environment would result in a greater demand for his services. The interests of these two workers for the common weal are closely interwoven—each should demand and receive the cordial cooperation of the other.

The practitioner has been accused of lack of interest and cooperation in public health work, of being critical and of standing aloof. Much of this is undoubtedly true. I am inclined to believe, however, that the difficulty is due in large measure to the fact that public health officials too frequently assume that members of the local medical profession are familiar with the scope and purpose of the work, the methods employed, and the results which they hope to accomplish. When these points are thoroughly explained, the active interest of the practitioner is usually awakened and his cooperation is freely given. It occasionally happens that the antag-

onism of the local medical profession is aroused by some well intentioned enthusiast in some specialty or other who, by obvious unsoundness and impracticability, creates the impression that health work is represented by persons without any sense.

In my own experience I have yet to find an instance in which a rational logical plan of local public health work with the state board of health and the United States Public Health Service behind it has not received the whole hearted support and assistance of the leading physicians in the community. On the contrary, I can cite case after case in which the county health program has gone across solely because these physicians made it their business to arouse their fellow citizens to the value of the work and appeared before the appropriating bodies of their districts with most eloquent and telling support. I have seen these physicians give freely of their time and skill in assisting the health officers of their counties and contributing to the success of the health departments which they were instrumental in establishing. I have in mind instances in which the county medical societies decided to secure for their counties well organized and efficient public health departments as the greatest contribution which they could make to the health and prosperity of the people. They summoned representatives from the state and Public Health Service, agreed on the cooperative plan to be put into effect, held mass meetings of the citizens to gain popular approval and support, and then went before the county commissioners and secured the counties' share of the budget. These health departments today are flourishing institutions accomplishing all that was hoped for them and more, and are the pride of the county medical societies which were responsible for them.

CONCLUSION

May I urge that these facts be borne in mind:

1. There is one tried and proved method through which public health work may be conducted satisfactorily—by local whole-time health service.

2. State and federal health agencies are in duty bound to assist and share in this work. Their only purpose is to see that it is successful—that the county gets its money's worth.

3. The plan of work to be carried out in any community depends entirely on the local needs. The kind of work that will accomplish the most good should be undertaken first. Other lines may be developed in the order of their importance as public interest and support permits.

4. The extent and expense of local health service depend on the character and resources of the community. There is a type for almost every condition.

5. The practitioner must ever be an important factor in local public health administration. If the program is sound, and he understands in advance the scope of the work and the methods to be employed, he will contribute his full share toward making it successful.

ABSTRACT OF DISCUSSION

DR. VICTOR HEISER, New York: Dr. Draper's paper shows that county health work is in the way to realization and that much toward standardization has already been accomplished. He speaks with knowledge based on experience actually acquired in the field. He is probably one of the pioneers in county health. In my travels of the last few years I have been greatly impressed with the fact that the health budget is the one that always receives the greatest cut. In every country, as a result of the world-wide economic depression, it has been necessary to make retrenchments. Those retrenchments almost always fell most heavily on the health service. Why is that? Why should health services be curtailed more than other fields of governmental endeavor? The answer may be found in the fact that the public is not sufficiently informed of the value of public health. In the language of the day, health has not been sufficiently sold. One of the best ways to sell health is by demonstration. The development of public health in a democratic country like the United States has been too much from the top; and, if we are to make progress from the bottom, health education should be more widely disseminated. The support of the public is essential. One of the aids to public support is to prove that health has genuine value and practical benefit for the individual. In the not distant past, appropriations have been made on the demand of state boards of health without much real public support. County health work is going to make it possible to make a demonstration of what modern public health has to offer, and then public support will follow. Standardization is important if general application is to come about quickly. The general lines that Dr. Draper has laid down are based on experience, and they give promise that not much modification will be necessary. A full-time county health service in practically every country in the United States should be the goal.

DR. H. A. PATTISON, New York: It was my privilege last winter to do some preliminary organization work in establishing a health demonstration in a western county of New York for the New York State Charities Aid Association. Naturally, I was much interested in Dr. Draper's paper, and, as he proceeded, I found that our technical problems were in every point similar to those presented by him today. We felt that if a health demonstration is to be conducted thoroughly, it should be done through the constituted authorities; that it should actually be a demonstration by and through the local officials of the county health unit. It was necessary in New York to take advantage of a new law in order to develop a county health department. This was done, and the permanent county health officer is Dr. L. D. Briscol, who was the health commissioner of Maine. We found that while the primary need was administrative facilities, the first thing we had to do was to deal with a scarlet fever and smallpox epidemic. That offered the best opportunity for service, and we placed nurses and automobiles at the disposal of the various local health officers. We had an opportunity to cooperate with the United States Public Health Service, or to ask its cooperation, in dealing with a case of leprosy that appeared from Panama. Every word of Dr. Draper's paper contained fruit. It outlined, to my mind, precisely the procedure which should be carried on in every community. We had every cooperation from the local medical society. Without any difficulty at all we secured the help of the county medical society in procuring appropriations, and we obtained from the county board of supervisors $9,000 for the first year's work in public health. They have already appropriated $59,000 for the county sanatorium, and had also appropriated $6,000 for bovine tuberculosis control.

DR. WALTER V. BREM, Los Angeles: As a representative of the medical profession engaged in the practice of medicine as distinguished from public health work, I was delighted with Dr. Draper's paper. Every man practicing medicine should be an auxiliary health officer. The health department must depend on the general profession for information as to what is going on in the community, and every man who is practicing ought to realize that it is his duty to give the health officer every particle of information that he can secure. I feel that the profession in California has been especially awakened to this necessity through the political battles that we have fought during the last four years, trying to repulse those who have been attacking the principles of public health work. In Los Angeles, two years ago, we fought a battle in which we helped to defeat the incumbent mayor, who had been guilty of catering to one of the cults, and the first item in the questionnaire that we presented to the other mayor and to the men who were running for the city council and the board of education was: "Do you believe that one of the

highest functions of government is the protection and advancement of the health of the people?" I think that this was the first time a political battle had ever been fought out with such a principle as one of the leading planks in the platform. I was delighted also to hear Dr. Draper say that the health departments should not invade the field of the private practitioner. We believe in government activities in the prevention of disease but we do not believe in governmental invasion of the field of medical practice. However, we do believe in a close cooperation between the two. Just now we are suffering from the fact that, under the new state administration, the budget of the state board of health has been tremendously cut and that its activities have been tremendously hampered. We believe that the administration will later hear from the medical profession of California, which will come to the support of the board of health.

INTRAVENOUS USE OF DIPHTHERIA ANTITOXIN

REPORT OF A SERIES OF CASES

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The liberal use of antitoxin subcutaneously and intramuscularly in the treatment of diphtheria has been a routine precedure for thirty years, with a great reduction in the mortality as compared with preantitoxin days. Its use intravenously, however, has not been a common or general practice. That this method of administration is advantageous and safe under certain conditions has been shown many times in recent years. My purpose in this report is to present a small series of cases in which antitoxin has been given intravenously and to draw attention again to some of the advantages and limitations of this route of injection.

The present report is based on a review of the cases of diphtheria treated in the Ernest Wende Hospital, Buffalo, between June 30, 1921, and July 3, 1922.

The two principal types of diphtheria, nasofaucial and laryngeal, do not present the same problems in therapy. In "straight" laryngeal diphtheria, the toxemia is usually not great. The aim of specific therapy is to reduce the edema and to loosen the membrane in the larynx quickly, and thus spare the patient from a prolonged and severe fight. In nasofaucial diphtheria, the toxemia is the factor to combat. The goal is to neutralize as quickly and completely as possible the toxin present in the patient's body and so spare the tissues from its immediate and late effects. Mixed types usually start with involvement of the fauces or nose, extension into the larynx being secondary. They fall into the nasofaucial group therapeutically.

The mode of action of diphtheria toxin needs no description here. However, a point worthy of attention is the fact that, when firmly established, the toxin-tissue combination cannot be split or reversed, though some authorities [1] state that large doses of antitoxin may break down this union if given within from twenty-four to forty-eight hours of its formation.

RATIONALE OF INTRAVENOUS ADMINISTRATION

Time is an important factor in the serum therapy of diphtheria, especially in severe and late cases, as delay permits the relatively large amount of toxin to act, unopposed by antitoxin. By injecting antitoxin into the vein, the whole amount becomes immediately available for neutralizing the toxin. When injected intramuscularly or subcutaneously, it enters the circulation much more slowly. . An example from an article by Dr. William H. Park [2] shows this very clearly:

A child weighing 25 pounds (11.3 kg.) receives 10,000 units of antitoxin. If it is given subcutaneously, in twelve hours there will be 1.5 units per cubic centimeter of blood; if intramuscularly, in twelve hours 4.5 units and in forty-eight hours 4 units; if intravenously, immediately 12 units and in forty-eight hours 8 units.

All the cases in this series, selected to receive antitoxin intravenously, were classed on admission as severe, very severe or late. Many were practically moribund when brought to the hospital. A second intravenous or intramuscular dose was not infrequently decided on, when the clinical improvement following the first dose was not satisfactory, though theoretically all the antitoxin needed should be given in the first dose.

TECHNIC

Stock concentrated antitoxin issued by the laboratory of the New York State Department of Health was used exclusively. No intradermal test was done or desensitizing dose given as a routine preliminary to the intravenous injection. All patients received antitoxin intramuscularly in addition to the intravenous dose. Being unfamiliar with the state antitoxin as used intravenously, I hesitated at first to give full amounts by the latter route.

Selection of Serum.—Early in the series less attention was paid to the selection of the antitoxin to be used intravenously, except that serums showing cloudiness were set aside for intramuscular use only. Later, the different lots of antitoxin were examined as received, and only those showing a high titer (1,200 units per cubic centimeter or over) and great clarity were reserved for intravenous administration. This selection resulted in a reduction in the frequency and severity of the so-called foreign protein reactions (chill, hyperpyrexia, etc.) following the injection.

Administration.—Careful asepsis was observed. The serum was injected into the vein at the elbow, either undiluted, or more frequently, diluted from eight to fifteen times with sterile physiologic sodium chlorid solution. When diluted, the gravity arsphenamin technic was used, with the solution warmed to slightly above body temperature. In both methods the injection was made very slowly, taking from five to fifteen minutes, according to the amount. The patient was watched closely for immediate evidences of reaction, and the injection was stopped if these appeared.

After-Care.—The patient was watched closely, kept flat in bed, and covered warmly. In those cases in which a chill developed, hot water bottles were banked about the trunk and extremities, sponge baths given for rise in temperature, and in some instances epinephrin or camphor or both were used subcutaneously for immediate urticaria and for signs of cardiovascular disturbance (both uncommon).

IMMEDIATE REACTIONS

In 50 per cent. of the cases the injection was followed by a chill. This varied in severity from a transient rigor to a severe chill with hyperpyrexia, tachycardia and cyanosis. A dose of antitoxin intramuscularly, preceding the intravenous dose by a few hours to four or five days, reduced slightly the liability to chill. The

1. McCollum and Place, in Osler and McRae's System of Medicine.

2. Park, W. H.: The Use of Antitoxin in the Treatment of Diphtheria, J. A. M. A. **76**: 109 (Jan. 8) 1921.

use of saline solution as a diluent apparently increased somewhat this liability (Table 1).

The frequency of occurrence of a chill was the same in adults as in children. When the adults did react, the chill was usually sharper than in children.

TABLE 1.—*Reaction Following Intravenous Antitoxin*

	Number of Patients	Patients Having Chill
In Relation to a Preceding Intramuscular Dose:		
No preceding antitoxin	26	15
Intramuscular dose preceding	25	11
In Relation to Use of Saline Solution as Diluent:		
Antitoxin given undiluted	11	3
Antitoxin diluted with saline solution	25	14

Six patients received a second intravenous dose from five hours to three days after the first. Four had had a chill following the first dose, but none of the six showed the slightest reaction after the second, whether the serum was given undiluted or in saline solution. In certain very severe cases, the patients being almost moribund on admission, no chill or febrile reaction to the intravenous antitoxin was manifested.

There were four fatal cases in the intravenous group. All these patients had extensive faucial or nasopharyngeal, as well as laryngeal, membrane, and three had bull neck. For this reason they might well be classed in the nasofaucial group as regards prognosis. Considering the fact that the fourteen intravenous cases were more severe than the average, many of them being mixed types, I feel that the mortality would have been much higher among them had it not been for the antitoxin given intravenously. Except for one patient, who developed a mild laryngeal paralysis and wore the tube for seventeen days, the patients with nonfatal intravenous cases wore their tube for an average of two and one-half days, as compared with an average of four days for the entire group of sixty-four cases.

Nasofaucial Cases.—One hundred and seventy-two patients with nasal and faucial diphtheria were admitted during the year. Forty received antitoxin intravenously as well as intramuscularly. The condition of most of them was very severe or malignant in type, the kind for which experience says there is a poor prognosis under any circumstances. Others were less obviously desperate, but had been sick for from three to five days or more without antitoxin. The latter have a little better prognosis than the former.

TABLE 2.—*Patients Receiving Antitoxin Intravenously: Comparison of Laryngeal and Nasofaucial Cases**

	No. of Patients	Age, Years	Day of Disease Admitted	Day of Disease First Dose Antitoxin Given	Patients Receiving Antitoxin Before Admission, per Cent.	Patients with Bull Neck, per Cent.	Patients with Involvement Outside Larynx, per Cent.	Intubated, per Cent.	Length of Time Wore Tube, Nonfatal Cases, Days	Average Dose Antitoxin Intravenously	Average Total Dose Antitoxin	Mortality, per Cent.	Mortality Excluding Deaths Within 24 Hours, per Cent.	Gross Mortality for all Patients Admitted, per Cent.
Laryngeal..	14	10.7†	4.3	4.2	28	21	69	78	3.9	8,100 units	39,390 units	28	16	26
Nasofaucial	40	10.2‡	3.7	3.4	22	75	..	..	...	9,160 units	48,290 units	42	32	12

* Figures represent averages when not indicated as percentages.
† Excluding two adults, 6.5 years.
‡ Excluding five adults, 8.1 years.

TABLE 3.—*Nasofaucial Cases in Which Antitoxin Was Given Intravenously: Comparison of Fatal and Nonfatal Cases*

	No.	Age, Years	Day of Disease Admitted	Day of Disease First Dose Antitoxin	Day of Disease Intravenous Dose	Antitoxin Intravenous, Average, Units	Total Antitoxin Average, Units	Average Extent of Membrane†	Bull Neck, per Cent.	Hemorrhage, per Cent.	Chill, per Cent.	Patients Having Complications
Fatal cases	17	7.1	3.7	3.3	3.8	9,750	49,280	+++	100	41	64	16
Nonfatal cases	23	12.2*	3.8	3.5	3.9	8,730	47,550	++	56	4	68	16

* This figure includes five patients over 16 years of age; excluding these, the average age would be 9.1 years for the remaining patients in this group.
† Each + represents one part involved, i.e., tonsils or nose or palate.

SERUM RASH

The frequency and severity of the serum rash bore no relationship to the mode of administration. It frequently appeared, however, on the fourth or fifth day in the "intravenous" cases. Some patients showed two crops of urticaria, an early one apparently due to the intravenous dose, and a later one due to the intramuscular.

A much more potent factor in causing the serum rash was the particular lot of antitoxin used, some lots producing quite uniformly little or no rash and others causing a troublesome and prolonged urticaria. The severity of the rash did not parallel the severity of the immediate reaction to the intravenous dose.

RESULTS

Laryngeal Cases.—Sixty-four patients with laryngeal diphtheria were admitted during the year covered by this report. Fourteen received antitoxin intravenously as well as intramuscularly. They were, as a rule, the most severe cases. The mortality rate for these fourteen cases was practically the same as for the entire group of sixty-four cases (Table 2).

The mortality in the intravenous group was 42 per cent., aganist 12.2 per cent. for all the nasofaucial cases. The remaining 132 patients received their antitoxin intramuscularly only. Among the latter there were four deaths (3 per cent. mortality). Four fifths of the nasofaucial cases terminating fatally were in the intravenous group.

This is certainly a high mortality, but it should be remembered that practically all the severe cases were picked for intravenous therapy, leaving only the milder cases in the intramuscular group. In the group of severe cases thus treated (intravenous group), 58 per cent. of the patients recovered.

A comparison of the fatal and nonfatal cases in the intravenous group will be of interest. Five points are worth noting in the fatal cases (Table 3):

1. These patients, on an average, were five years younger than in the nonfatal cases.
2. The membrane was more extensive.

3. One hundred per cent. had "bull neck," as compared with 56 per cent. in the nonfatal cases. Also the "bull neck" was more severe in degree.
4. Hemorrhage occurred more frequently.
5. Complications were more frequent and often multiple.

Although the cases which ended fatally after the administration of intravenous antitoxin were the most severe in type, the nonfatal cases were also severe, among which a high mortality might have been expected.

HEMORRHAGE AND NEPHRITIS

It has been asked whether hemorrhage and nephritis may not have been induced by the intravenous administration of antitoxin.

Purpura and hemorrhage from the mucous membranes, ranging from slight oozing to uncontrollable bleeding from the nose, mouth, and even conjunctiva, were encountered in eleven "intravenous" cases (nine nasofaucial and two laryngeal, Table 4). Ten of these patients died in spite of the use of various hemostatic measures and, in some cases, of whole blood intramuscularly. Transfusion was not done in any case.[3] In the eleventh case, there was slight bleeding from the mouth for a day, stopping spontaneously. In three of these eleven cases, the bleeding began before the antitoxin had been given intravenously.

Hemorrhage also occurred in five patients who did not receive an intravenous injection of antitoxin; two died.

Of the total of sixteen patients who showed hemorrhage, twelve (75 per cent.) had "bull neck" and two more had extensive cervical adenitis without surrounding edema, evidencing the severity of the disease in these cases. A large number also had positive smears for Vincent's bacillus and spirillum.

Table 4.—*Occurrence of Hemorrhage, Nasofaucial and Laryngeal Cases Combined*

	Total Number	No. with Mild Hemorrhage	No. with Severe Hemorrhage	Average Type of Cases
Patients with antitoxin intramuscularly only	182	4	1	Mild to moderate
Patients with antitoxin intravenously	54	3	8	Severe to malignant

Once established, more antitoxin intravenously or intramuscularly had no effect in arresting the hemorrhagic tendency. Unfortunately, cultures were not made from the throat and nose of these patients to determine the presence or absence of secondary invaders, such as streptococci and staphylococci. It is possible that such organisms may play a part in the production of hemorrhage.

The incidence of hemorrhage bore no relationship to the occurrence or severity of the immediate reaction to the intravenous dose, nor was it more severe or earlier in onset following the use of physiologic sodium chlorid solution as a diluent. Evidently, then, the intravenous administration of antitoxin was not the cause of the bleeding.

Renal disturbance is of frequent occurrence in the severer forms of diphtheria. For the purpose of this report, a patient is considered as having had nephritis, if there were albuminuria, leukocytes and frequently casts persisting beyond the acute stage of the disease. In many, the renal involvement was mild, clearing up quickly.

The incidence of this complication (or sequel) depended on the degree of toxemia present, not on the intravenous administration of antitoxin (Table 5). It will be noted that of the laryngeal patients, in whom the toxemia is ordinarily much less severe than in the nasofaucial, all showed about the same percentage of nephritis, whether antitoxin was given intravenously or not. Though conclusions drawn from such small numbers as are here reported are open to error, it appears that among severe nasofaucial cases antitoxin given intravenously reduced the frequency of kidney damage.

Table 5.—*Occurrence of Nephritis: Percentage Incidence in Different Groups*

	All Cases, per Cent.	Patients with Antitoxin Intravenously, per Cent.	Cases Classed as Severe, in which Antitoxin Was Given Intramuscularly Only, per Cent.
Nasofaucial group.....	22	50	75
Laryngeal group.....	14	18	16

REPORT OF CASES

A few representative cases are detailed:

Case 1.—A boy, aged 6 years, was admitted, Jan. 22, 1922, on the third day of disease, as a severe case. There was no history of previous serum injections. A membrane involved the nose, pharynx and larynx. The cervical lymph nodes were enlarged, but there was no edema. Nose and throat cultures were positive for the diphtheria bacillus. Intubation was done on admission, and reintubation on two occasions; the patient wore the tube for three and one-half days.

Twenty-four hours before admission, 24,000 units of antitoxin was given. On admission, 30,000 units was given intramuscularly. Twelve hours later, 9,000 units, diluted in 150 c.c. of saline solution, was given intravenously; no chill followed. The child slept soundly after the intubation and injection. Six hours later, the temperature, pulse and respiration had fallen, and the patient showed definite clinical improvement. A serum rash of moderate severity appeared on the fifth day after the intravenous injection. Palatal paralysis developed on the eighth day in the hospital. The patient improved and was discharged convalescent, the thirteenth day after admission.

Case 2.—A girl, aged 7½ years, was admitted, March 16, 1922, on the third day of the disease as a severe case. No history of previous serum injections was obtained. Membrane involved the tonsils, soft palate and probably the nasopharynx. Marked bull neck was present on the right side. Throat culture was positive for diphtheria bacillus. There was a moderate mitral regurgitant murmur present, completely compensated for.

Before admission, no antitoxin had been given; on admission 10,000 units was given intravenously in 150 c.c. of saline solution, and 24,000 units intramuscularly; there was no preliminary intradermal test. The injection was followed in half an hour by a severe chill which lasted fifteen minutes; the temperature rose from 101.2 to 103.7; the pulse, from 90 to 130; respirations, from 24 to 30. The child was restless and slightly delirious. Ten hours after the injection, the temperature was 98; pulse, 104; respiration, 28. Next day the child was brighter, was rational, and took fluids well. Three days after the injection, the membrane had disappeared, and the neck showed only slight swelling and tenderness. A mild serum rash appeared ten days after the injection, lasting four days. The patient became a convalescent carrier, the organism later proving to be nonvirulent. April 5, she showed a small ulcer on the tonsil, from which Vincent's spirillum and fusiform bacillus were detected by smear. This cleared up promptly under arsphenamin in glycerin locally. There

3. In a verbal communication to me, Dr. Reuben Ottenberg of Mount Sinai Hospital, New York, stated that he had performed a blood transfusion in a severe case of diphtheria with hemorrhage. The bleeding was arrested, but the patient died later from the toxic effects of the disease.

were no other sequelae. The patient was discharged well, April 16. This was a severe case with sharp chill and febrile reaction following the intravenous dose. There was prompt clinical improvement and rapid clearing of membrane.

CASE 3.—A girl, aged 12½ years, was admitted, May 25, 1922, on the fourth day of the disease, as a severe, toxic case. There was no history of previous serum injections. An extensive, hyaline membrane covered the tonsils, pillars, uvula, pharyngeal wall and half of the soft palate. The cervical lymph nodes were markedly enlarged, with some surrounding edema. There was pallor and poor circulation. The breath had a foul odor. Nose and throat cultures were positive for the diphtheria bacillus.

Before admission, no antitoxin had been given; on admission, 30,000 units was given intramuscularly, and 15,000 units intravenously in saline solution. A severe chill began before the injection was completed, but the full dose was given and the child put to bed with hot water bottles, and a dose of camphor in oil. The pyrexia subsided in a few hours. Eighteen hours later, there was some bloody discharge from the mouth, and the membrane had not loosened; 15,000 units of antitoxin was given intramuscularly.

May 28, the membrane was still extensive; 9,000 units in 200 c.c. of saline solution was given intravenously; no chill or febrile reaction followed, and the patient showed clinical improvement thereafter. The same day the laboratory reported a throat smear as positive for Vincent's spirillum and fusiform bacillus. Under arsphenamin locally, the membrane disappeared in four or five days, and the throat healed. A severe serum rash appeared, May 29, and lasted five days. The urine showed albumin, leukocytes, erythrocytes and casts, June 5, improving greatly under appropriate treatment by June 26. On this day the blood showed: urea nitrogen, 13.3 mg. per hundred cubic centimeters, and uric acid 3.25 mg. per hundred cubic centimeters; the urine, the slightest possible trace of albumin, and negative sediment. Pronounced palatal paralysis appeared, June 1, and persisted until discharge; the heart showed tachycardia and muffled sounds, but no irregularity. The patient was discharged improved, July 3.

This was a severe late case complicated by slight hemorrhage from the throat and followed by palatal paralysis, moderate myocarditis and nephritis. Clinical improvement followed the intravenous antitoxin, but there was slow clearing of the throat, owing to the presence of Vincent's bacillus. My feeling at the time was that the first intravenous dose prevented a fatal outcome.

CASE 4.—A boy, aged 8½ years, was admitted, May 26, 1922, on the fifth day of the disease as a very severe, toxic case. There was no history of previous serum injections. The membrane involved the nose, tonsils, pillars, uvula and pharynx. Bull neck was marked. Cultures were positive for the diphtheria bacillus. The temperature was 103; pulse, 140; respiration, 28.

Before admission, no antitoxin had been given. On admission 30,000 units was given intramuscularly. Nine hours later, 12,000 units was given intravenously diluted in saline solution, followed in half an hour by a chill of moderate severity lasting twenty minutes, when the temperature rose to 103.2; pulse, 140; respiration, 36. After a cool sponge bath, the pulse dropped to 110. Five hours after the injection, the temperature was 100.2; pulse, 110; respiration, 26. Three days later, most of the membrane was gone, and there was very little nasal discharge. The pulse was slightly irregular and not strong. The urine showed albumin, casts and leukocytes, June 2, clearing up entirely by June 14. Subsequently, the pulse remained somewhat fast, but was not irregular. The patient was discharged, June 20, well except for moderate tachycardia.

This was a very severe case; the patient had been ill five days without antitoxin. A moderate chill and febrile reaction followed the intravenous dose; there was prompt clinical improvement and clearing up of the membrane thereafter. There was a mild attack of nephritis and moderate myocarditis.

CASE 5.—A boy, aged 13½ years, was admitted, May 27, 1922, as a severe, toxic case; he was said to have been sick for two days at home. There was no history of previous serum injections. The membrane involved the nose, tonsils, pillars, uvula and probably the pharynx; there was a very foul odor to the breath. A slight degree of bull neck was present. Nose and throat cultures were positive for the diphtheria bacillus.

Before admission, no antitoxin had been given. On admission, 15,000 units undiluted was given intravenously, and an hour later 30,000 units intramuscularly. A severe chill lasting fifteen minutes and accompanied by vomiting followed the intravenous injection; epinephrin was given hypodermically, and hot water bottles were applied. The patient showed only slight improvement during the next thirty-six hours; 9,000 units, diluted in saline solution, was then given intravenously, followed by no reaction whatever. The pulse dropped from 100 to 60 or 70 over night, and the patient was much brighter the next morning. The membrane was slow in clearing; a smear was positive for Vincent's bacillus, May 30; arsphenamin was applied locally, and the throat cleared in a few days. Slight irregularity of the heart was noted, May 30 and 31. A serum rash appeared, June 2, six days after the first intravenous injection, lasting a week. Moderate palatal paralysis developed, June 6, ten days after admission, clearing up before discharge. The urine showed albumin and casts from May 29 to June 12, afterward clearing. The patient was discharged recovered, June 20.

This was a severe case, marked chill following the first intravenous dose; there was no reaction after the second. Prompt clinical improvement ensued, though the membrane cleared slowly on account of a complicating Vincent's angina. The appearance of nephritis, palatal paralysis and mild myocarditis suggest a longer period ill at home without antitoxin than the parents would admit.

Two severe cases, which terminated fatally, came to necropsy. The sections were performed by Dr. William F. Jacobs, pathologist to the hospital.

CASE 6.—A girl, aged 12½ years, was admitted after two (?) days' illness at home, as a severe case, with an extensive hyaline membrane over both tonsils, uvula, left soft and hard palates and probably in the pharynx, and marked edema on both sides of the neck. Nose and throat cultures were positive for the diphtheria bacillus. Her past history was negative except for measles at the age of 4 years, and convulsions for two days at the age of 5 years. She received 12,000 units intramuscularly shortly before admission, and 12,000 units intramuscularly on admission. She showed no improvement, so 12,000 units was given intravenously, diluted in saline solution, on the following day. A very severe chill followed, with temperature, 105, and pulse, 140.

Ten hours later, a second intravenous injection was given of 12,000 units; no chill followed, and the pulse was stronger. Early the next morning the temperature began to rise, reaching 107 just before death.

There had been anuria since the preceding afternoon. Death occurred thirty-four hours after admission.

Necropsy showed a somewhat flabby and moderately dilated heart, marked congestion of the lungs, some sloughing of the tonsils, and loose tags of membrane of the epiglottis. Microscopic examination showed acute tubular degeneration of the kidneys, scattered hemorrhage and necroses in the liver. In an occasional larger vessel of the spleen and liver the erythrocytes appeared matted, with pigment granules in phagocytic leukocytes and endothelial cells suggesting antemortem agglutination of the erythrocytes. The head was not opened.

The second case is included here because of the intravenous injection of antitoxin, though events proved that it was not diphtheria.

CASE 7.—A boy, aged 5¾ years, was admitted after two days of illness at home, severely toxic, with moderate "bull neck" on both sides, abundant mucopurulent discharge from the nose, and an indefinite membrane over the tonsils and soft palate. The temperature was 104.6; pulse, 128; respiration, 32. The past history was negative except for convulsions at

the age of 1 year and "grip" two and one-half months before entrance to the hospital. On admission, a diagnosis of diphtheria and pneumonia was made. No culture had been taken and no antitoxin administered before admission. On account of the condition of the child, the usual admitting bath was omitted. The child vomited a large amount of fluid. He was given 30,000 units intramuscularly, followed by 9,000 units intravenously. A generalized convulsion and chill developed in twenty minutes, lasting three or four minutes; the temperature rose to 106.9; pulse, 160; respiration, 37. A warm pack was given six hours later, during which the patient perspired profusely and had some muscular spasms, but then rested quietly. Within an hour another general convulsion developed, lasting four minutes, followed by coma, and death in ten minutes. No cultures were taken antemortem, and no urine was secured.

At necropsy, done ten hours postmortem, there was marked swelling of the tonsils and cervical lymph nodes, but no membrane. The thymus was definitely enlarged, as were the mediastinal and mesenteric lymph nodes and the solitary follicles and Peyer's patches of the bowel. The heart was normal. The lungs and kidneys showed congestion, but there was no pneumonia. Microscopic examination showed moderate tubular degeneration in the kidneys, congestion of the lungs with some exudate in the bronchi, and small focal necroses in the liver. In the kidneys, lungs and spleen there were numerous accumulations in the larger vessels of matted erythrocytes, with free and phagocyted pigment granules. Cultures of the nose and tonsils were negative for diphtheria; streptococci were recovered from the latter. The case evidently was one of acute streptococcus tonsillitis and pharyngitis.

It is problematic whether or not the antitoxin given intravenously contributed to the death of these two patients. Unfortunately, none of the serum used is now available for examination. Some work has been done in the past which suggests that occasionally a horse serum is encountered that will agglutinate human corpuscles in vitro. Further experimental work along this line is at present under way and will be reported when completed. Among the other fifty-two cases in this series, no evidence was discovered of similar serious effects resulting from the intravenous injections.

COMMENT

The size of the intravenous dose in the fifty-four cases ranged from 800 units to 15,000 units in a single injection, and up to 24,000 units when divided into two injections. Patients early in the series received smaller doses than later on. The intramuscular dose ranged from 24,000 units to 72,000 units.

The youngest patient to receive antitoxin intravenously was aged 3½ years. This was a very severe case. The total dosage intramuscularly was 66,000 units; intravenously, 9,000 units. The patient died three days later of heart block. The oldest patient was aged 37 years with tracheal membrane; she received 27,000 units intramuscularly and 9,000 units intravenously; she recovered.

Some patients suffered a severe chill, with a sharp rise of temperature and pulse. It is conceivable that in moribund or desperately ill patients this might put a dangerous strain on the cardiovascular system. While recognizing the fact that further work must be done and more experience acquired before we can attain full control over the effects of antitoxin administered intravenously, I believe that, in weighing the patient's chances for life, the advantages to be derived from the immediate availability of ample antitoxin provided by this method are greater than the dangers.

Until further experience teaches us to estimate more accurately the intravenous dosage, it would appear that a combination of this route with the intramuscular offers certain advantages. An intramuscular dose given shortly before the intravenous dose will be absorbed slowly and will provide a supply of antitoxin which will still be entering the circulation when that from the intravenous dose is falling off. It will also prevent any anaphylactic effects from the latter.

Better results following intravenous injections will be observed in severe laryngeal than in severe nasofaucial diphtheria since, in the latter, much irremediable damage will have been done before the antitoxin is given. Only education of the public in the necessity for early recognition and treatment of diphtheria will save these patients.

SUMMARY

Fifty-four patients with laryngeal and nasofaucial diphtheria were given intravenous injections of antitoxin in addition to intramuscular injections. Stock concentrated antitoxin issued by the laboratory of the New York State Department of Health was used. Only cases classed as severe on admission were selected for intravenous administration. The antitoxin was given undiluted or diluted in sterile physiologic sodium chlorid solution.

The indications for an intravenous injection may be thus outlined: It should be given in:

1. Late cases (the patient being ill four days or more without antitoxin) whether moderate or severe in type.
2. Severe and malignant cases, whether discovered early or late in the disease.
3. Laryngeal cases secondary to faucial involvement.
4. "Bull neck" cases and those with hemorrhage.
5. Cases that do not respond to an ample intramuscular dose.

Contraindications are:

1. Cardiac decompensation or severe organic lesion of the heart or blood vessels.
2. Chronic nephritis.
3. Horse serum or protein sensitivity, unless the patient can be successfully desensitized.

The following precautions should be observed:

1. Use only a clear, amber or colorless serum with high titer (1,200 units per cubic centimeter or over). The importance of this must be emphasized.
2. Inject very slowly at body temperature.
3. Stop the injection if untoward symptoms appear.
4. Keep the patient warm, quiet and under close observation afterward.
5. Determine protein sensitivity.
   (*a*) If the patient has had no previous serum injections . . . caution; a preliminary intramuscular dose should be given.
   (*b*) If the patient has had any serum injections in the past (six days or over) . . . caution; an intradermal test should be performed and the patient desensitized.
   (*c*) If the patient has had antitoxin within from four to six days . . . safe; skin tests or preliminary intramuscular doses are not necessary before the intravenous injection.

CONCLUSIONS

1. The careful selection of a proper lot of antitoxin, the observance of certain precautions against allergic shock, and care in the technic of administration renders reasonably safe the injection intravenously of a stock, concentrated diphtheria antitoxin.

2. Some patients with severe and late diphtheria will be saved by this procedure who otherwise would probably have succumbed.

3. Certain complications and sequelae may be prevented; or, if not, will be lessened in severity.

4. A combination of intravenous and intramuscular doses is advantageous.

5. In very severe and late cases, the mortality will continue to be high in spite of this treatment, as serious damage will have been done to the tissues before antitoxin is given.

6. Further experimental work should be done to define more clearly the possible dangers of this procedure.

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INTUBATION IN PRIVATE PRACTICE

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Experience shows that unrecognized or neglected acute inflammatory stenosis of the larynx which both the profession and the laity commonly call membranous croup, causes the death of many children.[1] This is not astonishing, since the average practitioner sees few of these cases during his entire life, and hence he is unfamiliar with their symptomatology and course. He is so accustomed to seeing his patients struggling along for days with the dyspnea of asthma that he feels that even severe air hunger will not kill. He has also seen children, apparently in desperate straits as a result of spasmodic croup, who are playing the next morning, none the worse for the experience. Therefore it is not surprising that he fails to recognize danger in his first case of membranous croup; and that the intubationist, when he arrives, finds a grief stricken family, crushed and prostrated, gathered around the body of the family idol. Many times the disease is never correctly diagnosed, and the physician lives on in utter ignorance of his ghastly error.

ILLUSTRATIVE CASES

Three cases in my own experience will serve to illustrate these conditions:

CASE 1.—A boy, aged 3 years, had been showing croupy symptoms for three days. His mother had had a sore throat the week before. For two nights the boy had not slept, and the night before I was called he had crawled constantly over the bed in intense dyspnea. The young physician in attendance suspected croup and called an older man in consultation. The consultant advised morphin to give rest. Exhaustion and the morphin soon did their work. After a brief period of comparative quiet, the boy collapsed. The attending physician happened to be present, and called me, urging haste. The run was only a few squares. I found the child with purple black lips, pallid face, eyes rolled back and jaws set, unconscious, but still holding to life by an occasional gurgling gasp. Death was a matter of seconds. I did not dare pick him up, but intubated him unrestrained in his crib, as one would practice on a cadaver. Artificial respiration by an open window, with the child inverted, and an injection of epinephrin averted the catastrophe.

CASE 2.—A few nights later I was called to an Italian child with "membranous croup." The attending physician frankly said that he had at first mistaken this for bronchopneumonia. The family was frantically urging him to come, but he felt that he could do nothing more, and that intubation was the only hope. Here again I dared not raise the child. The pupils dilated, and the sphincters and jaws relaxed as I put in the gag. The first time the tube was introduced, it blocked with membrane so that air would not pass into the chest. I pulled it out, removed the membrane, and reintroduced it. Under artificial respiration, air was heard to enter the chest, and the methods I have described were again successful. The throat of this child was covered with a bleeding membrane. The pallor and cyanosis persisted for hours. It was evidently a case of deep diphtheric bronchitis. The baby was plump, and I could not find even the jugular vein. Therefore, I gave him 20,000 units of antitoxin intraperitoneally, and he recovered.

CASE 3.—I was recently called to a neighboring town by a physician who is familiar with croup. Another physician had made a diagnosis of pneumonia, but a friend of the family, whose child I had intubated a year before, recognized the disease and insisted on a consultation with his physician. Had it not been for this accidental lay diagnosis, this little boy would have been sacrificed.

VALUE OF EPINEPHRIN

One point that should be emphasized is that while delays are most regrettable and increase the death rate, it is never too late to perform an intubation, as the majority of children recover even when artificial respiration is necessary to resuscitate them. Epinephrin is of great value in these cases. When the child is apparently dead, it should be injected directly into the heart;[2] if the heart is still beating, it may be used subcutaneously.

NEED OF TRAINING STUDENTS IN CONTAGIOUS DISEASES

Errors in diagnosis and ignorance of the course of this and other contagious diseases should not be laid at the door of the practitioner. The blame belongs to the medical schools, as many have no hospital for teaching the diagnosis, course and treatment of contagious diseases. Until such facilities are available, the students cannot be properly trained, public health must suffer, and the babies will be sacrificed. No school should be given an "A" rating until it has provided proper clinical instruction in contagious diseases.

DIAGNOSIS

One type of acute inflammatory stenosis of the larynx in children may be caused by infections that are accompanied by the production of a pseudomembrane. This, aided by the accumulation of mucus behind it, mechanically obstructs the lumen of the larynx. Most cases of croup with membrane are diphtheric. In the other type, no membrane is formed. The stenosis is caused primarily by an inflammatory swelling of the larynx and is aggravated by an accumulation of mucopurulent material which gathers in the trachea back of the obstruction. This type of acute stenotic laryngitis is usually a complication of measles, whooping cough, scarlet fever or influenza.

Clinically, the symptomatology of the two types is identical. The dyspnea is terrific. At its height, every intercostal interspace is retracted during the strident inspirations, the supraclavicular and infraclavicular spaces sink in, and in some infants the lower end of the sternum caves in until it buckles with each inspiratory effort. The muscular exertion is as great as that of a pugilist in combat. The child crawls over the bed and sometimes thrusts its hand down its throat in futile efforts to remove the obstruction. Soon the

1. Hogan, J. F.: Laryngeal Diphtheria, J. A. M. A. **77**: 662 (Aug. 27) 1921.

2. The Intracardiac Injection of Epinephrin, editorial, J. A. M. A. **80**: 1314 (May 5) 1923.

patient is exhausted. The respirations become short, frequent and shallow. The face grows pale and the lips become cyanotic. The child lies quiet. This period is of short duration and is followed by gasping breaths at irregular intervals until the last inspiratory effort is made, and all is over. When the child becomes quiet, the parents and the inexperienced physician often feel that the crisis is past; but, *in croup, a cyanotic, quiet child is a dying child.*

The only way of distinguishing between the membranous and nonmembranous forms is by direct laryngoscopic examination. This distinction is of great importance in hospitals where it is so necessary to prevent mixed infections gaining entrance to the diphtheria ward; but in private practice it is of less importance, because it is safer to treat every case of acute stenotic laryngitis as though it were diphtheric. Every case of croup that accompanies or follows a sore throat, with or without spots on it, must be regarded as dangerous. Every case that does not clear up with the break of day, whether the throat is sore or not, should be treated as diphtheric. Finally, when a child is strangling, from an unknown cause, it should not be permitted to suffocate merely because the disease has not been named.

The differential diagnosis between acute inflammatory stenosis of the larynx and other diseases is not difficult. Spasmodic croup comes on suddenly; stenotic croup, gradually. In the intervals between paroxysms, stenotic croup does not let up entirely, while spasmodic croup usually does. Emetics nearly always relieve spasmodic croup, while in the stenotic form, if there is any relief, it is of short duration. Spasmodic croup often attacks on two or three successive nights, the child being free from symptoms during the day. Stenotic croup, on the contrary, increases gradually up to a certain point, and then progresses rapidly. Children over 5 years of age seldom have spasmodic croup; stenotic croup may occur up to 14 years of age; and, on rare occasions, it may be seen in adults. A swab examination at the laboratory will be of great assistance in the diphtheric cases, but vigilance should not be relaxed because of a negative finding. It must be remembered that in many cases the result of the first culture is negative, while later cultures show the presence of the diphtheria bacilli; and also that nondiphtheric conditions give rise to fatal inflammatory stenosis of the larynx either with or without membrane.

Acute laryngeal stenosis is often mistaken for pneumonia. The croupy, strident cough, the voice that sounds like a muted musical instrument, and the dyspnea raised to the "*n*th power" should not permit one to overlook the stenosis, even in cases complicated by pneumonia.

An enlarged thymus may suddenly cause symptoms like those of membranous croup. Such cases are rare, but the indications for operation are the same as in croup, and, if promptly intubated, the child may be tided over until the disease is recognized and roentgen-ray treatment commenced.

After a physician has made a diagnosis of stenotic croup, he should always try to ascertain whether or not some primary disease is responsible for the condition. During the course of influenza attacks, I have seen several cases of acute stenotic croup with negative cultures. I have also seen this form of croup in the various stages of scarlet fever. Diphtheria bacilli and membrane have been found in all of these cases. Another cause of acute stenosis of the larynx is measles, in which the obstruction may arise prior to the appearance of the rash, during its height, or just after it has disappeared. In some of these cases, it is caused by a complicating diphtheria, while in others, diphtheria plays no part. Membrane may or may not be present. Morris [3] and Ponce de Leon [4] report a series of such cases. I have found no records of nondiphtheric stenotic croup in whooping cough in the literature, but I have seen it as a complication in the early stages. True diphtheric croup, however, may occur as a coincident infection at any period of this disease.

Stenotic croup, especially the diphtheric variety, is essentially a disease of poverty and bad hygiene.[5] Most of my cases have been among the poorer laboring classes, the foreign element and the tenant farmers whose habits of life are very primitive. There was but one colored child in the series. Although Wright [6] calls attention to the fact that adult negroes possess about the same degree of immunity to diphtheria as do white persons, Cartin [7] and Hoyne [8] have reported the comparative rarity of this disease in the negro race.

Only four patients in this series had the benefit of professional nursing.

OBSERVATIONS IN PRACTICE

The deaths in the clinically diphtheric cases were due to acute toxemia in two cases, these children living only a few hours after intubation. Acute cardiac paralyis killed one child ten days after extubation. One child died twelve hours after intubation as a result of sudden obstruction of the tube by membrane. One child died from a complicating pneumonia.

Intubation in Private Practice—Acute Infectious Stenosis

	Recovered	Died	Total
Clinically diphtheric group*	110	5	115
Whooping cough with stenosis, culture positive for diphtheria	2	1	3
Measles with stenosis, negative culture	1	1	2
Measles with stenosis, positive culture	1	0	1
Scarlet fever, stenosis, positive culture	0	2	2
Influenza, stenosis, negative culture	3	0	3
NONINFECTIOUS CASES			
Enlarged thymus	1	0	1
Stenosis following removal of foreign body from lung by bronchoscopy (case of Dr. Charles Bowen)	1	0	1

* The culture records for this group are not complete. The majority were positive cases.

The child with measles, aged 13 months, died six days after intubation, seventeen hours after the removal of the tube. This death was apparently due to exhaustion, as the child never rallied properly after intubation, and took almost no nourishment. There was no pneumonia. The measles eruption was at its height when the operation was done.

The baby with whooping cough and diphtheria was 1 year old, bottle fed, and marasmic. It died of pneumonia seventy-two hours after intubation.

The two fatalities from coincident scarlet fever and diphtheric stenosis occurred in one family, in which three children developed laryngeal stenosis during the

3. Morris, M. F., Jr.: Laryngeal Stenosis as a Complication of Measles, New York M. J. **106**: 1125 (Dec. 15) 1917.
4. De Leon, Ponce: Measles and Diphtheria, Arch. Espan. de Ped. **4**: 663, 1920.
5. Reiche, F.: Scharlach und Diphtherie in ihren Bezichungen zur sozialen Lage, Berl. klin. Wchnschr. **52**: 643, 1915.
6. Wright, L. T.: The Schick Test, with Especial Reference to the Negro, J. Infect. Dis. **21**: 265 (Sept.) 1917.
7. Cartin, H. J.: Intubation of the Larynx: An Analysis of Four Hundred and Forty Cases in Private Practice, Tr. Sect. Dis. Child. A. M. A., 1920, p. 109.
8. Hoyne, A. L.: A Study on Diphtheria Mortality, with Comments on Treatment, Arch. Pediat. **35**: 513 (Sept.) 1918.

course of scarlet fever. One was dead when I arrived at the house, and both of the others died during the night after they were intubated. These children had been ill with scarlet fever about two weeks, and had severe cervical adenitis when the diphtheric membrane suddenly appeared. The physician in attendance thought this was a recrudescence of scarlet fever; but, when laryngeal symptoms developed, cultures showed diphtheria bacilli. Cultures had been taken for diagnostic purposes early in the course of the scarlet fever, but they were negative.

In addition to the operative cases reported in the accompanying table, I saw within the same period eight cases in which recovery occurred without operation. One of these patients, an adult, had a positive culture.

Among the cases covered by this report, four children who seemed to be dead were resuscitated, but in eleven cases, not included in the table, our efforts were unsuccessful. When a child who has been dyspneic for hours has stopped breathing for more than a few seconds, artificial respiration, epinephrin and other restorative measures usually fail. On the other hand, sudden suffocation following the expulsion of a tube, or its obstruction by loose membrane, is less dangerous. We have seen these children resuscitated after incredibly long periods. The reestablishment of respiration is accompanied by a convulsion.

Two children in the "clinically diphtheric" group were tracheotomized. They had been reintubated many times; then they began to cough out the tube repeatedly, even after a larger sized tube had been substituted. This we regard as a symptom of laryngeal ulceration.[9] In one of these cases, Dr. McClelland of Xenia performed the tracheotomy. Here the culture was negative, and almost complete cicatricial stenosis of the larynx followed. It is now thirteen years since this tube was inserted, but the patient is still wearing the cannula, although various specialists have attempted to dilate the stricture. It is interesting to note that four years after she was operated on, this child went through a typical course of whooping cough, with its characteristic paroxysms of cough, ending in the peculiar inspiration. This would suggest that spasm of the larynx is not the cause of the attack and whoop.

The other tracheotomy was performed by Dr. André Crotti of Columbus, on a boy, aged 14 months, who had worn a tube for five weeks. The culture in this case was positive. It took almost a year to get rid of the cannula, but the patient made a perfect recovery.

It is difficult to ascertain the mortality after intubation in private practice, as few reports have been published. Cartin reports 440 cases, with no tracheotomies, no chronic tube cases, and a mortality of about 14 per cent. Sheffield[10] had sixty-four cases with but one death, and Rosenthal,[11] 100 cases with twenty-five deaths. It would seem that the mortality is lower than is usually the case in hospital practice.

This difference is probably due to the difficulty of preventing crossed respiratory infections, and to the occasional outbreaks of other contagious diseases, which it is almost impossible to avoid when many sick children are gathered together. A common source of such infections is found in the cases of measles, scarlet fever, influenza and whooping cough, which begin with symptoms resembling laryngeal diphtheria, but which are really cases of stenosis without membrane.

Introduction of measles into a diphtheria ward is particularly dangerous. More than twenty-three years ago, while an intern in the Municipal Hospital of Philadelphia, I experienced one such epidemic, with its hemorrhagic cases, bronchopneumonia and sequels of noma and cancrum oris.

METHOD OF TREATMENT

The indications for intubation are cyanosis, increasing restlessness, inability to sleep and marked dyspnea. Excepting in cases in which the child is moribund, the operation is performed in the upright position, with the child wrapped in a mummy-restraining bandage, and held by an assistant. When the child is too far gone to struggle, and its attempts to breathe are separated by irregular intervals, it is intubated in its bed, and no time is taken to pick it up.

Mucopurulent material and serous fluid often accumulate behind the laryngeal obstruction. Just as soon as the tube is introduced, the child is inverted to facilitate drainage of this material. The foot of the bed is raised so that the child's head will be several inches lower than its feet. No pillow is permitted. The headboard is padded to prevent the patient bumping his head. The child is kept in this position until the tube is removed. Swallowing provokes less violent paroxysms of coughing if neither water nor food is given until two hours after intubation, because this gives time for the larynx to become accustomed to the tube. I believe that this lessens the danger of pneumonia. When food or water is given, the child's body is kept in the same position, but its head is turned on one side. Only a teaspoonful is given at a time. Some children who cough less if fed in the sitting position are allowed to sit up while being fed.

During the first twenty-four hours, ice cream is the only food permitted. It is cooling, easily swallowed, and children will take it when nothing else tempts them. When there is much fever, cracked ice is given instead of water. As the condition improves, milk toast, soft-boiled eggs and other soft foods are given.

Excessive fever is controlled by sponging the face and hands. The bowels are regulated by enemas and suppositories. The best ventilation that can be devised under the conditions found in the home is insisted on. When artificial heat is used, some arrangement is made, such as pans of water on the stove, to keep the air moist.

Very few of my patients have had a single dose of medicine by mouth. Entire reliance is placed on antitoxin. When this has not been given before I arrive, it is administered intravenously, if possible; but if a vein cannot be reached, the subcutaneous route is used in all but desperate cases, in which cases I give it intraperitoneally, using the same dosage that I would employ intravenously. The results have been very gratifying.

The entire amount of antitoxin considered necessary for the patient should be injected immediately. Unfortunately, many physicians still cling to the antiquated method of dividing the antitoxin into several doses, which are given at intervals of from twelve to twenty-four hours. This procedure is scientifically untenable. In laryngeal stenosis without membrane in the throat or nose, I give 5,000 units intravenously, or 10,000 units subcutaneously. With throat involvement I give

9. Hohlfeld, M.: Experiences with Intubation in Diphtheria, Jahrb. f. Kinderh. **91**: 240, 1920. Hermann, E.: Intubation for Diphtheria in Infants, Jahrb. f. Kinderh. **93**: 273, 1920.
10. Sheffield, H. B.: Intubation in Laryngeal Diphtheria (Notes on Sixty-Four Cases), M. Rec. **92**: 1068 (Dec. 22) 1917.
11. Rosenthal, E.: Diphtheria of the Larynx, Ann. Gynec. & Pediat. **16**: 397, 1903.

10,000 units intravenously, or from 20,000 to 30,000 units subcutaneously. When nose, throat and larynx are involved, I give from 20,000 to 30,000 units intravenously, or from 40,000 to 60,000 units subcutaneously.

About five out of every six cases of stenotic croup are diphtheric; and since the successful treatment of diphtheria depends on the prompt administration of antitoxin, and since the nonspecific action of antitoxin seems to be beneficial in the nondiphtheric cases, lives will be saved if antitoxin is given immediately, without waiting to make an exact diagnosis.

All of my work has been done with the O'Dwyer instruments. I have not used the direct method of intubation,[12] nor have I employed suction, as advised by Litchfield and Hardman,[13] or the removal of loose exudate from the larynx with an applicator, as done by Thomson.[14] The latter procedure seems sound, and as it is feasible in private practice, I expect to try it in suitable cases in the future.

Extubation is done on the fifth or sixth day. During this operation, the extractor is introduced in the usual manner; but, as soon as the tube is engaged, the child's head is rocked back on the shoulder of the person holding the child, by the assistant who holds the gag, until the head is in the position for direct laryngoscopy. The tube is then lifted straight out of the larynx, and the raking of the posterior wall of the trachea, as the tube makes the usual curve, is avoided. Since the adoption of this technic, the number of reintubations has decreased. After removal of the tube, the intubationist should watch the child for several hours.

When a child with nondiphtheric stenosis requires a reintubation, an autogenous vaccine is prepared from a laryngeal culture planted on an agar slope. This is injected as soon as possible, and the dose is repeated in twenty-four hours. After an interval of five days, the tube is again removed. In five cases treated in this way the temperature at once fell and reintubation was not required. Nondiphtheric cases have formed a large proportion of my "prolonged intubations." [15]

Almost all patients with laryngeal diphtheria give a history of having had a sore throat about a week before, or else of having been exposed to sore throat in some other member of the family. If the general practitioner will treat every suspicious case of sore throat with antitoxin, without waiting for a cultural diagnosis, and then will take his culture, and, if this is positive, immunize all children in the family, the number of laryngeal cases will be greatly reduced. However, if the family physician has attended these cases and has diagnosed and treated them as tonsillitis, without the use of antitoxin, and without taking advantage of the laboratory for exact diagnosis, he should consider his carelessness responsible for cases of membranous croup which develop later. The Schick test gives the practitioner a method of detecting the children among his clientele who are susceptible to diphtheria. If he will permanently immunize these children with the toxin-antitoxin mixture, he can feel that it is not due to his neglect if they later develop an acute laryngeal stenosis.[16]

12. Purcell, C. E.: Direct Intubation in Neglected and Desperate Cases of Tracheal and Bronchial Diphtheria, South. M. J. **16**: 301 (April) 1923.
13. Litchfield, H. R., and Hardman, R. P.: Suction in the Treatment of Laryngeal Diphtheria, J. A. M. A. **80**: 524 (Feb. 24) 1923.
14. Thomson, C. A.: Removal of Diphtheritic Exudate from the Larynx: Employment of an Applicator for the Purpose of Avoiding Intubation, J. A. M. A. **78**: 1198 (April 22) 1922.
15. Thomson, C. A.: Acute Stenotic Laryngitis Simulating Laryngeal Diphtheria, J. A. M. A. **78**: 1456 (May 13) 1922.
16. Park, W. H.: Toxin-Antitoxin Immunization Against Diphtheria, J. A. M. A. **79**: 1584 (Nov. 4) 1922.

OSTEOMYELITIS VARIOLOSA *

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AND
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That clinical bone complications during or as a sequel to smallpox is a comparatively rare condition is indicated by a reasonably fair search of the literature, as well as personal inquiries from isolation hospitals. At El Paso, where 390 cases have been treated in the last eight years, there is no history or record of osteomyelitis as a complication or sequel. Councilman [1] states that he has never seen a case of osteomyelitis as a complication of smallpox. Ingelrans and Taconnet,[2] in 500 cases of smallpox, noted osseous lesions consecutive to the infection three times. The evidence seems conclusive that there are two distinct forms of osteomyelitis occurring as complications of smallpox. The ordinary metastatic pyogenic osteomyelitis is the more frequent variety, as indicated by Neve,[3] Bidder,[4] Mauclaire,[5] Paré,[6] Debeyre,[7] Schwenk,[8] Kolaczek [9] and others. That it does not occur more frequently as a complication of smallpox in a disease so universally accompanied by pus is somewhat surprising. Our object in this paper is to call attention to what appears to be an entirely different pathologic process complicating smallpox, and one which the present evidence would indicate was due to the specific virus of variola.

Chiari,[10] Mallory [11] and MacCallum [12] report microscopic lesions consisting of small nodules in the substance of the testes which is entirely characteristic of smallpox. Chiari and Mallory both report identical necrotic areas in the bone marrow at necropsy in patients dying in the active stages of smallpox. Chiari made laboratory studies on the bones in twenty-two necropsies on the bodies of patients who had died during the three different stages of smallpox, and Mallory's conclusions were based on laboratory study of the bones of three patients dying during the suppurative stage.

Chiari concludes after the laboratory studies of twenty-two postmortem cases that the microscopic findings in the bone marrow of variola cases show that in the disseminated foci we have before us a pathologic process in the bone marrow caused by the variola and itself bearing a variolar character; that this osteomyelitis variolosa is to be found in all stages of the disease, and that the foci in the bone marrow never show suppuration. It is also his opinion that these disseminated foci of variola in the bone marrow may explain

* Read before the Section on Orthopedic Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Councilman, W. T.: Smallpox, in Osler's Modern Medicine **1**: 790.
2. Ingelrans and Taconnet: Ostéopériostites post-varioliques, Echo méd. du nord. **7**: 176, 1903.
3. Neve, Arthur: Cases of Bone Disease After Smallpox in Young Children, Lancet **2**: 609, 1887.
4. Bidder, A.: Zur Kenntniss der eitrigen Gelenkentzündungen bei Variola, Deutsch. Ztschr. f. Chir. **11**: 453, 1873.
5. Mauclaire: Maladies des os, p. 94.
6. Paré: Osteomyelitis and Smallpox, Oeuvres Complètes **3**: 258.
7. Debeyre, A.: Ostéomyélities postvarioliques, Echo méd. du nord. **7**: 182, 1903.
8. Schwenk: Symmetrische Osteomyelitis nach Variola, Arch. f. Kinderh. **58**: 12-29, 1912.
9. Kolaczek published a book on symmetrical osteomyclitis variolosa observed in 1874 at the Breslau surgical clinic; the first and only case reported in literature up to 1912 (Deutsch. med. Wchnschr., 1878).
10. Chiari, H.: Ueber Osteomyelitis variolosa, Beitr. z. path. Anat. u. z. allg. Path. **13**: 13-31, 1893.
11. Mallory, F. B.: Ueber die Verbreitung der Osteomyelitis variolosa in Knochensysteme, Ztschr. f. Heilk. **15**: 235-254, 1894.
12. MacCallum: Text Book of Pathology, Ed. 2, p. 763.

the frequent bone pains of which variola patients complain.

He had opportunity to study the pathologic process in one case two months after variola. His study of that case gives very good presumptive evidence as to the pathologic process that occurs in the clinically manifested osteomyelitis due strictly to the virus of variola. He found the marrow of the femur lymphatic and hyperemic. That in the isolated nodular pale foci contraction of necrotic tissue had set in. The obliterated structure of the bone marrow was replaced by fine and coarse granular detritus representing a resorption process in necrotic foci and resembling the healing stage of orchitis variola.

Mallory states that in variola the marrow from various bones shows more or less numerous circumscribed, typical inflammatory foci associated with central necrosis, and that osteomyelitis variolosa is extended throughout the osseous system.

In 1903, Debeyre observed that cases of osteomyelitis complicating smallpox more commonly ended without suppuration.

In 1910, Musgrave and Sison [13] reported with photographs six cases of great deformities of the joints of the arm and legs following smallpox, showing to what great extent destruction and deformity might occur without suppuration.

Again in 1913 they [14] reported twelve more cases, submitting roentgenograms to show the extensive destruction in the epiphyseal ends of the long bones often involving the joints, these patients having shown no evidence of suppuration.

In 1912, Cange [15] reported three cases of symmetrical deformities of the forearms and hands due to smallpox.

In 1922, Sheldon [16] reported two cases of great deformity, one of the elbow and forearm and the other of the tibia and fibula, involving the ankle joint.

Musgrave's and Sison's eighteen cases were in Filipinos. Sheldon's two cases were in Chinese, and one of our cases was in an American and one in a Mexican.

REPORT OF CASES

CASE 1.—An American girl, aged 6, whose face was covered with smallpox scars, had had smallpox when 3 years old. She was seriously ill. The family was then living in Mexico. She was in bed for three months. During the last six weeks of her illness her arms and legs were so sore that she could not be moved. It was thought that she had rheumatism. She had one small abscess on the inner side of the left tibia just above the ankle joint, which was opened on two or three occasions and healed after the bone was scraped. From the time of that illness, three years, she had been gradually developing deformities of the forearms and wrists.

The left wrist showed that the ulna was considerably longer than the radius, angling the hand sharply toward the radial side. The roentgenogram showed a destruction of the epiphyseal line of the lower end of the radius with a deformed but preserved epiphysis, with exostoses projecting from the diaphysis. There was a light area in the lower end of the ulna, apparently an old necrosed area. The upper epiphyseal lines of the ulna and radius did not seem to be destroyed.

The whole right forearm was shorter than the left. The right radius was 1 cm. shorter than the left. The right ulna was almost 3 cm. shorter than the left. Both lower epiphyseal lines were destroyed, and there was evidence of destruction of the upper epiphyseal line in the radius. The radius was somewhat bowed. The lower epiphysis of the radius was present, but deformed. There was some exostosis of the lower end of the diaphysis.

In the left leg there was evidence of an old necrotic area in the lower outer aspect of the tibia. There was a light necrotic area in the fibula, 5 cm. above the lower tip. The right clavicle was 2 cm. shorter than the left, and it showed a smaller irregular outer end as compared with the left.

This case shows destruction of five epiphyseal lines without suppuration in any. It shows what is probably a necrotic area in the lower end of the left ulna and lower end of the left fibula, which did not suppurate, and one focus in the lower end of the left tibia not involving the epiphyseal line, which did suppurate, making eight foci of metastatic infection with but one suppurating.

CASE 2.—A man, aged 20, a Mexican, born and reared in the interior of Mexico, was so young when he had smallpox that he did not remember having had it. His face was badly pitted from smallpox. He had the characteristic shortening of the right forearm, with overgrowth of the ulna in length as compared with the radius, causing some angulation toward the radial side. The wrist joint was free, and it was a strong, useful hand, with which he did ordinary work. Both bones in the right forearm were much shorter than the normal left. The right radius was only 15 cm. long, while the left was 27. The right ulna was 22 cm. in length; the left, 27.

The lower end of the right radius was fused with the ulna 1.5 cm. above its lower end. The right ulna was 1.5 cm. longer than the right radius. The epiphysis of the right wrist joint was preserved, and fused with the diaphysis of the radius. There were no exostoses. Supination and pronation were very limited. There was absolutely no evidence in the way of scars that there was any suppuration.

CONCLUSIONS

From the foregoing evidence, it appears that there are two distinct forms of osteomyelitis complicating or as a sequel to smallpox:

First, the ordinary pyogenic metastatic osteomyelitis that occurs in other infectious diseases, and second, a distinct form of necrosing nonsuppurating osteomyelitis probably due to the specific virus of smallpox, which frequently involves the diaphyseal ends of the long bones, destroying the epiphyseal lines and causing late deformities.

The specific form of variolar osteomyelitis most frequently occurs in children. It is not recognized during the acute clinical stage as osteomyelitis, and the deformities are often overlooked because their evolution is gradual and the patient has often left the care of the physician before deformity occurs.

ABSTRACT OF DISCUSSION

DR. F. B. SHELDON, Fresno, Calif.: Dr. Brown has contributed something to the history of this lesion, in that he has seen the early lesions in the child. I can report five cases of this disease.

DR. W. L. BROWN, El Paso, Texas: The pathology of the bone lesions of smallpox during the active stages of the disease, the pathology in Mallory's case examined two months after the disease, my case, in which the bone lesions developed during the sixth week of smallpox, and the observation of the case two years or more later make me feel that there can be little ground for disputing the connection between the disease and its specific joint lesions. In my first case, with eight foci of infection, only one suppurated. This one undoubtedly was an ordinary pyogenic metastatic osteomyelitis. I know of no pathogenic micro-organism that causes this sort of disturbance, destroying the epiphyseal line and not causing suppuration; nor do I know of any inflammation attacking the epiphysis primarily, except osteochondritis of the hip, or Perthes' disease. Therefore, by connecting

13. Musgrave and Sison: The Bone Lesions of Smallpox, Philippine J. Sc., December, 1910.
14. Musgrave and Sison: The Bone Lesions of Smallpox, Philippine J. Sc., April, 1913.
15. Cange, A.: Un syndrome ostéomyélitique post-variolique, Prov. méd. **23**: 573-577, 1912.
16. Sheldon, F. B.: The Bone Lesions of Smallpox with Report of Cases, read before the American Roentgen Ray Society, 1922.

the early pathology with Musgrave and Sison's cases, the case of Dr. Sheldon and my own, I have painted a reasonably fair picture of a clinical entity due to the specific virus of smallpox.

PERINEAL AND SUPRAPUBIC PROSTATECTOMY

CHOICE OF OPERATION IN TYPES OF CASES *

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LOS ANGELES

Since Goodfellow, in 1893, performed the first perineal prostatectomy, and Freyer, in 1900, the first subtotal enucleation suprapubically, progress has been rapid and constant, until at present both operations may, in the majority of cases, be completely visualized and, in a large measure, ordinary surgical principles may be observed. One difficulty after another has been surmounted. Preparation, the most important factor of all, is now among urologists universally the great desideratum. Technic and management have been so perfected in both types of approach that, in experienced hands, the incidence of mortality and morbidity should be very low. When Young, in 1903, modified and perfected the Proust operation, he builded so well that the various modifications (Hinman, Geraghty, Dillon, Cecil, as well as modifications suggested by Young himself) have added little of real value to the original procedure.

For more than fifteen years there has been scarcely any urologic meeting at which there has not been heated controversy as to which approach—perineal or suprapubic—constitutes the better method of prostatectomy. Some could see no merit in the perineal operation; others used it almost exclusively. One advocated the perineal route for fibrous prostates and the suprapubic for large middle lobes. Some preferred the perineal for the hypertrophied prostate that in its growth remained within its anatomic limits and did not push into the bladder. Another advocated the low operation in fat patients, and then again some one else warned us against this route in the very same class of patient. As a matter of fact, there seems to have been not sufficient logic or reasons based on clinical experience to bring about a reasonable degree of agreement. After all, almost any prostate may be attacked with reasonable certainty of good results by either method, provided the operator is skilled and experienced in the particular type of operation he is doing. I have studied the question from several angles, and my purpose here is to advocate the selection of one or the other type of operation after thorough study of a given case along lines that appear saner to me than those heretofore promulgated.

The low mortality rate of Young has never been quite approached by any other operator. The average mortality rate by the perineal route in the hands of the foremost operators has been about 4 per cent.[1] The incidence of morbidity, however, has been somewhat greater. The shortcomings of the perineal operation are: (*a*) incomplete removal; (*b*) various degrees of incontinence following; (*c*) decrease or loss of sexual power, and (*d*) recto-urethral fistula—rarely seen except after operation by the inexperienced.

Incomplete removal is often followed by residual urine and occasionally by a certain degree of incontinence. Incontinence is more likely to follow one of the newer procedures—enucleation *en masse,* even though the external sphincter is not injured. There can be no question that the sexual power of the patient is very often markedly lessened or destroyed by this type of approach. This has been attributed to injury of the periprostatic nerve plexus and is also probably due at times to injury of nerves in the perineum. One is inclined to dismiss this factor as unimportant; but the loss of all sexual desire frequently has a profound psychic effect on men around 60 or 65 years of age. Recto-urethral fistula can almost always be avoided. Admittedly and, in fact, all the bad results mentioned do occur with even the most skilful and experienced operators.

Suprapubic prostatectomy, either by the two-stage operation or the one-stage open visualized operation, after the method first suggested by Hurry Fenwick, improved and perfected by Chute, Judd and Hunt, in which bleeding vessels at the bladder neck are whipped over and tied, followed or not by the use of a hemostatic bag, in properly selected cases, affords practically as low a mortality as the perineal operation, and the functional and structural results are not left to a certain chance as they are in the perineal. Incontinence is unknown after a proper suprapubic enucleation, and the gland can be readily enucleated more radically, enabling the bladder to empty itself completely. Sexual function is never affected adversely.

Many operators (Gardner, Hunt, Bugbee, Lower, MacKenzie and others) have reported a large series with a mortality rate of from 2 to 2.5 per cent. In fact, with good fortune, Gardner and Lower had more than 100 consecutive cases without a death, and Hunt and Judd over 100 with one death, using sacral and perisacral anesthesia and field block for the abdomen. Freyer had an operative mortality of 5.25 per cent. in his series of 1,625 cases, and most of these at a period when accurate methods of determining kidney function and retained nitrogen were unknown. When we consider this low mortality, however, by either type of operation, we must believe that these cases were largely among the better risks—well-to-do patients for the most part, who did not allow the prostatism to advance to the ultimate. Probably Chute's recently reported mortality rate of 10 or 11 per cent. is more nearly the correct one for patients operated on in general hospitals supported by taxpayers, to which patients so often go only as a last resort. These patients often present themselves to these hospitals in the late stages, after the kidneys, heart and other organs have suffered the most marked degeneration from retention, back-pressure and long existing infection.

Studying the statistics of many operators, either published or learned by personal communication, one must arrive at the conclusion that perineal prostatectomy has a slightly less mortality rate than suprapubic, when each is performed in the most skilful manner after the most careful preparation.

From 15 to 35 per cent. of prostatic patients coming to operation—the percentage in a given series varying with social status, financial state and degree of intelligence—constitutes the class in which we may expect to harvest our mortality. These come with all sorts of lesions and degenerations in heart, kidneys, arteries, lungs and other important organs, and any ill wind may carry them off. In fact, if they survive prosta-

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* Read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Young, H. H.: Surg., Gynec. & Obst. **36**: 589 (May) 1923.

tectomy, their expectancy of life is not more than from one to three years. On the other hand, the remaining 65 per cent. or more are excellent risks and, if carefully prepared, have good surgery and are wisely managed postoperatively, should recover almost to a man, no matter what type of operation is performed.

Recently we have been segregating our cases as follows:

The good risk we have subjected to suprapubic operation, either one-stage with bladder neck suture plus hemostatic bag or packing, or the two-stage operation if the catheter is not well tolerated or the urine is persistently ammoniacal from infection with urea-splitting organisms, or stone is present. Packing the bladder after the manner of Freyer following the two-stage operation is occasionally resorted to and is entirely dependable to control bleeding. It is productive, however, of much tenesmus.

With the poor risk, on the other hand, we have recently decided, in most cases, to operate by the perineal route. With caudal and transsacral anesthesia, or even with gas, it allows these patients to get about very soon, and this is an important factor in many of these decrepit old men, who develop pulmonary, cardiac and renal embarrassment most readily.

Limited time does not allow me to discuss in detail the well established methods of management from the moment the patient is first seen until he is fully convalesced. Here again, to the genius of Dr. Young [1] we owe the greatest share of our advancement.

The opinions here stated are based on more than 200 prostatectomies that I have performed, about 20 per cent. of which were done perineally. There has been no death among the perineal cases since the days of phenolsulphonephthalein. In private practice my mortality rate after suprapubic prostatectomy has been 4.3 per cent., and this notwithstanding that until recently all the bad risks were operated on suprapubically in two stages.

CONCLUSIONS

1. Sixty-five per cent. or more of prostatic patients requiring prostatectomy are good risks and have a reasonable expectancy of life for from four to twenty years.

2. The operative mortality rate in this selected class of cases should not be more than 1 per cent. from either type of operation.

3. The choice of anesthetic is a great factor. The mortality has shown a considerable drop with the introduction and use of caudal and transsacral or gas anesthesia for perineal operations, and caudal and transsacral plus field block in suprapubic operations or the use of spinal anesthesia.

4. From 15 to 35 per cent. of any given series are poor risks, and the mortality rate is probably at least twice as great in these cases with the suprapubic route as it is perineally. These patients have a reasonable expectancy of not more than from one to three years at best, and should be satisfied to take the chance of an occasional bad functional result.

5. On the other hand, the younger and sounder man with a reasonable expectancy of a considerable number of years to live and vitality sufficient to withstand a more radical and precise suprapubic enucleation, with sure preservation of sphincter control, no diminution of sexual power and no risk of having a urethrorectal fistula, I believe should have the suprapubic operation in all cases. Bad results after suprapubic operations should not occur; but if they do occur, they are easily corrected. Most bad results after perineal operations are irremediable.

ABSTRACT OF DISCUSSION

DR. HOMER G. HAMER, Indianapolis: Dr. Wishard of Indianapolis did a median perineal prostatectomy in 1891. The following year he read a paper on perineal operations on the prostate, and reported a new method of removing the lateral lobes. Wishard's work on prostatic surgery up to within a few years was done virtually all by perineal route, and there are 350 or 400 cases to his credit with good results. It has been my fortune to observe many of those cases. So far as I know, there were no cases of ureterorectal fistula; no cases of permanent perineal fistula and no cases of lack of control, but commonly there was dribbling of urine for a short time after operation. Our method of operating on the hypertrophied prostate has changed about from the perineal to the suprapubic method of approach, as has been general over the country, and we find that while the functional results are not much better, the management of the patients is very much easier in the hospital. The work of after-care is greatly simplified, according to my personal observation of the two methods of operation. In a recent report of our own work, covering two years, in 123 cases, there was a mortality of only 1⅔ per cent. This represents the cases of prostatic hypertrophy, excluding malignancy. In the entire group observed in that period the malignancy approached approximately 20 per cent.

DR. R. L. RIGDON, San Francisco: We should approach the subject with open minds and use that method of operation which will give the best results. Some will perhaps resort to the suprapubic route more frequently than others, but we ought not to reject the perineal route. On the other hand, the man who is doing most of his work through the perineal route should not reject the suprapubic route entirely. If we do, we are not doing the best we can for our patients.

THE ROENTGEN RAY VERSUS VACCINES IN THE TREATMENT OF ACNE*

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Acne vulgaris can hardly be considered a disease of great importance in the majority of cases. At times, however, it is severe enough to present a problem that is worthy of serious attention, affecting not only the peace of mind but even the earning capacity of its victim. In the treatment of this rather stubborn disease, both the roentgen ray and vaccines have been, and still are, rather widely used. With the object of comparing the therapeutic value of these two remedies, this paper has been written.

Without discussing the pathology of acne at length, it should be recalled that the essential process in this disease is a functional overactivity of the sebaceous glands, combined with a follicular hyperkeratosis. To this is frequently added more or less pustulation, and, at times, deep seated granulomatous infiltration. The therapeutic indication is to inhibit the overactivity of cells of the sebaceous glands and follicular openings. The roentgen ray is an agent that should theoretically be able to accomplish this result, owing to its inhibitory action on the reproduction of certain types of cells. That it does so in practice is a fact I shall try to substantiate.

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ROENTGEN THERAPY

The roentgen ray has now been used in the treatment of acne for twenty-six years. Most of the unfortunate results formerly obtained from its use were due to inability properly to measure the dosage. The indirect (electrical) method of measurement which antedates the use of pastilles was uncertain with the earlier available apparatus. The use of pastilles (of barium platinocyanid) made it possible to measure dosage directly with reasonable accuracy, though this method has its disadvantages. Since the introduction of the Coolidge tube and interrupterless transformer, it has been possible to measure the roentgen ray indirectly with considerable accuracy, even greater than with the use of pastilles. This method, on which MacKee's [1] work in roentgen therapy is based, is simple, flexible and safe in the hands of a conscientious and reasonably experienced operator.

My technic has consisted in giving one fourth of what Remer and Witherbee [2] described as a "skin unit" of unfiltered roentgen ray at weekly intervals for from twelve to fifteen or even twenty treatments. The factors used to obtain one fourth of a "skin unit" were 2 milliamperes, a 6 inch spark gap, forty-five seconds and a distance of 8 inches (from anode to skin), no filtration being used. When irradiating the face, I have generally given three separate exposures, one to the forehead and one each to the sides of the face and neck. I agree entirely with MacKee in preferring unfiltered irradiation, as it has proved perfectly safe and efficient, even for deep seated acne, and its administration is much less time consuming than when filtration is used. On this point, Schmidt,[3] a German roentgenologist, also agrees and takes issue with Hoffmann [4] for speaking of "weakly filtered" irradiation as the "modern" and supposedly best method of treatment.

When using the roentgen ray in the treatment of acne, the greatest care should be taken to avoid an erythema, involving as it does the possibility of future damage to the skin. "Without an erythema," MacKee writes, "it is exceedingly doubtful for telangiectasia to develop." In my experience, I have never noted any telangiectasia in cases of acne since I have used a measured dosage (for more than seven and a half years). A similar statement is made by MacKee, who has treated over a thousand cases of acne by the roentgen ray.

Pigmentation, in the form of freckles or diffuse areas, is an annoying sequela of irradiation, but is never permanent, though occasionally persisting for months. The idea that hypertrichosis can be caused by the roentgen ray is entirely without foundation, in my opinion. The question of scarring after irradiation is one of some importance from the standpoint of the patient, who should be duly warned of the possibility of its occurrence. I am firmly convinced that this scarring is not due to irradiation but to the disease itself. Certainly, pitted scarring is seen in many persons who have formerly suffered from acne without ever having been treated by the roentgen ray.

1. MacKee, G. M.: X-Rays and Radium Treatment of Diseases of the Skin, Philadelphia, Lea & Febiger, 1921.
2. Remer, J., and Witherbee, W. D.: The Action of X-Rays on Plate, Pastille and Skin, Am. J. Roentgenol. **4**: 303 (June) 1917; Arch. Dermat. & Syph. **1**: 558 (May) 1920. A full description of the subject is given by MacKee (Footnote 1).
3. Schmidt, H. E.: Zur Roentgenbehandlung der Akne, Deutsch. med. Wchnschr. **43**: 592 (May 10) 1917.
4. Hoffmann, E.: Ueber Solarson, staphylokoken Vakzine und Roentgenbehandlung der Acne vulgaris, Deutsch. med. Wchnschr. **43**: 393 (March 29) 1917.

Even if it is admitted that nearly every case of acne can be cured by the roentgen ray, it would certainly not be advisable to use this agent in such a routine manner. There are many cases of a mild type that are amenable to other methods of treatment, both local and general. There is no doubt that improvement may result from surgical measures (such as expressing comedones and opening abscesses), from soap frictions, peeling lotions, the quartz lamps, etc. Most of these methods have their disadvantages, however. Some are disagreeable to the patient, and, at best, their action is much less permanent than irradiation, relapses occurring with discouraging frequency. After considerable experience with such methods (omitting the question of vaccines for the moment), I have come to the conclusion that except in mild cases of acne, nothing but time and the roentgen ray will effect a permanent cure. For such cases, I feel that, with carefully controlled modern technic, the roentgen ray can be used as a routine method of treatment.

My personal experience with measured roentgen ray in acne is based on a series of 191 patients who received sufficient treatment to form the basis of an opinion as to the value of this method. The great majority of the patients received no other local treatment. General hygienic measures were instituted when necessary, but no particular attention was paid to diet, except to advise against undue consumption of carbohydrates.

Of the 191 cases, the result of treatment in 111 was all that could be desired, the eruption having entirely disappeared at the last visit or shortly after, as ascertained by letter or subsequent examination. In forty-seven cases, the eruption had practically disappeared at the last visit, a few lesions still persisting. In twenty-seven cases, considerable improvement was noted, the majority of these patients being unable, for one reason or another, to take the full course of treatment. There were marked relapses in four cases after the eruption had disappeared, while in two cases, the result of treatment was complete failure. Persistent pigmentation, which eventually disappeared, was noted in two patients, while many of the more severe cases showed scarring after the disappearance of the eruption. The average duration of the disease was four years, the average age 20½ years and the average number of treatments, thirteen; there were 123 females and sixty-eight males.

The first reference in the literature to roentgen therapy in acne consists of brief reports in 1897 by Gautier [5] and Pakhitonov,[6] followed by communications from Ullmann, Hahn, Jutassy, Schiff and Freund and others (quoted by Freund). In America, the first to write on this subject was Campbell [7] in 1902. Other pioneer investigators in this field were Hyde, Montgomery and Ormsby,[8] Pusey,[9] Zeisler,[10] Allen,[11] Williams,[12] and Varney.[13] Pusey, in 1903, wrote: "I think it may be

5. Gautier: Traitement de l'acne et de la couperose par les rayons X, Compt. rend. Cong. Internat. de méd. **8**: 385, 1899.
6. Pakhitonov: L'aene et les rayons X, Compt. rend. Cong. Internat. de méd. **8**: 385, 1899.
7. Campbell, R. K.: Results Obtained in the Treatment of Acne by Exposure to the X-Rays, J. A. M. A. **39**: 313 (Aug. 9) 1902.
8. Hyde, J. N.; Montgomery, F. H., and Ormsby, O. S.: A Contribution to the Subject of Radiotherapy and Phototherapy in Carcinoma, Tuberculosis and Other Diseases of the Skin, J. A. M. A. **40**: 1 (Jan. 3) 1903.
9. Pusey, W. A., and Caldwell, E. W.: Roentgen Rays in Therapeutics and Diagnosis, Ed. 2, Philadelphia, W. B. Saunders Company, 1904.
10. Zeisler, J.: Radiotherapeutic Observations, J. A. M. A. **40**: 511 (Feb. 21) 1903.
11. Allen, C. W.: Radiotherapy, Phototherapy, Radium and High Frequency Currents, New York and Philadelphia, Lea Bros., 1904.
12. Williams, F. H.: The Roentgen Rays in Medicine and Surgery, New York, the Macmillan Company, 1903.
13. Varney, H. R.: The Use of the Roentgen Ray in the Treatment of Acne Vulgaris, Am. J. Dermat. **10**: 97 (Feb.) 1906.

safely said that in roentgen rays we have found a method of treating acne more effective than any hitherto at our command." The early enthusiasm over the new method of treatment is reflected in the remarks of Zeisler, who "obtained almost uniformly excellent therapeutic results," and added. "I can only regret that Roentgen's wonderful discovery was not made twenty-five years ago." Varney, in 1906, wrote: "Because of the uniformity and permanency of the results obtained, the writer has used it [roentgen ray] in preference to all other forms of treatment for the past five years." From this period to 1917, there are scattered reports on this subject by Rudis-Jicinsky,[14] Fisher,[15] Thedering,[16] Dösseker [17] and Lain.[18] All are distinctly favorable to roentgen therapy. Occasional case reports during this time, such as those of Foster [19] and Sherwell,[20] recorded severe radiodermatitis following roentgen therapy in acne.

From 1917 to the present, during which time the indirect measurement (with Coolidge tube, etc.) has been more or less widely used, a number of very favorable reports have appeared in this country. The list of authors includes MacKee, who has done so much to establish roentgen therapy in skin diseases on a firm basis, LeFevre,[21] Hazen,[22] Boggs,[23] Semon,[24] Highman,[25] Remer and Witherbee,[26] Michael,[27] Simpson,[28] Reed,[29] Jacoby [30] and others. MacKee, while expressing very conservative opinions on the roentgen ray in acne, says that it is "our most efficacious therapeutic agent" in this disease. Hazen, in 1917, stated that "the use of the roentgen ray in acne is justified as a routine procedure by those who are absolutely certain of the roentgen-ray technic, and by no others, since much damage can easily be done by an inexperienced operator. The proper use of the rays affords much the quickest and surest way of controlling the disease." Jacoby expresses my own views completely when he says that the "roentgen ray in acne vulgaris is the best treatment we possess, and in the hands of an operator who follows modern measured technic, and is careful to keep his apparatus in good working order, is perfectly safe." In a paper read before this section in 1922, Hazen and Eichenlaub [31] expressed very favorable opinions, basing their conclusions on an experience with 170 carefully followed cases. In the discussion, favorable opinions were expressed by Lain, Wise, Guy, Pusey and myself, while Sutton, from some bad results he had seen, thought that "the average man had better leave the treatment alone." Finally, among recent textbook writers, very favorable views are held by Pusey,[32] Haldin Davis [33] and McKenna,[34] while Brocq,[35] Hartzell,[36] Ormsby,[37] Schamberg [38] and Macleod [39] think that roentgen therapy should be reserved for rebellious or selected cases.

VACCINE THERAPY

It is generally agreed that the bacilli found in the comedo by Unna, in 1893, Sabouraud, in 1897, and Gilchrist, in 1899, are identical organisms. Unna found the bacillus in smears and sections, though he was unable to obtain cultures. He considered it the cause of both comedo and pustulation. Sabouraud was able to cultivate his organism, and considered it the cause of the comedo, while he thought that the pustulation was due to secondary infection with staphylococci. Gilchrist thought that the organism which he called "Bacillus acnes" was the cause of all the lesions of acne. In all of his cases, he found it in smears, and in 30 per cent. of his cases he was able to grow it.

At the present time, the weight of opinion seems to favor the views of Sabouraud, Whitfield and others that the so-called acne bacillus is the cause of the comedo, while pyogenic staphylococci are responsible for the pustulation. Some doubt that the acne bacillus is pathogenic, Macleod [40] stating that "he was not convinced that the acne bacillus was the cause of the comedo and that it was not simply an organism that found a suitable soil in the sebaceous plug."

Whatever may be the relationship of these organisms to acne, the question of their therapeutic value in the form of vaccines is a matter to be decided by experience. It was early found that the estimation of the opsonic index was unnecessary as a routine procedure. It has also been accepted by the majority that there is little or no difference in efficiency between stock and autogenous vaccines.

From 1909 to 1913, the vaccine treatment of acne occasioned very considerable interest and was given an extensive trial, especially in England and the United States. Until recently, I had supposed that the interest in this subject had largely ceased and that the use of vaccines in acne was now rather infrequent. My attention was directed to the fact that vaccines are still largely used by the general practitioner, at least, from the widely circulated advertisements of certain manufacturers. I was also impressed by statements of patients who had previously received vaccine treatment without benefit. As a result of such statements, in addition to unfavorable opinions of some of my colleagues and some early work of my own, I became decidedly prejudiced against the use of vaccines in acne. To ascertain whether my prejudices were unfounded, the literature has been reviewed and opinions have been requested from dermatologic colleagues, which will shortly be quoted.

14. Rudis-Jicinsky, J.: The Treatment of Acne by Roentgen Rays, Am. J. Dermat. **12**: 55 (Feb.) 1908.
15. Fisher, M. K.: Roentgenotherapy in Acne: A Report of Twenty-One Cases, New York M. J. **96**: 70 (July 13) 1912.
16. Thedering: Ueber die Strahlenbehandlung der Acne vulgaris, Strahlentherapie, **1**: 557, 1912.
17. Dösseker: Die Roentgenstrahlen Behandlung der Acne vulgaris, Therap. Monatsh. **29**: 440 (Aug.) 1915.
18. Lain, E. S.: Radiant Energy in the Treatment of Diseases of the Skin, J. A. M. A. **65**: 1892 (Nov. 27) 1915.
19. Foster, B.: Results of Excessive X-Ray Dosage in the Treatment of Acne, J. Cutan. Dis. **27**: 75 (Feb.) 1909.
20. Sherwell, S.: Results of X-Ray Treatment for Acne, J. Cutan. Dis. **29**: 387 (July) 1911.
21. LeFevre, W. J.: The Roentgen Ray Treatment of Acne; A Résumé of Fourteen Years' Experience, Ohio M. J. **13**: 87 (Feb.) 1917.
22. Hazen, H. H.: The Roentgen-Ray Treatment of Acne Vulgaris, J. A. M. A. **69**: 977 (Sept. 22) 1917.
23. Boggs, R. H.: The Treatment of Acne by the Roentgen Ray, Urol. & Cutan. Rev. **22**: 325, 1918.
24. Semon, H. C.: The X-Ray Treatment of Acne Vulgaris, Brit. M. J. **1**: 701 (May 22) 1920.
25. Highman, W. J.: The Modern Treatment of Acne, New York M. J. **113**: 137 (Jan. 22) 1921.
26. Remer, J., and Witherbee, W. D.: X-Ray Treatment of Acne Vulgaris, M. Rec. **99**: 482 (March) 1921.
27. Michael, J. C.: The Use of Roentgen-Ray Treatment in Commoner Dermatoses, Texas State J. Med. **17**: 256 (Sept.) 1921.
28. Simpson, C. A.: X-Ray in Dermatology, Virginia M. Semimonth. **49**: 122 (June) 1922.
29. Reed, E. W.: X-Rays in Diseases of the Skin, Brit. M. J. **2**: 559 (Sept. 23) 1922.
30. Jacoby, R.: Roentgen-Ray Treatment of Acne Vulgaris, Boston M. & S. J. **187**: 793 (Nov. 30) 1922.
31. Hazen, H. H., and Eichenlaub, F. J.: The Roentgen-Ray Treatment of Acne Vulgaris, Arch. Dermat. & Syph. **4**: 671 (Nov.) 1921.
32. Pusey, W. A.: The Principles and Practice of Dermatology, Ed. 3, New York, D. Appleton & Company, 1917.
33. Davis, Haldin: Skin Diseases in General Practice, London, Henry Frowd, 1921.
34. McKenna, R. W.: Diseases of the Skin and Manual for Students and Practitioners, London, Baillierc, Tyndall and Cox, 1923.
35. Brocq, L.: Précis-Atlas de pratique dermatologique, Paris, Octave Doin, 1921.
36. Hartzell, M. B.: Diseases of the Skin, Ed. 2, Philadelphia, J. B. Lippincott Company, 1919.
37. Ormsby, O. S.: Diseases of the Skin, Ed. 2, Philadelphia, Lea & Febiger, 1921.
38. Schamberg, J. F.: Diseases of the Skin and Eruptive Fevers, Ed. 4, Philadelphia, W. B. Saunders Company, 1921.
39. Macleod, J. M. H.: Diseases of the Skin, New York, Paul B. Hoeber, 1921.
40. Macleod, J. M. H.: Tr. XVII Internat. Cong. Med., 1913, p. 422.

My personal experience has been chiefly confined to the use of acne bacillus vaccines, administered, as far as possible, in accordance with the suggestions given by Engman.[41] The results in a reasonably large series of cases were not sufficiently good, in my opinion, to warrant the continuance of this treatment. The work was done shortly after the appearance of Engman's communication in 1910, though the records, unfortunately, were not preserved.

During the last few years, I have made it a point to question every patient suffering from acne in regard to former treatment with vaccines or "serum," as such treatment is frequently characterized. There were sixty-four who had previously received such treatment, of whom forty-nine stated that no improvement had resulted; ten thought that there was a temporary improvement, while five considered that the eruption had been made worse by the vaccines. Twelve patients had received an average of thirteen injections, while another had been given three courses of about twenty injections each, by different physicians. From the statements of these sixty-four patients, it is, of course, impossible to obtain any idea regarding the type of vaccine that was administered or of the technic that was used. The information is merely included for what it may be worth.

In the literature on vaccine therapy in acne vulgaris, the names of Whitfield in England and Gilchrist and Engman in America stand out prominently among the pioneer workers. Engman, in 1910, wrote that "the treatment of acne vulgaris with suspensions of acne bacillus has proven in our hands the most brilliant therapeutic agent we have yet seen in dermatology." He described in detail the method he had used, the success of which, in his opinion, depended on the size and interval of dosage.

Lovejoy[42] used vaccines in a series of fifty cases, and concluded that the results were fully as satisfactory with stock as with autogenous vaccines. Smiley[43] reported the results of treatment in 100 cases by autogenous vaccines, stating that 92 per cent. of his cases had been cured. "The results," he wrote, "are so uniformly good that where one can control the patient, a cure can be promised in every case." He also said that the vaccine cures the constipation, headache, malaise and the nervous irritable disposition, and added that "the musculature of the skin regains its normal tone and color"—certainly a remarkable result to be obtained by any therapeutic agent.

Potter[44] thought that the results obtained by autogenous vaccines were "uniformly good, in many instances even brilliant." He also added that "acne vulgaris is not always amenable to vaccine therapy, often requiring much care and persistence before a cure can be obtained." Galbraith[45] said, in regard to the treatment of patients with acne, "A great majority can be greatly benefited and a fair proportion cured." He further stated that "the duration of treatment extends from three to five months in the milder cases, from six to twelve months in the severe forms."

In a review of the subject, Morris and Dore[46] state that as the result of an extensive use of vaccines in acne, they "have been compelled to form a very qualified estimate of their value. Our experience certainly does not warrant us in advising their employment as a routine form of treatment." They consider that vaccines should be "reserved for carefully selected cases," and add that there is a tendency to relapse, and that it is usually necessary to continue treatment for a long time and to "reinforce it with other measures."

At the International Congress of Medicine in 1913, vaccine therapy was a subject of special discussion before the Section on Dermatology. Whitfield[47] regarded vaccine treatment in acne as a useful adjunct to other therapeutic measures, and also said, "I have found that a great number of cases will not yield to it alone." Gilchrist[48] stated that "vaccine therapy has proved to be of great value in the treatment of acne." Lassueur,[49] at the same meeting, reported on the treatment of eighty-seven cases, saying that vaccine therapy "gives at times very pretty [*très beaux*] results, most often a temporary amelioration." Macleod, in the discussion, stated that a certain number of cases of acne had been treated in his clinic solely by vaccines, while in others local treatment, in addition, had been used. "By far the best results," he thought, "were obtained in the latter group of cases, and it seemed to him as if the benefits were largely due to the local treatment."

Auner,[50] in a recent report, says, in regard to acne vaccines, "Our experience has proved so supremely disappointing that I have practically abandoned its use in the disorder." Engman,[51] in a recent communication (1921), writes in a less enthusiastic vein than before, considering that the specific effects of the vaccines are best seen in the indurated and cystic types, while they have less effect on the more superficial forms of the disease.

Among authors of recent textbooks on dermatology, Darier[52] says, "my own experience with vaccines has not been very favorable," while both Sutton[53] and Schamberg state that their results in general have been "disappointing." Sequeira[54] says that vaccines may sometimes prove of value in chronic cases, while Stelwagon[55] has employed this agent as an adjuvant in some "extreme or persistent cases." Thibierge and Legrain[56] state that "staphylococcic vaccines, especially autogenous vaccines, are equally able to arrest the development and prevent recurrence of the larger pustular lesions, but have no effect on the majority of cases of ordinary pustular acne." Finally, Pusey says, "In most hands, I think, the treatment is a failure. After long use of vaccines in acne, I have discarded them as useless in my experience."

In an attempt to learn the opinions of some representative dermatologists at the present time in regard to

41. Engman, M. F.: Treatment of Acne Vulgaris with Acne Bacillus Suspensions, Interstate M. J. **17**: 943 (Dec.) 1910.
42. Lovejoy, E. D.: Treatment of Acne with Stock and Autogenous Acne Bacillus Vaccines, Am. J. M. Sc. **143**: 693 (May) 1912.
43. Smiley, Orvall: Acne Vulgaris Treated by Autogenous Vaccines: Report of One Hundred Cases and Method of Procedure, J. A. M. A. **58**: 1274 (April 27) 1912.
44. Potter, A.: The Treatment of Acne Vulgaris by Autogenous Vaccines, Long Island M. J. **6**: 396 (Oct.) 1912.
45. Galbraith, T.: The Vaccine Treatment of Acne and Allied Conditions, Practitioner, London **89**: 370 (Sept.) 1912.
46. Morris, M., and Dore, E.: The Treatment of Acne by Vaccines. Brit. J. Dermat. **23**: 311 (Oct.) 1911.
47. Whitfield, A.: The Vaccine Treatment of Skin Diseases, Tr. XVII Internat. Cong. Med. Sect. **13**, Part 1, 1917, p. 193.
48. Gilchrist, T. C.: Vaccine Therapy as Applied to Cutaneous Diseases, Tr. XVII Internat. Cong. Med., Part 2, 1913, p. 405.
49. Lassueur, A.: Tr. XVII Internat. Cong. Med., Part 2, 1913, p. 420.
50. Auner, J. F.: Some Suggestions in the Treatment of Acne, J. Iowa State M. S. **11**: 173 (May) 1921.
51. Engman, M. F.: Acne Vaccine Therapy, J. A. M. A. **76**: 176 (Jan. 15) 1921.
52. Darier, J.: A Textbook of Dermatology, Pollitzer, Ed., Philadelphia, Lea and Febiger, 1920.
53. Sutton, R. L.: Diseases of the Skin, Ed. 4, St. Louis, C. V. Mosby Company, 1921.
54. Sequeira, J. H.: Diseases of the Skin, Ed. 3, Philadelphia, P Blakiston's Son & Co., 1919.
55. Stelwagon, H. W.: Diseases of the Skin, Ed. 9 (Gaskill), Philadelphia, W. B. Saunders Company, 1921.
56. Thibierge, G., and Legrain, P.: Précis de therapeutique des maladies de la peau, Paris, Gaston Doin, 1922.

the vaccine treatment of acne, a questionnaire was recently sent to the members of the American Dermatological Association. Of the seventy-nine members to whom letters were sent, seventy-one replied, including Drs. H. E. Alderson, A. P. Biddle, A. W. Brayton, F. S. Burns, John Butler, R. B. Carmichael, E. D. Chipman, H. N. Cole, W. H. Corlett, G. D. Culver, C. N. Davis, R. H. Davis, C. C. Dennie, J. A. Elliott, M. F. Engman, O. H. Foerster, J. A. Fordyce, H. K. Gaskill, Herman Goldenberg, Joseph Grindon, W. H. Guy, Marcus Haase, M. B. Hartzell, H. H. Hazen, W. J. Highman, H. G. Irvine, R. C. Jamieson, L. W. Ketron, Jerome Kingsbury, J. V. Klauder, F. C. Knowles, J. E. Lane, David Lieberthal, E. D. Lovejoy, E. L. McEwen, G. M. MacKee, A. J. Markley, J. H. Mitchell, D. W. Montgomery, W. H. Mook, Howard Morrow, L. B. Mount, E. L. Oliver, O. S. Ormsby, L. C. Pardee, Sigmund Pollitzer, W. A. Pusey, Augustus Ravogli, Isadore Rosen, E. W. Ruggles, Alfred Schalek, J. F. Schamberg, H. J. Schwartz, F. E. Senear, C. Morton Smith, D. King Smith, A. W. Stillians, J. H. Stokes, R. L. Sutton, Samuel Sweitzer, H. P. Towle, H. R. Varney, H. J. F. Wallhauser, Ludwig Weiss, G. W. Wende, C. J. White, H. H. Whitehouse, U. J. Wile, C. M. Williams, J. M. Winfield and Fred Wise.

Two questions were asked regarding "acne bacillus vaccines," and two regarding "mixed vaccines" (of acne bacillus and *Staphylococcus albus, aureus,* etc.). Each correspondent was asked whether he had used these agents and whether he considered them to be of great value, of some value or of no value. In reply, sixty-two stated that they had used acne bacillus vaccines, of whom two considered them of great value, thirty of some and thirty of no value. The mixed vaccines had been used by sixty-three of my correspondents, of whom five had found them of great, forty-two of some, and sixteen of no value. According to these figures, a trifle over 50 per cent. found the acne bacillus vaccines of more or less value, while 75 per cent. gave similar answers regarding mixed vaccines.

That these statistics are much less favorable to vaccine therapy in acne than they appear is evident from the qualifying statements that were made under a column in the questionnaire for remarks. Of the two correspondents who thought acne bacillus vaccines of great value, the qualifying clause, "in certain cases," was added, while it was also remarked by one that he had obtained "no results from the mixed vaccines." Of the five who considered mixed vaccines of great value, qualifying statements were again made, such as, "in certain instances," "in 30 per cent. of acne simplex and indurata," and "in chronic indurated types."

The remarks of those who considered either one or both types of "some" value were even more qualified. Many evidently hesitated to condemn them absolutely by answering "no" value, though their opinions of these vaccines were evidently not very flattering. Of the forty-two correspondents who considered the vaccines of some value, four had entirely, and one "practically," given up their use. Three considered them of "very slight value," one adding that his remarks about them were "not fit to print." Vaccines were considered of temporary value by three, while five of my correspondents found them "disappointing." Adding these obviously unfavorable opinions to the fifteen who answered "no value," the figures would show a total of 50 per cent. who evidently had a poor opinion of vaccine therapy in acne.

Of the remaining correspondents, seventeen considered vaccines to be of some value in certain selected cases, particularly of the pustular type, while six considered them of some value as an adjuvant to other forms of treatment. Of those who thought that there was no value in either type of vaccines in acne, the majority had given them a thorough trial before discontinuing their use.

SUMMARY AND CONCLUSIONS

The roentgen ray has now been used for many years in the treatment of acne. While its therapeutic value in this disease was early recognized, its dangers were also soon apparent. Good results were possible to obtain even with the old unmeasured technic, when used by men of special skill. Since the introduction of accurate methods of measurement, the technic has been greatly simplified. In the hands of a careful operator, using modern apparatus and measured dosage, the roentgen ray is now as safe as it is efficient. The results in the treatment of acne are more permanent than with any other therapeutic agent.

The introduction of vaccine therapy in acne occasioned considerable enthusiasm for a period of years. After an extensive trial of this method, the majority of dermatologists have either wholly or partly given up its use. Good results have undoubtedly been obtained by a few investigators after patient efforts with special technic. In the hands of the majority, the results in general have been unsatisfactory. The weight of opinion is that mixed vaccines (of both acne bacillus and staphylococcus) are of more value than those of acne bacillus alone. Stock and autogenous vaccines are considered by the majority to be of equal efficiency. Whatever value these vaccines may possess is restricted to their use in selected cases, chiefly of the pustular type, or as an adjuvant to other methods of treatment. The action of vaccines is slow, and improvement is often temporary. In the treatment of acne vulgaris, the roentgen ray is far superior to vaccines.

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ABSTRACT OF DISCUSSION

DR. ERNEST DWIGHT CHIPMAN, San Francisco: In any consideration of the treatment of acne, our first concern is with the primitive lesion, and that is the blackhead. The blackhead results from one or two causes: (1) an excessive activity in the sebaceous glands, and (2) a faulty distribution in the product of the gland. The cause, therefore, may be overproduction or faulty distribution. In many cases we shall get satisfactory results by local treatment directed toward the distribution or the carrying away through good drainage of the products of sebaceous activity. That is partially accomplished by the use of strong soaps through their keratolytic action. Subsequently we use sulphur and resorcin for their further keratolytic effect as well as for their specific action on the sebaceous glands. There are cases that resist this local treatment, and we are then confronted with the problem of what we shall use next. We may consider the roentgen ray or vaccines. In answer to Dr. Fox's questionnaire, I told him that I had abandoned the use of vaccines. I have had no results whatever from the use of plain acne vaccines, and I believe that the results obtained from the mixed vaccine could have been obtained by simpler methods. I agree with Dr. Fox entirely as to the superiority of the roentgen ray over vaccine therapy. I do believe, however, that in the simpler cases we are safer in trying first the more simple direct topical applications. Failing in that, I believe we should attack the ultimate production by causing an atrophy of the sebaceous glands through the use of the roentgen ray.

Dr. Fred Wise, New York: The treatment of acne by vaccines and other methods has so many angles, and the disease has so many vagaries in different cases, that in the short time Dr. Fox had for his paper there was not time to go into detail as to any form of treatment, except to decry the use of vaccines and to laud the use of the roentgen ray. The use of vaccines has been attended with more or less unsatisfactory results because different men have used different vaccines. There is no question that the use of acne vaccine alone in the hands of most dermatologists is of no value whatever; but the question arises, What effect do we get when we use vaccine together with the other necessary factors required in the obstinate cases of acne? I am not so pessimistic about the use of vaccines as is Dr. Fox. I reserve their use for those cases which the roentgen ray will not cure after a certain number of exposures. Let us say that a patient receives fifteen roentgen-ray treatments at proper intervals, and that the acne still persists. It may be pustular, or the blackhead may be the chief offender. In those cases the use of staphylococcus and colon bacillus vaccine does give good results. The factors of interest are these: Is the patient's general health good? We can use vaccines in patients with gastro-intestinal disturbances without effect until the constitutional disturbance is relieved. Then there is the question, How long should the patient continue taking the vaccine? That is a point that even those with great experience in the use of vaccines have not decided definitely. There are dermatologists and others in New York who limit themselves to a dozen doses, and others give up to 100 doses, so that the important point is that vaccines are useless remedies in some cases; but in the obstinate cases, when it is dangerous to continue the use of the roentgen ray until complete atrophy has taken place, it is advisable to use a combination of staphylococcus and colon bacillus vaccine and to continue it for at least three months before the case is regarded as being intractable.

Dr. Samuel Ayres, Jr., Los Angeles: I would not have objection to submitting my face to roentgen-ray therapy for acne in the hands of a competent man, such as Dr. Fox, but I should hesitate to submit to the treatment in the hands of the usual radiotherapist or physician, and I think it is well to call attention to that fact, especially if we are advocating the roentgen ray for the treatment of ordinary, benign skin conditions. Many patients do not necessarily consult dermatologists but general practitioners and radiologists, and when they demand this treatment, it is usually given them, and often it is not given properly. The results are rather disappointing, and are bad for the practice of medicine in general. It is not uncommon to see the unsatisfactory results from such treatment of ordinary cutaneous conditions. I have seen three cases of permanent alopecia in children who had received roentgen therapy for ringworm of the scalp; contracture of the hand from the treatment of eczema; a patient who still had active acne vulgaris in addition to loss of lanugo hair, who had received intermittent roentgen-ray treatments during a period of two years by a very competent dermatologist in the East, and a case of incontinence of feces due to radiodermatitis in the treatment of pruritus ani. Such cases are numerous, and we should put in a word of caution and conservatism. If the work is done by only competent dermatologists with sufficient experience, it is all right; but in advocating this treatment we must remember that the patients will learn to demand it and that the great majority will not be treated by experts. I have obtained excellent results through the use of the quartz light. I know that statements have been made that the results obtained by this method are only temporary; but in several cases which I have followed for two years at least, the results are good. Another thing we should do in the treatment of acne is to consider the cause. The acne does not develop without a cause, and one of the frequent contributory causes is disturbance in digestion, sometimes due to excessive sugar intake, and we should remedy that. Possibly the endocrine system is at fault. I should like to know how long Dr. Fox has been able to follow his cases in regard to the development of radiodermatitis, and whether there has been any development of this in a period of two, three or four years.

Dr. William H. Guy, Pittsburgh: I subscribe in toto to the remarks Dr. Fox made. A notable feature in the discussion of such a paper as this is the lack of adverse criticism by any one who has the equipment and training necessary for the proper administration of the roentgen ray. Scarring has been mentioned as a contraindication for this treatment, but I am convinced that it is the result of the disease and not of the treatment. I have repeatedly seen both treated and untreated patients with unsightly scarring. In these cases, the ultraviolet light does some good in smoothing out the scars left after the clearing of the acne, regardless of the method used. In this work we use very heavy dosage with the production of a severe dermatitis, and this is repeated at intervals of two or three weeks. I think that the roentgen ray is the best remedy we have at the present time in the treatment of acne, in competent hands, and that nothing can take its place. It is surprising that the more severe and aggravated the disorder, the more readily it heals. The cases that respond less readily are the mild cases with comparatively few lesions. This type of case I treat with some other form of therapy. I think that in most cases the roentgen ray is definitely indicated and the most valuable therapeutic agent we have.

Dr. Moses Scholtz, Los Angeles: It must be granted that roentgen-ray treatment is much more efficient and reliable than vaccine in acne. Yet I am not ready to subscribe to the idea that the roentgen ray is to be used in every case of acne. Roentgen ray cures acne skin lesions rather than acne itself. The man using the roentgen ray should not fail to remember that acne is a systemic, metabolic or possibly endocrine disorder and not merely a local lesion. As to the safety of the roentgen ray, even though the idea of idiosyncrasy is disregarded with the modern precise technic, the individual actinic hypersensitiveness is still assumed by many, and the possibility of a delayed reaction is always there. As to the permanence of the effect of roentgen-ray therapy, it depends entirely on the dosage given. The nearer we approach the danger zone, the longer the improvement will last. Recently I saw one of the worst cases of acne recurrence in a physician's son who was treated with the roentgen ray only a few months before by the foremost radiologist of Los Angeles. Should we treat this young man with the roentgen ray on each recurrence of the disorder? I believe that roentgen-ray treatment should be reserved for the unusually stubborn and aggravated cases of acne. Many cases of acne respond to the old fashioned treatment of sulphur ointment, green soap and diet, mentioned by Dr. Chipman. We all had experience with splendid therapeutic effects of the ultraviolet light in acne, and I see no reason for using the roentgen ray in every case of acne that may respond to other simpler and safer therapeutic agents. I am afraid that by broadcasting a notion that roentgen-ray treatment of acne is a safe and simple procedure would do more harm than good by encouraging many dermatologically incompetent men to treat acne skin lesions instead of treating the patient as a whole.

Dr. J. C. Pickett, San Francisco: In the treatment of acne, when the skin is very oily, I find that oronite removes the oil with no irritation to the skin. Oronite is a high proof gasoline used as priming spirits for aeroplane motors.

Dr. Thomas W. Ross, Portland, Ore.: I have had not a few years' experience with the roentgen therapy in acne. Patients I treated ten years ago I see frequently on the street and can judge of the permanence of cure. I think that with the roentgen ray alone most cases of acne can be cured absolutely. I am not like the men in the large cities who seldom see their patients three or four years after they finish the treatment, for I meet mine very often in a nonprofessional way.

Dr. Harry E. Alderson, San Francisco: There are many methods of treating acne, particularly when the underlying conditions are taken care of. I use the roentgen ray and, as a rule, I am satisfied with it; but occasionally I have cases in which the pustules are localized, and I feel that in those cases the vaccines are justified. I use a polyvalent staphylococcus vaccine, made from thirty or more strains of

the staphylococcus, and do not continue its use long. Since fat solvents have been mentioned in the discussion, I should like to call attention to carbon tetrachlorid, which I have been using a good deal.

DR. EARL D. CRUTCHFIELD, Galveston, Texas: In looking over the results in a series of about 200 cases of acne, it seems that 97 per cent. of them responded to roentgen-ray therapy, without any sequelae. If Dr. Fox had given the technic he would have laid down a premise which would have prevented a good deal of the criticism of the method. The treatment requires a Coolidge tube and an accurate knowledge of definitely adjusted tubes. Of course, the roentgen-ray treatment given by poorly adjusted tubes and improperly applied is likely to give poor results; but this, I think, does not enter into the consideration of the treatment of acne by roentgen-ray therapy at this time. In the few cases that did not respond well to this treatment, vaccines have been of some service, not for the acne itself but for the pustular element involved; and one form has apparently been as good as the other. The typhoid vaccine has been as efficacious in a small series as has the staphylococcus vaccine or other vaccines. The anaphylactic shock seems to be the principal point from which results are obtained.

DR. F. A. BUTLER, San Diego, Calif.: In cases of pustular acne we must puncture the pustules and get the contents out of them, and after that almost any kind of treatment will prove successful. If we see a case of pustular acne all over the face, or anywhere else, the first step is to get the contents out by puncturing the pustule, and then compressing gently to prevent traumatizing the surrounding parts. Correct constitutional treatment is imperative in many of these cases, if not all.

DR. JESSE ETTELSON, Portland, Ore.: When I left the Vanderbilt Clinic I thought the roentgen ray was the treatment *par excellence* for acne. Later I found there were certain types of cases, particularly the pustular type, which, it seemed to me, at times were made worse by the roentgen ray. When I was East again, I asked about this and was told that I was mistaken; but in reading MacKee's book I found that he speaks of two or three cases in which the roentgen ray made pustular acne worse. Dr. Engman of St. Louis said he had very good results from vaccines. After returning to Portland, I first tried vaccine in all the cases of pustular acne and in the cases in which I have used the colon and staphylococcus vaccine to reduce the pustulation, and have then gone on and treated them with the roentgen ray, using the MacKee-Riemer method, I have had excellent results.

DR. HOWARD FOX, New York: In the time allotted for reading this paper, some aspects of the subject were necessarily omitted. Although I have used the roentgen ray in the treatment of skin diseases for the last nineteen years, it is only by means of modern apparatus and measured technic that my results have been reliable. With the old unmeasured technic (with gas tubes, etc.) it was possible to obtain good results, but treatment was always attended with dangerous possibilities. In regard to telangiectasia in acne, this has not occurred in a single case in the last seven and a half years, during which time I have used a measured dosage. Many of my patients have been followed for three or more years. I wish to emphasize the fact that I do not advocate the roentgen ray as a routine treatment for all cases of acne. There are certainly some mild cases that can be cured by various other simpler methods. These other methods were not discussed in this paper, which was confined to the subject of roentgen-ray and vaccine therapy. Regarding the question of scarring, it is most advisable to warn every patient that scars are liable to be present after the disappearance of the eruption and are not due to treatment but to the disease itself. We see scarring in many persons who suffered from acne but who have never been treated by the roentgen ray. In regard to curing acne by simply opening pustules, while this relieves symptoms it does not eradicate the essential feature of the disease, which is the formation of comedoes. In my opinion, vaccines also fail to do this.

PREVENTIVE MEDICINE PROBLEMS PECULIAR TO THE PACIFIC COAST *

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Health problems all over the United States are similar, but in different areas the magnitude of the problems vary to a considerable degree.

Malaria, for instance, a real problem in the South, is not one in the Northwest. Botulism, there almost an unknown disease, is the subject of continuous investigation in the West.

It is well known that the virulence of the ordinary communicable diseases varies in different sections, and it is possible that individuals living in a certain environment may have an increased resistance to these diseases that they would not possess if they lived elsewhere. I have been asked many times why the mortality rate in communicable diseases is so low in the Northwest. It is not because of acquired immunity, as the slums and excessive crowding of the East are not in evidence.

It is true that the Western people, having come largely from the older sections of the United States, where they learned the value of quarantine regulations, are apt to observe them fairly well and so prevent a certain amount of contagion. But the resistance to disease gained by the abundance of fresh air, the life outdoors in all seasons of the year, and a climate which in the Northwest has been scientifically determined by Webber to be the most healthful to live in, I believe may be considered as one of the most important factors in keeping the mortality rate from communicable diseases so low.

The preventive medicine program on the Pacific Coast embraces, of course, the same methods in the control of disease as are employed in other sections of the country. Most of the communicable diseases are handled in the usual manner, although in some instances the activities are quite different. Some of these activities, together with certain problems that are peculiar to the West, I shall briefly discuss.

ENTERIC DISEASE IN IRRIGATION DISTRICTS

A vast area of land is served by irrigation systems, and the inhabitants depend on ditch water pumped into cisterns for drinking and culinary purposes. In one valley alone it is estimated that 25,000 people have no other water supply. Typhoid and paratyphoid exist here, but are not prevalent. A severe form of enterocolitis, however, is very common. The residents in this area are wont to consider it the normal thing to have diarrhea some time during the summer, and, being more or less immune, they are not seriously disturbed, as a rule. But the berry and apple pickers, who come from other sections, often become quite ill until a certain amount of immunity appears to be established. On the other hand, infants and children seem to have little resistance to the infection, and too many deaths have resulted from this cause.

The investigation of this disease is still incomplete. It is not typhoid or paratyphoid A or B. Neither the Ameba nor the Shiga bacillus has been found. Undoubtedly the disease is an intermediate type in the enteric group, and it is hoped that further investiga-

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tion will enable us to classify it properly. In the meantime, the ordinary sanitary measures and an educational campaign insisting on the proper chlorination of cistern water is being carried on in an endeavor to control the infection.

GOITER

Of simple goiter, only a word can be said. Although prevalent in well-known localities served by water supplies deficient in iodin, no effort has as yet been made to remedy this deficiency. In the near future it is expected that one of the large cities in Washington will treat its water supply with sodium iodid with the hope of demonstrating its value in eliminating goiter from the community.

In passing, I wish to state that in one city there has been a marked diminution in the incidence of goiter since its water supply has been properly chlorinated. This being the case, a further line of investigation is suggested in the use of the halogen group.

TULAREMIA

Rocky Mountain tick fever, tick paralysis and botulism are among our special problems, but time does not permit me to discuss them. Tularemia, however, is a disease which I believe should be given especial attention. First discovered in ground squirrels in California, then in rabbits and man in Utah, it is now suspected to exist in Washington, Wyoming, Idaho, Colorado, Indiana, Ohio, North Carolina and Tennessee.

Tularemia, as defined by Dr. Francis of the United States Public Health Service, "is a specific infectious disease due to *Bacterium tularense* and is transmitted from rodents to man by the bite of an infected blood-sucking insect or by the handling and dissecting of infected rodents by market men or laboratory workers." The disease in man is most commonly found in rural districts where rodents are dying from this plaguelike disease. The blood-sucking insect carries the infection from the sick or dying host and transmits it to the human being, ordinarily by biting exposed parts. The organism is so virulent, however, that those who handle the diseased animal are prone to infection, as is evidenced by the report of six cases occurring in Public Health Service laboratories—four, in fact, in the Hygienic Laboratory at Washington, D. C.

The onset of the disease is sudden, following soon after the transmission of the infection. There is fever of the septic type, and pains are severe throughout the body. The patient is prostrated. Lymph glands draining the area of inoculation become swollen and suppurate, and incision is usually required.

The disease lasts from three to six weeks, and convalescence is slow. The first known case to terminate fatally was reported in 1919. It has been proved that the disease is transmitted by the blood-sucking fly, of the species *Chrysops discabis,* the rabbit louse, the bedbug and the mouse louse.

The importance of emphasizing this disease is due to the fact that it may have a wider distribution than is at present known, and that it may not be recognized when a severe infection is encountered. In fact, seven rabbits dead of tularemia have been discovered in the markets at Washington, D. C.

In the Northwest, however, a further problem has recently developed. We have reports of a number of cases of severe infection resulting from tick bites in the state of Washington. The symptoms given conform to those of tularemia. Unfortunately, the causative organism was not identified. It is our hope, however, that further investigation in the state laboratory will allow a positive statement to be made that the tick is another insect that may transmit tularemia. Furthermore, if physicians will bear in mind that a severe infection with suppurating glands may be a case of tularemia, and if each suspected case is reported promptly to the health officials, the epidemiologic work will be greatly benefited.

ORIENTAL DISEASES

Another problem, which particularly concerns the health authorities on this coast, is one of Oriental diseases—hookworm, Japanese liver fluke, amebic dysentery and plague have entered the country through our ports. Not one of these diseases, however, has yet become a menace to our population, with the exception of plague.

Cases of hookworm disease that have appeared have not communicated the infection to any extent; the cases of Japanese fluke are isolated; amebic dysentery may be gaining a foothold, as evidenced by twenty-four cases reported by the Virginia Mason Hospital in Seattle last year.

Plague, however, is a real menace, particularly in California. Dr. Dickie reports that infected ground squirrels were found in nine counties of the state in 1920. Two human cases occurred in San Benito County in 1921, and one case in Alameda County and one in Santa Cruz County in 1922.

Undoubtedly a wide area of California harbors plague-infected rodents, and although the Public Health Service and the California State Health Department have succeeded in controlling the situation in a measure, a real danger exists, not only to the rural population, where the rodents are chiefly found, but to the larger centers of population as well if energetic eradication methods are not persistently pursued. Unfortunately, this work depends on the amount of funds appropriated for the purpose, and only a sufficient amount has so far been available to keep the existing foci under a reasonable degree of control.

Additional foci must be continually guarded against by protective measures at all our ports. Unfortunately, no method has as yet been devised that does not permit of a certain number of rats reaching our shores from the ships at the docks. The United States Public Health Service, in fumigating ships, reduces the danger to a marked degree; and the protective appliances on hawsers aid. But, in spite of these efforts, Oriental rats take up their abode in our seaports, and a plague-infected rodent with its fleas may be among the number at any time.

As Seattle and San Francisco have been visited with human plague, methods for eradication of rats are employed by these municipalities. No adequate measures are enforced by other ports, chiefly on account of lack of funds, and we can only hope that no more foci will appear.

The United States Public Health Service prevents many cases of Oriental disease from entering our country by a thorough examination of the crews of ships and the steerage passengers. Those found infected are either detained till cured or are deported. The cabin passengers, and Orientals who prove they are American citizens, are usually only inspected, and so a number of diseased individuals escape detection.

THE ORIENTAL AMERICAN CITIZEN

The Oriental American citizen we have noticed at the immigration station, and at times we find he cannot speak a word of English. He presents a problem in vital statistics which I wish to touch on. First, allow me to call attention to the fact that the Japanese birth rate on the Pacific Coast is approximately three and a half times greater than the white rate per thousand of population, and if the rate is reckoned per thousand married women of child bearing age, it is slightly more than three times as great.

In investigating this high Japanese rate in the state of Washington, it was believed that the rate was higher than it should be even for so prolific a race. It seemed that there might have been an error in taking the census, or perhaps a certain number of the birth certificates might be false certificates. At first thought, one might wonder why a birth certificate should be falsified; but if it were desired to make a foreign-born child an American citizen this might be done by merely filing a birth certificate for the child with the Vital Statistics Bureau, giving the place of birth as some locality within the state. No investigation of the supposed birth is made, and the law is satisfied. Furthermore, a certified copy of the birth certificate may be obtained and sent to the foreign country where the child may really have been born and there be cherished. In the course of time the child may reach this country and be admitted as an American citizen, the certificate of birth being sufficient. There is no proof that any Japanese or any other foreigner has attempted this method of gaining American citizenship for a foreign-born child, but I believe that our laws should be amended so that the suggested procedure would be impossible. I hope to introduce in our next legislature an amendment to the vital statistics law which will provide that the baby's palm and finger prints of both hands or the foot prints be placed on the birth certificate of every child born of parents who are not American citizens; in addition, it may be wise to include the finger prints of the mother in these requirements.

CULTS

Finally, to consider for a moment the effect of cults on vital statistics. In each of the Pacific Coast states the drugless healers, for instance, chiropractors and sanipractors, are permitted by law to sign death certificates. In order that our statistics may be as accurate as possible, it is necessary to investigate each cause of death as given by these practitioners. At times our investigation is unavoidably delayed. In one instance, for example, the source of twenty-four cases of diphtheria was not discovered until a cause of death given as pneumonia was investigated. Occasionally it is felt that more accurate information may be obtained by sending the ordinary query form to the practitioner. To what extent we are enlightened may be judged by the following returns: A sanipractor gave as the cause of death, "acute indigestion and gases of stomach pressing against heart." Query elicited the following: Primary: "Degeneration of accelerator nerve of the heart." Contributory: "Acute dilitation."

A chiropractor sent in this: Primary: "Dropsy and complications." Contributory: "Heart falior." What test confirmed diagnosis? *"Urinalasis."* The response to the query was this: "Regards further information Pertaining to the partie herein mentioned. Would say. Being a graduate Chiropractor I shall have to give it from a Chriropractic Standpont viz; The real cause of the diseased conditions mentioned were due to subluxation's of the seccond. Sixth. and Twelfth Dorsal Vertebra, Thereby impairing the normal flow of Vital energy to the parts supplied by these nerves thus creating a weakened condition of the tisue involved and thereby developing the diseased conditions mentioned."

For a cause of death given by the same man as "Chronic Soar throat and complications." Contributary: "Heart Disease," the same reply was given except that the "Subluxation's" were of the "Sixth Cervical and the Seccond-ninth and Eleventh Dorsal Vertebra." Our investigation proved that the cause of death was actually chronic endocarditis.

From such instances as these we are all too often reminded of the ignorance of this class of practitioner. While admitting that the cults cannot do the medical profession any harm, I believe that from a public health standpoint people should be protected from such ignorant and incompetent persons who attempt to practice the healing art. It is unquestionably our duty to protect people from communicable disease, and it is no less our duty to protect them from preventable injury and premature death. Medical cults based on some theory or other will exist as long as the world endures. When one dies, another will take its place. Therefore, to perform our duty to our people we should see to it that every person who desires to practice the science and art of healing shall be required to pass the same examinations in fundamental subjects before a license to practice is obtained. The details of this scheme are not impossible of arrangement, and the necessary amendments to laws can be passed. We may remove the menace of the cult if we will, and with the menace removed the cult may flourish if it can. In Washington we hope to solve the problem at our next legislature.

CONCLUSION

It has been possible only to summarize the subjects I have mentioned in order that I might give some idea of certain phases of the public health program that specially interests us on the Pacific Coast. We need each other's help on this coast; and in order that united efforts may be made in dealing with our problems, the "Pacific Coast Conference of Health Officials" was formed at Seattle last year. Through this organization it is hoped that closer cooperation may be established between the Coast states and British Columbia to the end that regulations and laws may be standardized, and that through its efforts public opinion may be molded for more concerted action in the promotion of public health.

ABSTRACT OF DISCUSSION

DR. JOHN M. DODSON, Chicago: The real purpose of this paper is not the specific discussion of these diseases, but the solution of the problem of securing prompt recognition, accurate and immediate report from the general practitioner to the health officer, and the guarantee of proper measures to prevent the spread of the disease. I agree with Dr. Turner that the existence of practitioners so utterly unqualified is a serious menace to the health of any community that tolerates it. We should make every effort in the interest of the public to secure legislation that will demand a competent medical knowledge on the part of every one who holds himself out to be a physician. What really disturbs me more than anything else is the fact that many physicians are not only ignorant of the modern development of science, but are indifferent and actually antagonistic to the public health

officers. We shall never have a thoroughly effective health service in this country until every member of the profession is part of it and is engaged in the work. The family practitioner is just as essential to the proper conduct of public health work as is the public health officer. He is the initial factor. It is he who goes to the bedside of the typhus or plague patient, and if he fails to recognize these diseases and report them and see that the proper preventive measures are taken, the epidemic spreads, and the health officer is helpless. I think we need to have continuation courses for practitioners of medicine, which they shall be required to attend at such intervals as shall insure that they have a reasonable knowledge of what is going on. The public knowledge of these things is growing amazingly and rapidly. The public knows a lot more than do many physicians. I am not so sure that the time is not coming in the near future when the public will insist that every practitioner of medicine shall submit to an examination every two or three years to see whether he is dead or alive. And unless we can make physicians realize that when they entered into the practice of medicine they entered into a form of service for the public that demands constant study, alertness and progress, we shall never have a satisfactory health service. The solution of this problem is that every teacher of medicine, surgery, obstetrics and every other branch of the medical curriculum shall have constantly in mind the fact that to teach his students how to prevent disease is of vastly more importance than to teach him how to cure it.

Dr. A. T. McCormack, Louisville, Ky.: I am impressed with the great problems of the Pacific Coast, and I disagree with one of my associates from Illinois, that the problem is even more serious in the Central West than here, because there are more chiropractors here. Lies and other parasites increase with population, as a rule. The objective of medical practice acts should be to see that a man is qualified to practice medicine. The only interest the public has in the matter is that a man shall be qualified to recognize and treat disease. We have missed the fundamental. Medical examination boards ought to determine these things as a matter of public interest. The unqualified man should not be permitted to practice. If this section of the country contributes to the nation a real determination that the qualifications of the practitioner shall be based on his worth to the public, it will have contributed the greatest factor for good and for advancement in public health. It is gratifying to see the progress that has been made in this part of the world; and, if it is to continue to be our national playground, it behooves the states to keep their streams pure, to keep their water supplies uncontaminated, to continue the remarkable public health education that they have undertaken, so that the stranger coming here will expect to find such laws and such enforcement of laws as will mean that in this garden spot of our country there shall grow up an upright and healthy population. For many years we were dominated by the problem of our Southern states, hookworm disease and venereal diseases. It is of extraordinary interest to find these active, effective and efficient members of the United States Public Health Service coming before our conference with these discussions and recognition of these new diseases and their methods of prevention. It is of the utmost importance for us to realize—we who live in the interior, where we touch no ocean, and where immigrants come to us after having filtered through miles of territory—that our Congressman knows that the county and state health authorities are absolutely essential to the development of the health of the nation. The state health departments of the whole coast should have adequate appropriations and adequate personnel, because they are the outposts that are protecting us from invasion by foreign diseases. I want especially to extend my congratulations to the health officers of these Western states for the splendid scientific work they are doing, for the self-sacrificing spirit and the energy and enthusiasm with which they are doing a big job in a big way.

Dr. John C. Spencer, San Francisco: I was recently in Portland. I was tremendously struck by the incidence of goiter among the young girls and women there. The popular opinion seemed to be that it was due to the water supply of Portland. Since Dr. Turner has mentioned the probability of the incidence of goiter being due to the deficient halogenization of the water supply, it immediately brought to my mind the fact that San Francisco is going to have a wonderful water supply within a very few years. I speak of this with particular interest because I have just returned from inspecting the Hetch Hetchy Valley water supply system. One thing told me there was that the water of this supply was so pure that in the storage batteries they use the water from this source in preference to distilled water. This deficiency in iodin and chlorin may be present in our future supply. It seems to me an opportune time to call attention to the fact that if such a pure water supply as that of Portland, Ore., can be affected so perniciously as to cause goiter, it might possibly be a factor in the future health of San Francisco. Possibly there might be a development of goiter in San Francisco from our pure water supply from the Hetch Hetchy and Toulumne River, in the not very distant future.

Dr. J. C. Perry, San Francisco: We know that plague has existed in the ground squirrels of California since 1902, and it was proved in 1908. It is a situation fraught with danger to the state of California and to the counties in which endemic foci of plague have been determined; also from the possibility of its spread to other parts of the United States. The danger, of course, is twofold. In the first place, the occurrence of human cases of plague from these foci. This was demonstrated by an outbreak occurring in Oakland in 1919 when there were fourteen cases of plague of the pneumonia type, traced originally to one case of bubonic plague acquired by skinning a squirrel. This occurred in Richmond, one of the chain of cities on the bay. But the great danger is that of a possibility of infected squirrels contacting with rats. We have caught rats and squirrels from the same burrow, and, as long as the infection exists in ground squirrels, and there is a possibility of their contact with rats, plague will be very near to centers of population, with the resultant expense of extermination and economic loss from quarantine and other causes. In 1920 we were able, with a limited appropriation, to make a resurvey of the ten counties in which plague had been previously present, and it was found in every place in which it had existed before. Last year it was demonstrated in two counties, and this year, in Contra Costa County. Eight plague-infected squirrels were proved out of 500 examined within two miles of a center of population. Those are the conditions that exist today. Appropriations are small. It is like a volcano that may burst into flame or eruption at any time.

Dr. N. E. Wayson, San Francisco: Tularemia, as I believe Dr. Turner said, has been known on the Pacific Coast since about 1912. The disease was known among officers of the Public Health Service, but was first referred to as a plague-like disease, so named, because of the striking resemblance, in the guinea-pig between the lesions of bubonic plague and those of the disease in question. The first contact made was with rodents in one of the more southern counties—Tulare County, I believe. In 1914, contact was made with the disease in Contra Costa County. In 1915, experimental work showed that it could be transmitted by insects so common as the stable fly, the common biting fly that so frequently annoys us. It was also found that it could be transmitted by contact; for instance, by allowing the ordinary house fly to crawl over the infected viscera of the guinea-pig, and then crawl over a cocainized eye of another guinea-pig. Within the last two or three years, Dr. Francis of the U. S. Public Health Service has made a more elaborate investigation of the so-called "deer fly" disease in Utah, and it was of this particular work, I believe, that Dr. Turner spoke. A number of us who have been more or less familiar with the disease have felt that probably the periodic epizootics that sweep through the rabbit population of these more Western states is caused by it. However, definite investigations have not been made to follow this belief.

Cyanosis.—The factor mainly responsible for the production of cyanosis at high altitudes is incomplete oxygenation in the lungs due to low atmospheric oxygen tension.—Lundsgaard and Van Slyke: Cyanosis, *Medicine,* February, 1923.

THE GROWING IMPORTANCE OF PREVENTIVE MEDICINE TO THE GENERAL PRACTITIONER*

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No world can indulge in such a frightful orgy of war as that which occupied our world from 1914 to 1918 without paying the penalty in a tremendous burden of grief and wretchedness and a violent disturbance of social and economic conditions. In such a postwar disturbance, some groups are more profoundly and widely affected than others. Among the groups which were most seriously disturbed by the war was that of the medical profession. There are daily evidences of this on every hand, and a feeling of unrest and dissatisfaction. The conviction that "something must be done about it" is all but universal.

In the field of medicine, other factors had been at work before the outbreak of the war which, alone, would have been sufficient to bring about a radical change in the economic and social relations of the physician. The triumphs of preventive medicine resulting in a very substantial decrease in the incidence of disease was, and continues to be, an appreciable and growing factor in reducing the average income of the physician. The number of physicians had come to be greatly in excess of the need, a ratio nearly twice as great as that obtaining in any other country. The rapid increase in the number of hospitals and the hospitalization of medical practice in many localities, the inevitable and rapid development of specialism, improved roads, and automobiles have had their effect in modifying the situation of the physician in relation to his clientele.

The advance in medical education, which has almost quadrupled the amount of time and money necessary to secure the required years of schooling twenty years ago, makes the investment of the medical student of today much greater than that of his predecessor. Indeed, at present the cost of equipping oneself for medical licensure and medical practice is greater than the cost of preparation for any other profession.

While, in most of the trades and professions, the wage or salary scale has been advanced to correspond with the greatly increased cost of living, physicians in many localities have failed to advance the fee table, and the prices for professional calls, office visits and other services have not been raised beyond those that prevailed ten years ago.

New medical cults and fads appear from time to time, a new one every few years. Just now the most conspicuous ones in the field are Eddyism, or so-called Christian science, osteopathy, with its hybrids, chiropractic, naprapathy and the like, and, most recently, Abramsism, the most fantastic and incredible of all.

Finally, some of the handmaidens of the physician, conspicuously the nurse and the social service worker, invaluable aids when properly directed, have crossed over into fields of work inadequately tilled by the busy practitioner, until at times it seems difficult to draw the boundary line between the field of the physician and that of the nurse or of the social service worker.

Some of these disturbing factors not only cannot be arrested, but are certain to continue in accentuated form. The diminution in the amount of disease brought about by the advances in medicine, which are to be credited almost wholly to physicians, are certain to continue and, we must hope, in ever increasing ratio. The excess of physicians in ratio to the population will be gradually lessened, in part by the transfer of some physicians to other fields of work, and, it is to be hoped, by a diminution or at least no increase in the number of medical students graduated each year.

The hospitalization of medical practice is increasing by leaps and bounds, and is certain to continue until even small cities and rural communities are provided with hospital accommodations for the care of a large part of those who are afflicted with serious illness.

Specialization in the several clinical departments of medicine is with us to stay, and is more likely to be intensified than lessened in the coming years. To the changes that are being wrought by these factors in the conditions of medical practice, the medical profession must reconcile itself and readjust its ideas and methods. The same may be said of the increased cost of medical education, although, so far as we can see, the amount of time required to secure a medical education has about reached its maximum.

Of the remaining factors, the one that most immediately affects the income of the practitioner is the fee table, and there is only one straightforward, business-like way to deal with this, and that is for physicians in every community to advance the fees charged for their services to correspond with the increased cost of living, to be proportionate, on the one hand, to the large investment of time and money which the physician has expended in preparation for his life work, and, on the other, to be consistent with the ability of the patients in the physician's clientele to pay without unreasonable hardship. Any attempt of the family physician to increase his income by the surreptitious division of fees with the specialist, the doing of unnecessary operations, the rendering of any other service not really justified by the condition of the patient or by any means other than by methods which the physician would be willing to have practiced on himself, were he the patient, is certain ultimately to react to his disadvantage and to bring the medical profession into disrepute.

The various cults, fads and frauds have disturbed the equanimity of physicians to a much greater degree than is warranted by the facts. It is annoying in the extreme to know that the practitioners of these cults have been able to bamboozle the legislatures of several states to grant them special enactments in reference to medical licensure, but in the long run there is little reason to believe that the cults of our day really encroach on the work or income of the regular practitioners of medicine to any greater extent than did those of previous generations. And these encroachments were never of serious moment. If let alone, these medical vagaries invariably die a natural death.

As to the encroachment on the domain of the physician by the nurse, the social service worker and other outside agencies, these have been due for the most part to the fact that the physician has neglected certain fields of activity which were important and in which work needed to be done. All that is needed is a readjustment of the relations of the physician to the mem-

*Read before the joint meeting of the Section on Diseases of Children and the Section on Preventive Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

bers of these other groups, who are quite indispensable as aids to the physician, if the best results are to be accomplished. Such results cannot be obtained by the usurping of the physician's field by others who are not trained to do the work that belongs to him. No more can these results be obtained when the physician neglects these lines of activity.

In spite of these disturbing factors, the general practitioner or family physician continues to be in demand; he makes up the vast majority of the members of the medical profession in this country, and will continue to do so. He has had a difficult time of it, however, in seeking to adjust and readjust himself to these rapidly changing conditions. If the medical profession is to retain in the highest possible degree the confidence of the general public, it must recognize these changing conditions and alter its methods of practice accordingly. In doing this there are certain fundamental considerations on which, I think, all will agree:

A. The profession must constantly seek to meet the real needs and serve the best interests of the public.

B. Unquestionably, the greatest possibilities of usefulness of the physician to the public lie in the field of preventive medicine. The family physician who seeks to render to his patients the service which will do them the most good is bound to enter the field of preventive medicine: to become, in other words, the family health adviser as well as the family physician. It is not entirely, nor indeed for the most part, the fault of the physician that he has not given more attention to this matter in the past. His patients have sought him only when needing relief from pain or when seeking cure from disabling illness. The conception that positive health conducing to happiness, comfort and efficiency is something that can be had by going after it, that is, by observing sane, correct methods of living, is one that is just dawning on the minds of the vast majority of people. However, they are waking up very rapidly.

C. This matter of the health of the people of our nation is one that interests not alone the hundred and fifty thousand physicians, but also the remainder of the hundred and ten millions of people who make up our population. The idea that seems to be entertained by some physicians that the physician is the only man who is competent or has the right to discuss matters of health is wholly erroneous. He is better qualified to assume leadership in many phases of this movement, but it is the height of folly for him to decline to cooperate cordially and continuously with several other agencies that are working in this field. It is his right to insist that the activities of each of these groups of workers be confined to the domain for which their training has fitted them.

In some localities where there are no physicians who are willing or able to do certain kinds of work properly belonging to the practitioner of medicine, it must be undertaken by the nurse, the social service worker or some other individual, or it will be left undone. This is especially true of work along the lines of education of the general public, such as has been accomplished in so gratifying a degree by the antituberculosis organization and the infant welfare societies. For this particular and most important phase of public health work relatively few physicians of our day have had suitable preparation. It is not infrequently the case, even where there is a salaried county health officer, that the nurses and social service workers in that locality have had a better training for the education of the public than have the physicians. This should not be. In every phase of public health work, as well as in the practice of medicine, the physician should be the leader and director of all the activities looking to the maintenance of better health standards of that community.

The physicians of our own generation, if they are to realize their possibilities of usefulness to the communities in which they live, must equip themselves far better than they have been heretofore equipped to give instruction to the public concerning community and especially individual hygiene. They must cooperate cordially and effectively with the duly appointed health officers, not only in complying with the legal requirements as to the reporting of births, deaths, cases of communicable disease, and the like, but in the matter of arousing the citizens of the community to the importance and great possibilities of preventive measures.

Training of the family physician for such work can be accomplished only by a considerable amount of carefully planned, systematic, effective instruction along the lines of preventive medicine. We need extensive provision for continuation courses conducted by state or local health officers at convenient points and for such periods of time as will make it possible for the family physician to attend them without unreasonable interference with his practice.

At the same time, it is quite as important that the people be educated as to their duties and obligations to the community. They must come to understand that the service which the family physician renders in keeping his patients well is far more valuable than any which he renders in restoring the sick to health, and that he should be paid accordingly. For centuries, physicians have been expected to give this sort of advice offhand, in a street corner consultation, without fee of any sort. Needless to say, the physician cannot support his family and himself on the good will and gratitude of patients. He must be paid a reasonable fee for such services as the examination of the apparently healthy adult or child, for periodic advice in reference to diet, habits of work and play, habits and conditions of sleep, and many other matters; indeed, for any item of advice for which the physician is sought which has to do with the preservation and betterment of health. Such service is quite as valuable and as much or more time consuming and requires quite as broad a knowledge of the medical sciences as advice given to the sick who are seeking restoration to health. Especially in the case of children from early infancy through the period of school attendance can the physician's advice and instruction be of utmost value. By means of careful, periodic observation of these children and by conference with teachers and parent, and of advice to them, he has it within his power to determine often whether the future life of that child shall be healthy, sane, vigorous and happy, or quite the contrary. One thing is certain—the health officers, community, state and federal—are hopelessly handicapped unless they have the cordial, constant, sympathetic and intelligent cooperation of the physicians of that community.

For the coming generation of medical men, that is, the medical student of our day, the plan of education must be modified to stress the preventive side of medi-

cine much more than it has ever been stressed. This does not necessitate any radical change in the branches included in the curriculum. The practitioner of medicine must have a reasonably broad, comprehensive knowledge of medicine; first, of the fundamental sciences on which the practice of medicine is based, and then of the clinical applications of these sciences. The foundations to be laid in these sciences are essentially the same for preventive as for curative medicine. Somewhat more emphasis should be laid on those facts and methods of bacteriology and hygiene which have to do with prevention; but the important change that is needed is a change in attitude of the clinical teacher. He should emphasize much more than has ever been emphasized the discussion of why and how the patient fell ill or sustained a surgical injury. Who was responsible? How could it have been prevented? What steps should be taken to protect others from similar illness or injury? What is the relation of the family physician to the public health officer in the case of communicable disease? What does the law require of the physician in any particular case in his relation to the health officer? Quite outside the legal requirements, how can they cooperate to best advantage in protecting the community from the incidence of disease? More important still, how can they cooperate in bringing about the education of the public in the quest for positive health and greater efficiency? In brief, the medical faculty and especially the clinical teachers of every medical school should come to realize that the medicine of the future is to be in large part preventive medicine, and it is their duty to prepare their students for service along these lines.

The organized profession has been seeking the education of the public for some years by supplying information on health topics to newspapers, magazines, journals and other publications, by the preparation of pamphlets, through the medium of a Speakers' Bureau which supplied lecturers to various organizations, and by cooperation with other national organizations interested in a movement for better health, the American Medical Association has sought to educate the public to a better understanding of the purposes and ideals of the medical profession.

By the action of the House of Delegates at the meeting in St. Louis a year ago, a new agency has been placed in the charge of the council which promises to be the most effective of all. This is the establishment of *Hygeia,* a journal of individual and community health, published monthly, the first number of which was issued in April of this year. It cannot be too strongly emphasized to every member of the American Medical Association that this journal belongs to him. It was established by the action of his House of Delegates. He is a stockholder in *Hygeia.* It will succeed or fail in the accomplishment of the great purpose for which it was founded in direct ratio to the support which it receives from the members of this Association. The least which any member of the Association can do is to have a copy of each issue on his reception room table where it is accessible to his clientele. If, in addition to this, every physician will interest himself in securing a few subscribers among the people of his community, *Hygeia* can shortly be made to reach a very large audience. Given such an audience, and a journal which contains attractive, instructive and authoritative information about health and disease and about what the medical profession is seeking to do in promoting the health of the people, it has possibilities of usefulness far in excess of any measure that has yet been devised by the American Medical Association.

FUNDAMENTALS IN BONE TRANSPLANTATION

EXPERIENCES IN THREE THOUSAND BONE GRAFT OPERATIONS *

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It must be granted that surgical technic in all instances should be formulated and devised to meet the most unfavorable cases. This is particularly true in the case of the bone graft. Here the technic should be so devised that results may be had in cases of long-standing pseudarthrosis, and in satisfactory percentages in large numbers. The relative merits of different technics may not be disclosed in their application to a few cases, whereas in 1,000 cases, for instance, they would be forcibly apparent.

From the essential biologic, physiologic and mechanical standpoints, the technic and fundamentals of application should measure up to the following requirements:

1. The graft should be autogenous.

2. The graft should be so placed and contacted that conditions are favorable to the early and sufficient establishment of blood supply. This can best be accomplished by generous contact of the marrow of the graft with the marrow of the host bone by the Albee inlay.

3. Within limits, the graft should be the internal fixation agent. This can best be accomplished by the graft being of generous length and maximum diameter, thus bringing about a greater contact for the establishment of blood supply, as well as favorable conditions for fixation. The inlay type provides the maximum of immobilization, in that it is accurately and snugly incorporated into the substance of the host fragments.

4. Following the teaching of the centuries in comparative biology in the vegetable kingdom, such as the grafting of fruit trees, the graft should, when possible, be so inserted that corresponding cambium layers come in close contact, and should consist of all four bone layers.

5. The graft should be of such cross section and strength that it will resist fracture during and after the period of external support until osteogenesis of sufficient amount occurs. This important consideration is often undervalued. The following types of graft do not measure up to the foregoing requirements, and have frequently proved unsatisfactory: (1) the osteoperiosteal of Ollier and Delagenier; (2) the intermedullary (Murphy); (3) the pedicle graft (Cole), and (4) the ill advised application of the Albee sliding inlay.

These grafts have failed principally because they do not satisfy the necessary biologic, physiologic and mechanical requirements.

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The osteoperiosteal graft is inadequate because (1) it is not a complete physiologic osteogenetic unit; (2) owing to its lack of mechanical strength, it does not furnish mechanical fixation to the host bone fragments; (3) since it does not possess physical bone continuity and is incapable of bearing mechanical stress, its metabolism and cellular proliferation are not influenced by that powerful stimulus of successfully withstanding mechanical stress, since it does not function as the internal fixation agent, and (4) the usual technic in numerous applications in which it is employed is to place it on the outer surface of the bone cortex; in pseudarthrosis cases, especially, this means that the graft is inserted into cicatricial or nonvascular tissue, which furnishes an unfavorable environment for the graft. This is in strong contrast with the Albee inlay, in which the marrow substance of the graft is brought into close approximation with the vascular marrow of the gutter of the host fragments.

The intramedullary type of graft cannot be of large enough cross section and strength in any of the bones except the larger ones, such as the tibia and femur. It is also most difficult to insert where there are two bones, such as in the forearm. Then, again, it is not coapting the graft to the host bone tissues according to biologic principles, namely, cambium layer to cambium layer. And, in the third place, the preparation of the marrow cavity to receive the graft consists in reaming out all the vascular and active osteogenic tissue. Thus, the graft is inserted into a cylindrically shaped hole, the walls of which are nonvascular cortical bone, and furnish an unfavorable environment for the graft. And lastly, because of technical reasons, the fit, or approximation of the intermedullary graft surfaces to those of the host bone, can never be close or accurate, thus furnishing unfavorable conditions for blood vessels to extend early and profusely from host tissues to graft.

The pedicle graft has practically all the disadvantages of the osteoperiosteal graft, with the one exception of unusually favorable and ununited fracture of the lower jaw without loss of bone substances.

By the ill-advised sliding inlay (Albee) is meant the application of this type of technic to those cases in which, from osteoporosis or normal structure, the cortex of the fragments themselves is too thin and weak to furnish graft material strong enough to resist breakage. This dictum is always true in the case of the radius and ulna, and may be true in the case of pseudarthrosis in any bone. The sliding inlay is favorable in the case of the tibia or the femur.

The tibial inlay (Albee) is from every standpoint the ideal type of graft. It satisfies certain important biologic, physiologic and mechanical laws that have proved so essential in carrying out the same kind of procedure in the vegetable kingdom:

(*a*) It brings into the closest opposition the corresponding bone layers of the graft and the host fragments on each side.

(*b*) By its mortise or inlay contact, this inlay brings about a very potent fixation. This is a most important feature of the environment of a bone graft; it serves as an internal fixation agent as well as an active osteogenic influence, because osteogenesis is strongly stimulated by the mechanical stress brought to bear on the graft by internal fixation.

(*c*) The contact of the marrow of the tibial inlay throughout its whole length with the vascular marrow substance of the host bone brings about the most ideal condition for the early and profuse blood supply and the cellular content of the graft. Since the chief blood supply of the normal bone cortex comes by way of the marrow substance and medullary canal, the advantages of the technic in this respect are apparent, especially since the life of the graft cells depends on the early supply of sufficient nourishment to them.

(*d*) The marrow substances of the inlay graft should be in as large a quantity as possible, so that by being contacted with the marrow substance of both fragments, it, together with the periosteum, will furnish a vascular conduction and osteogenic bridge from one fragment to the other.

The technic of insertion of the inlay graft is much simpler and easier of execution than the medullary type of graft, although it is more difficult than the employment of the osteoperiosteal graft. Nevertheless, when my motor-driven instruments are used, the technic is not difficult.

Moreover, another reason for failure in this type of work, other than the type of graft, can be traced to the lack of proper armamentarium and inadequate experience with them. In work on the jaw, more than on any other part of the anatomy, great delicacy of technic is required. Further, owing to the lack of anvil stability, smallness of the jaw bones and their irregularity of contour, difficulties are presented which can be satisfactorily overcome only by the means of a large variety of motor-driven tools. The old-time use of mallet and chisel, or the osteotome, is a procedure not only difficult and time consuming, but one in which the same degree of efficiency is impossible. When these primitive instruments are used, the bone and soft tissues are traumatized both by contact with retractors, impact of cutting tools and by long exposure to air and drying on account of the operative time being prolonged; also, it is possible to get, speedily, accurate cabinet-maker fits only by means of automatic power-driven tools, such as the Albee "bone mill."

An additional advantage of the rapidly revolving saw may be found in certain phenomena strikingly illustrated in the World War. The laceration of nonvital tissues caused by the penetration of a slowly traveling (spent) projectile causes such a bombardment of the central nervous system by a storm of afferent noci-impulses that the smitten soldier drops in his track in a profound state of shock. On the other hand, when the same tissues are severed by a projectile traveling at high velocity (provided the vital centers are uninjured), the soldier walks on with scarcely any evidence of vasomotor disturbance. In the latter contingency, the nervous end-organs are severed by a cutting agent traveling at such speed that the nerve filaments are unable to deluge the central nervous system with a wave of afferent noci-impulses, because they are incapable of taking up such stimuli as is produced by a severing agent traveling at such speed. An analogous set of circumstances likewise involves a severance of nerve-endings—by a slowly moving hand saw or chisel, on the one hand, and a rapidly revolving motor saw, on the other.

By necessity, I began my early bone-grafting operations with hand tools, and after I had developed my motor-driven instruments, I found that shock had almost entirely disappeared in the course of operations of reasonable length. I am uncertain as to whether this absence of shock is to be attributed to anoci-association in accordance with Crile's theory or to a shortening of the time of operation brought about by motor-driven tools.

IMPORTANT CONSIDERATIONS IN APPLICATION AND TECHNIC OF THE BONE GRAFT

1. *Time to Operate.*—A careful study of the wound (if one formerly existed) should be made, before it has healed, if possible. The type of infecting organism (such as *Streptococcus hemolyticus* or gas bacillus), the nature of the "clean-up" operation, and the manner of healing of the wound should be noted. These observations have a direct bearing on determining the time when it will be safe to operate.

In a few cases it may be permissible to operate after the wound has been completely healed for a period of two months, while in others, on account of possible latent infection when the previous infection has been *Streptococcus hemolyticus,* or other bacteria, it may be advisable to delay the final plastic work for at least six months. In some of the latter unfavorable cases a two-step operative method may be followed, consisting of a preliminary excision of scar tissue with its replacement by a healthy skin-flap, muscle or fat, followed after a period of from ten days to two weeks by the bone plastic procedure, provided the wound healed kindly following the preliminary operation.

2. *Immediate Preoperative Observation of Patients Formerly Having Infected Wounds.*—In order to ascertain whether or not latent infection capable of recrudescence exists, splints should be removed, and rough manipulation and deep massage should be given for a period of from one to two weeks before operation. During this time, observation of the temperature should be made, and likewise a careful examination of the parts for evidences of local tenderness or of recrudescence of infection. The field of operation should be given a forty-eight hour preparation by the tincture of iodin technic.

3. *Plan of Operation and Choice of Incision.*—By roentgenographic and physical examinations, the proposed plan of operation, particularly with reference to the location of the graft, should be made before actual incision. If it is possible, the skin incision should not be located directly over the intended bed of the graft. The operation must be so planned that the graft may be covered without undue tension of skin, and, if possible, placed so that it may come in contact with healthy tissue instead of scar. In a number of cases in which this was accomplished, the graft healed in by primary union; whereas the skin scar, even at a considerable distance from the graft, broke down entirely. In cases in which there is extensive loss of bone, the scar tissue should be pushed to one side, in order that the graft may come in contact with healthy tissue. Drainage wicks of any kind must never be inserted at the time of the operation.

4. *Length of Operation.*—I believe that the shortest possible operating time that is consistent with good work, and with a minimum amount of trauma, is requisite to successful results in this work.

5. *Use of Motor-Driven Tools.*—These are essential: (*a*) on account of the necessity for rapid work in order to avoid drying and traumatization of both the graft tissues and the host tissues; (*b*) to secure a cabinet-maker fit of parts, thereby providing for early and adequate blood supply to the graft, for mechanical fixation and for the operation of Roux's law of frictional irritation, which is a great stimulus to bone growth, and (*c*) on account of taking advantage of the law of anoci-association.

The motor outfit with its tools to secure automatic fits seems indispensable in this work. The motor saw, when properly used, does not heat or glaze the bone. I have shown this repeatedly in experimentations made formerly and while doing an extensive amount of bone work during the last fifteen years.

6. *Adequate Length of Graft.*—The bone graft should always, if possible, be of the inlay type, and of sufficient length to extend into each fragment for a distance of at least 5 cm., and always well beyond the eburnated area at the ends of the fragments. The gutter should extend well into the healthy marrow of the host bone, with which the graft marrow should be in generous contact. It is important that the marrow in the fragment ends should not be crushed or unduly traumatized, and that the gutter in it should be of proper depth to just receive the graft, so that there will be a close approximation of the marrow of graft to the marrow of the host fragments, thus favoring the early and profuse anastomosis of blood vessels between these very vascular tissues. It is also important that a marrow bridge be formed from the marrow substance of one host fragment to that of the other, for the transmission of blood vessels, bone cells, etc., across the point of nonunion.

7. *Type of Graft.*—The graft should be autogenous, consisting of all four bone layers, namely, periosteum, complete thickness of cortex, endosteum and marrow. It should be so inlaid that the fit is perfect, with an exact apposition of layers of the graft to the corresponding layers of the host bone. This exact contacting fit favors the mechanical fixation of the fractured bone and the graft; it also permits the frictional stimulus to bone growth, emphasized by Roux, and in every way favors the earliest bony union of graft to host fragments.

8. *Supplemental Grafts for Additional Foci of Bone Growth.*—Small "sliver-grafts," about 1 mm. in thickness, placed alongside the main fixation graft, furnish additional foci of bone growth. They are most efficacious when used in this manner.

9. *The Graft as the Main Fixation Agent.*—Fixation should be secured always by the graft itself, and never by metal plates or other foreign material, for the metabolism of the graft and bone growth are directly influenced by the stimulation from the stress successfully carried by the graft.

10. *Suture Material.*—A minimum amount of absorbable suture material should hold the graft in place. For this purpose, kangaroo tendon is the ideal material, since it is tolerant to the tissues, readily absorbable, very strong and reliable. When advisable, the autogenous bone graft screw made at the operating table by the author's bone mill may be substituted for the kangaroo fixation sutures entirely, or it may be used as a supplemental fixation as well as an osteogenic agent. For the skin and the underlying soft parts, fine absorbable suture material should be used, such as 0 plain and chromicized catgut.

11. *Postoperative Fixation.*—Firm immobilization of the limb by a plaster-of-Paris cast should be maintained for a period of at least ten weeks following the operation, and as long thereafter as roentgenographic examination shows it to be required. Great emphasis should

be placed on the importance of very efficient, immediate postoperative fixation, and this can be accomplished only by the most expert management of a suitable fracture orthopedic table (such as the Albee fracture table) which will allow control of both the upper and lower extremities and skilful plaster-of-Paris technic.

I am convinced that failures in cases of pseudarthrosis in which operation was performed by others, in which the bone graft was used, were due many times more to inadequate postoperative fixation than to poor operative technic. This statement is especially true in cases with or without loss of bone substance in the upper two thirds of the humerus, where it is absolutely necessary to immobilize both the elbow and the shoulder joints by a plaster-of-Paris shoulder spica, and it was for this type of cases, more than for any other, that I devised the Albee fracture orthopedic table.

Adequate fixation of the graft, following its insertion, is equally essential in the same work in the vegetable kingdom, as study of the various means for these ends in such work as tree grafting will show.

Grafting wax is as necessary for this purpose as it is for protecting the cut surfaces of the tree or plant from vegetable parasites. It is for this reason that when the wax does not remain hard and becomes unduly soft under the sun's rays, successful results are interfered with, on account of the loss of fixation and the consequent movement of the graft in its bed by the wind or otherwise.

Attention is again drawn to the importance of using absorbable skin suture material, in order that the plaster-of-Paris dressing need not be disturbed until time for the splint to be removed.

40 East Forty-First Street.

ABSTRACT OF DISCUSSION

DR. CHARLES LEROY LOWMAN, Los Angeles: I can fully appreciate the point Dr. Albee makes regarding particularly the extension of the application of the fulcrum in relation to the hip joint.

DR. FRED H. ALBEE, New York: I had recently a case which is illustrative of the subject. A boy about 18 years old came to me. He had been born with two thumbs on one hand. In all of these cases one thumb is the functional one—the one with the full amount of metacarpal bone. The surgeon who first saw this case, unfortunately, amputated the good thumb, leaving the useless one, which had no controlling muscles. I transplanted the flail thumb onto the stump of the good thumb. The result is most gratifying, and the control of the thumb under the new condition is now very good.

The Libido.—Man has two fundamental instincts—one for self-preservation and the other for race propagation. The most important emotion of the self-preservation urge is hunger. The sole emotion of the race-propagation urge is libido. Libido is the energy which gives rise to the entire gamut of human activities. The character and personality of the individual depends upon the manner in which he acquires energy, converts it into libido, and releases it in procreation, in socially useful creations, in developing and maintaining a neurosis, or in perversions and crime. The person who is happily married, raising a family, handling his economic situation with success and who has the time and strength to spare for cultural improvement, is utilizing his libido in accordance with the highest psychanalytic principles. . . . Psychanalysis is the technic of discovering the hidden unconscious motive for behavior or conduct which is deleterious to the health and happiness of the individual.—Thompson: *U. S. Naval M. Bull.*, September, 1923.

COMPARATIVE MERITS OF NEW AND OLD PREPARATIONS OF DIPHTHERIA TOXIN-ANTITOXIN

RESULTS OF PRELIMINARY TESTS WITH TOXOID

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When the New York City Health Department laboratory workers first undertook to estimate the value of toxin-antitoxin in the practical immunization of children against diphtheria in 1914, it was essential to utilize an effective preparation. The ingredients of importance in such a preparation other than the antitoxin are the specific toxin that causes the production of antitoxin and the nonspecific products of bacterial growth and dissolution occurring in the cultures in which the toxin is produced. It is these nonspecific products that cause the local disturbance in sensitive persons. The antitoxin should be added in an amount just sufficient to lessen the excessive avidity of the toxin for the tissues and so prevent painful reaction, but the amount of antitoxin should not be enough to rob the toxin of its immunizing effect.

For a number of years previously, numerous animal tests had been carried out by Park with a mixture containing three L plus doses of toxin to each cubic centimeter, and sufficient antitoxin to reduce the toxicity so that an injection of 1 c.c. caused paralysis in the guinea-pig in about twenty-five days.

As we had studied this preparation and knew it to be efficient and safe, we determined to use it for the immunizing injections. The results were in every way satisfactory except for the rather excessive local reaction. This mixture became our standard preparation. However, with the increasing utilization of toxin-antitoxin not only in New York City but also throughout the country, we felt constrained to endeavor to remove as much as possible of the irritating substances in the mixture.

Dr. Banzhaf of our laboratory attacked this problem, but neither he nor other chemists have been able to separate the useless and annoying bacterial substances in the culture fluids from the valuable specific toxin. Despairing of success in eliminating the extraneous proteins from the specific toxin, we attempted to achieve our object by lessening the amount of both toxin and antitoxin in the mixture and so also the amount of the proteins. This was suggested to us by the reports of the Schick retests by Zingher on a number of children in the borough of Manhattan, and by Schroder on children in the borough of Brooklyn. A toxin of double the standard strength had been used on these children. The immunizing results, instead of exceeding those obtained with the standard preparation, were merely similar. As doubling the amount of toxin in the dose did not improve the effectiveness of the mixture, it seemed reasonable to try the effect of reducing the amount of toxin. We therefore tried mixtures in which the amount of toxin was one third, one sixth, one thirtieth and one sixtieth of the standard dose. The preparation (0.1 L + toxin) containing one thirtieth of the original toxin was finally selected as probably the best. A preliminary report of the observations

on 490 children on whom this mixture was employed by Schroder was given at the meeting of the American Public Health Association [1] in October, 1922. The results are shown in Tables 1 and 2.

TABLE 1.—*The Antitoxin Development Produced by Three Injections of Mixtures* Having Different Amounts of Toxin Partially Neutralized by Antitoxin*

Amount of Original Toxin in 1 C.c. of Mixture	Number of Children Receiving 3 Injections	Per Cent. of Nonimmunes Shown to Be Immune on Schiek Retest Four Months Later
0.1 L+† (4 lethal doses).....	490	90
0.5 L+ (20 lethal doses).....	304	95
3.0 L+ (120 lethal doses).....	318	92
5.0 L+ (200 lethal doses).....	487	85

* All mixtures caused severe paralysis in guinea-pigs followed usually by death in eighteen days among those animals that received 1 c.c.; with 5 c.c. doses, death followed in ten days.

† The mixture is made by adding three-fourths unit of antitoxin to one L plus dose of toxin. The toxin and antitoxin should be diluted in cold water and the two solutions mixed immediately. If the toxin is diluted in water at room temperature, it deteriorates rapidly.

TABLE 2.—*Comparison as to the Amount of Local and Constitutional Reaction Caused by the New and Old Preparations in Children*

	New Preparation 0.1 L+ * %	Old Preparation 3 to 5 L+ %
No local reaction.....	25	0
Slight local reaction.....	64	41
Moderate local reaction.....	11	37
Marked local reaction.....	0	22
Among those showing marked reactions there was a rise of temperature of from 1 to 3 degrees F., and other constitutional symptoms in	0	6

* If the 0.1 L plus preparation is underneutralized more than the amount advised, there will be a local reaction from the excess of toxin.

Because of these favorable results, it was decided to make the one-thirtieth (one-tenth L plus toxin) preparation the standard, instead of the three L plus mixture. Since then no other mixture has been used in our work in immunization except when we wished to make comparisons. The results of a comparative test in adults are given in Table 3.

effect on the toxin somewhat similar to the action of slight amounts of antitoxin. We thought it would be of great interest to compare the results of such injections with those obtained by the injection of the toxin-antitoxin. It happened that at this time we had a large number of adults to immunize. This enabled us to use the different preparations under comparable conditions. We utilized a toxin that had been stored after being diluted with salt solution and had thus been reduced to toxoid. This was carefully tested in guinea-pigs. We arranged also to give a small group three injections of standard toxin at the same time. The amount of toxin chosen was that used in the Schick test. Through a misunderstanding, the first dose given was four times this amount. The results of these various preparations are shown in Table 3.

The immunizing results in adults with the one-tenth L plus and the three L plus preparations were similar to those previously obtained in children (Table 1). The local reactions to both preparations were somewhat more severe than with similar preparations in the children (Table 2), but the amount of local reaction following injections of the one-tenth L plus mixture was strikingly less than that following the injections of the three L plus mixture. The slightly lesser immunity response of the one-tenth mixture is attributed to the fact that the toxin was slightly less neutralized. One group of adults received three doses of only 0.5 c.c. each instead of 1 c.c. of the mixture. Those individuals who received the smaller injections had nearly as much local reaction without as great an immunity response.

LOCAL AND IMMUNITY REACTIONS PRODUCED BY TOXIN AND BY TOXOID

The local reaction of an appreciable dose of standard toxin alone was too severe to make it an acceptable preparation for general use. On the other hand, as shown in Table 3, the deteriorated toxin (toxoid) gave a fairly satisfactory immunizing response with remarkably little local reaction. We hope in the near future to carry on further tests with the diphtheria toxoid

TABLE 3.—*Local Reaction on Second Day and Immunity Response at the End of Three and One-Half Months from Toxin-Antitoxin, Unmodified Toxin and Toxoid**

Preparation Used	Three Doses of, C.c.	Adults Tested	Severity of Local Reaction: Very Marked, %	Marked, %	Moderate, %	Slight, %	None, %	Immunity Response After 3½ Months Schiek Negative, %
Toxin-antitoxin:†								
3.0 L+ in 1 c.c.	1	261	13	36	22	12	17	87
0.1 L+ in 1 c.c.	1	117	..	10	20	44	26	83
0.1 L+ in 1 c.c.	0.5	86	..	8	23	45	24	73
Freshly diluted standard toxin without antitoxin:								
0.15 M. L. D. in 1 c.c. 1st dose	1	29‡	3.5‡	24‡	45‡	24	3.5	
0.025 M. L. D. in 1 c.c. (2d and 3d doses)	1	29	...	4	8	25	62	41
Toxoid § (old and much deteriorated toxin)	1	21‡	...	3	10	37	50	70

* This table was given in the preliminary report read at the meeting of the Association of Pathologists and Bacteriologists in March, 1923.

† Average toxicity when injected in guinea-pigs weighing 250 gm.: 3 L plus in 1 c.c. = death in 23 days; 0.1 L plus in 1 c.c. = death in 30 days.

‡ The local reaction continued to increase after the second day instead of decreasing as it does with properly standardized toxin-antitoxin or toxoid.

§ One cubic centimeter caused late paralysis in guinea-pigs.

TOXOID

In the first experiments on antitoxin production in animals by von Behring and his associates, the diphtheria toxin was modified by exposure to iodin so as to reduce its toxicity. The action of the iodin or of other agents that cause a lessening of the toxicity and reduce the toxin to a form called toxoid produced an

preparations. It is evident that fresh toxin must either be modified by antitoxin or partially broken down by some chemical or physical agency, so as to lessen the avidity with which it attacks the tissues; otherwise, the local reaction of the tissues is so severe that the amount of toxin injected has to be reduced to a dose so small that the immunity response in those who have no antitoxin will be very much less than when the usual dose of toxin-antitoxin or toxoid is used.

1. Park, W. H.; Schroder, M. C., and Zingher, Abraham: Am. J. Pub. Health **13**: 23 (Jan.) 1923.

IMPORTANCE OF A SUITABLE DEGREE OF NEUTRALIZATION OF TOXIN IN TOXIN-ANTITOXIN MIXTURE

There has been considerable difference of opinion among investigators on this subject. Park and Banzhaf [2] will soon make a final report on a large number of observations obtained from guinea-pig experiments. We report here the result of the retests on more than 2,000 children, on some of whom preparations of standard toxicity were used and on others preparations of somewhat insufficient toxicity (Table 4).

TABLE 4.—*Immunity Results in Children After Three Injections of Toxin-Antitoxin Mixtures of Different Degrees of Neutralization*

Preparation No.	Toxicity in Guinea-Pigs: Dose	Toxicity in Guinea-Pigs: Result	Number of Children Injected	Immunity Response After 4 to 6 Months Schick Negative, per Cent.
1	1 c.c.	Death in about 17 days.....	131	92
	5 c.c.	Death in 4 to 5 days		
2	1 c.c.	Death in about 17 days.....	269	92
	5 c.c.	Death in 5 to 8 days		
3	1 c.c.	Death in about 21 days.....	796	91
	5 c.c.	Death in 5 to 6 days		
4	1 c.c.	Marked paralysis of animal followed by recovery.....	608	87
	5 c.c.	Death in about 17 days		
5	2 c.c.	Marked paralysis of animal followed by recovery.....	137	85
	5 c.c.	Death in about 22 days		
6	2 c.c.	Marked paralysis of animal followed by recovery.....	763	76
	5 c.c.	Death in about 25 days		
			2,704	

It is noticeable that, while the ideal preparations gave the best results, those preparations approaching considerably nearer to complete neutralization still yielded fair results. Therefore, although it is important to have preparations of a proper degree of toxicity, it is valuable to know that less toxic preparations will give in the majority of children sufficient antitoxic immunity response.

TIME INTERVAL BETWEEN INJECTION OF TOXIN-ANTITOXIN AND DEVELOPMENT OF ANTITOXIN IN SUFFICIENT AMOUNT TO INSURE IMMUNITY

It is necessary to make a retest for the Schick reaction if we desire to know positively whether the immunizing injections have given complete protection. Although it is desirable to make these retests as soon as possible, we defeat our purpose if they are made before the majority of the children have had time to react. The results obtained in about 4,000 retested children are given in Table 5.

TABLE 5.—*Comparison of Schick Retest Results at Different Intervals After Immunization*

Interval	Number of Retests	Per Cent. Immune
3 to 3½ months.....	579	82.7
4 months.....	1,427	84
5 months.....	1,302	86.7
6 months.....	1,059	88
	4,367	

These results indicate that although longer periods give somewhat more favorable results, retests may be made satisfactorily at any time after three months. The children tested at these intervals had received identical toxin-antitoxin preparations.

2. Park and Banzhaf: Preliminary report, read at the meeting of the Association of Pathologists and Bacteriologists, March, 1923.

While the observations reported in this paper were being made, certain facts were noted that are of considerable clinical interest. These are the interval of time after the injection at which the intensity of the local toxin-antitoxin reaction is at its greatest, and the duration of the reaction. These observations are given in Tables 6 and 7.

TABLE 6.—*Comparative Intensity of Local Reaction Twenty-Four and Forty-Eight Hours After Toxin-Antitoxin Injections*

Greatest Intensity of Reaction	Total Number of Persons Observed	Number Having Greatest Intensity of Reaction at: 24 Hours	48 Hours	Same at 24 and 48 Hours
Very marked.....	23	..	4	19
Marked.....	31	6	9	16
Moderate.....	15	4	6	5
Slight.....	21	..	20	1
Totals.....	90	10	39	41

TABLE 7.—*Comparative Intensity of the Local Reaction at End of Two, Five and Sixteen Days, in Three Hundred Cases Assembled Equally from Persons Showing Marked, Moderate and Slight Reactions*

Time of Inspection	Severity of Reaction: Marked	Moderate	Slight	None
End of 2 days.....	100	..	..	..
End of 5 days.....	4	31	19	46
End of 16 days.....	..	..	7	93
End of 2 days.....	..	100	..	..
End of 5 days.....	..	11	26	63
End of 16 days.....	..	..	7	93
End of 2 days.....	..	..	100	..
End of 5 days.....	..	..	12	88
End of 16 days.....	..	..	..	100

As shown in the table, the local reaction subsides gradually after reaching its height on the first or second days.

CONCLUSIONS

The new preparation of toxin-antitoxin, with its smaller amount of toxin, possesses a distinct advantage over the earlier preparation recommended by us, in that the local inflammatory reaction sometimes developing after an injection is less severe and less frequent. Indeed, it is almost negligible in young children and infants. The two preparations have equal immunizing value.

The toxin-antitoxin mixture should not be too toxic; that is, too much underneutralized; if it is, the local reaction is disturbing. It should not be too nearly neutralized by antitoxin, for then the immunizing results are less. Safe limits as to toxicity are that 1 c.c. should not produce death in the guinea-pig in less than fifteen days on the average, and 2 c.c. should not fail to produce marked paralysis.

Antitoxin is added to diphtheria toxin solely for the purpose of robbing it of its irritant action on the local tissues and thus allowing a larger dose of the modified toxin to be injected. The same result may be obtained by partially breaking down the toxin to toxoid.

Unmodified standard toxin, such as is used in the Schick test, is so irritating that only minute doses can be used. Even these minute amounts have some immunizing value. Up to the present time, the addition of antitoxin to toxin gives us the best immunizing preparation.

The new preparation of toxin-antitoxin is somewhat less stable than the original preparation, but it is suffi-

ciently stable to be used for six months after it has been properly standardized, if it is kept cool.

The use of the Schick test to determine the immunizing results of the toxin-antitoxin injections should not be approved of before the end of the third month, and preferably not before the end of the fifth month. This is because the immunizing response is a gradual one and requires for its completion a different period of time in each individual.

The local reaction which sometimes follows the toxin-antitoxin injections reaches its height on the first or second day, and then rapidly declines.

THE DIFFERENTIATION OF NORMAL AND PATHOLOGIC HUMAN THYROID GLANDS BY SEROLOGIC METHODS

PRELIMINARY REPORT *

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AND
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Since Bubnow, Gourlay, Baumann, Notkin and others published the results of their researches, the normal thyroid gland has been the subject of almost innumerable studies. Its anatomy, physiology and biochemistry have been and still are being investigated from many points of view. Very few men, however, have studied the pathologic thyroid in other than a clinical way, and no attempt has been made to demonstrate by well controlled experiments the difference, if such a difference exists, in the secretion of the normal and abnormal gland.

In May, 1922, a series of experiments was begun, which, it was hoped, would show conclusively whether or not the substances secreted by the abnormal thyroid gland varied to any extent from the secretions of the normal gland. As it was realized that the chemical analysis of protein has not been sufficiently developed to determine any differences in substances as closely related as these must be, it was decided that serologic methods would be used, primarily because of the delicacy with which such methods are known to differentiate between proteins.

The complement-fixation reaction was selected, not only because of the ease with which the results can be determined, but also because of the accuracy of the results so obtained. Obviously it was necessary, before this reaction could be employed, to determine whether or not the extracts obtained by the methods to be used were antigenic. As a matter of fact, it has been necessary to begin with very elementary experiments, for we have failed to find reference in the literature to the serologic reactions of thyroid extracts.

Extracts made from normal thyroid glands of pigs were injected into rabbits, and the serum thus obtained was found to be capable of deviating complement in the presence of homonymous antigen. This encouraged us to continue further, with the result that extracts made from normal human thyroids were found to react in a manner similar to the extracts obtained from normal pig thyroid gland.

Extracts were then made from pathologic human thyroids, adenomas being selected because of the ease with which normal glandular tissue could be removed. The serum obtained by injecting the latter extracts into normal rabbits was likewise found to be capable of fixing complement in the presence of the homonymous antigen.

The latter group of experiments has been doubly controlled in that the serum obtained by immunizing rabbits with extracts obtained from adenomas was used not only with adenoma extract as antigen but also with the extract obtained from normal human thyroids, as well as with normal human serum, with the result that only in the presence of the extract from human adenomas was there a definite fixation of complement.

Complete data on these experiments will be published later. We are at present engaged in further control tests; but the results so far obtained indicate a demonstrable difference in the extracts of normal human thyroids and those of adenomas. If these results are confirmed by subsequent investigations, we anticipate conducting similar studies with specimens obtained from pure uncomplicated cases of thyroid hyperplasia.

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BERIBERI AND RICE NEURITIS

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Problems concerning the study of beriberi in its relation to the experimental investigations in animals maintained on deficient diets still offer great interest. In Japan, where many cases of beriberi are encountered every year, the study of this disease, together with that of the nature of vitamins and avitaminosis, is carried on very diligently so that in every biannual meeting of the Beriberi Investigation Committee under the auspices of the Department of War we are made acquainted with numbers of new investigations, which are freely discussed from all sides.

On account of our advantageous opportunity for the study of human beriberi in comparison with the so-called polished rice disease in experimental animals, a short report on the research work in Japan may be of some value. The results of these researches have appeared, however, in numerous publications extending over many years, so that it will be possible merely to summarize the general results without going into details.

Since the publication of Eijkman's famous experiment of 1896 in Java, in which he stated that after feeding fowls with polished rice a certain polyneuritis (polyneuritis gallinarum) is produced, which may be cured or prevented by giving rice bran, many repetitions of his experiments have been carried out by several authors, all confirming his results. Eijkman, however, was of opinion that these experimental disturbances in fowls are to be identified with human beriberi, and many other investigators have agreed in this respect with him. The principal reasons for their assertion seem to have been based on the fact that the main change in both man and fowl is the polyneuritis; the occurrence of beriberi is in close connection with a diet of polished rice, and both beriberi and rice neuritis of fowls may be cured or prevented by administering rice bran. Another Dutch investigator, Grijns (1901), fur-

ther studied this active substance in bran and found that it exists also in Catjang-idijo, a small bean; that it is water-soluble and is destroyed by heating at 120 C., and that it has particular effects indispensable to animal life which can never be produced with other nutriments, inorganic salts or water. Funk (1911) named this substance "vitamin," and asserted that the rice disease and beriberi are equally avitaminoses, and that human pellagra, rickets, osteomalacia, scurvy, keratomalacia and other diseases may also be defined as avitaminoses consequent on deficiencies of different kinds of vitamins. Funk's report has roused much interest all over the world, so that vitamins and avitaminosis have now become subjects of investigation everywhere. In America, also, we know of this problem through leading investigators, Osborn, Mendel, McCollum and others.

It seems to be the current opinion of Dutch investigators, as well as of many others, that beriberi can be identified with the rice disease of fowls, but I, with some other investigators, doubt this. My many years' studies on human beriberi, and the results of experimental study of the rice disease of fowls and mammalia, especially those exhaustive labors of Professor Ogata and his co-workers in our laboratory, extending over a number of years, give me a firm foundation for this statement.

BERIBERI AS DISTINGUISHED FROM RICE DISEASE

Not only from the epidemiologic point of view, but also in clinical and anatomic features, beriberi may be distinguished from the rice disease as follows:

Clinically.—1. Anemia is observed in rice disease; i. e., in experimental avitaminosis and hypovitaminosis, according to the reports of Ogata and of McCarrison. This is not the case with beriberi.

2. Lymphopenia is observed in rice disease, as confirmed by Cramer and Ogata. In beriberi this is never the case; on the contrary, a certain degree of lymphocytosis is a frequent finding.

3. In rice disease, emaciation in consequence of denutrition is a common symptom. No atrophy is observed in beriberi, except in chronic cases.

4. Hyperglycemia is common in rice disease, especially in fowls, as ascertained by Funk, Ogata, Tazawa, Shinoda, Shimazono and other workers. This is not the case with beriberi.

5. There are symptoms in the nervous system worthy of special mention. In rice disease, we observe, besides paresis, also jactication, ataxia and often coma. This is not true of beriberi. These symptoms cannot be explained merely as due to the peripheral neuritis; they must at least be ascribed to disorders in the central nervous system. As polyneuritis in animals, especially in fowls, may be produced by other causes, we must not consider it peculiar to beriberi; the cause of the latter is not necessarily identical with that of the polyneuritis.

6. If we feed animals with food lacking in quantities of vitamin B, we are able after the lapse of a fairly long period, to produce in them a state termed hypovitaminosis by Ozeki. The symptoms of this, developing after a prolonged incubation period, differ greatly from those of human beriberi, the principal symptoms being anemia, lymphopenia and hyperglycemia. Ogata described it as the preneuritic or hyperglycemic stage. When neuritis becomes apparent, the end-stage of the disease has been reached, and death follows in a few days (Ogata).

7. In beriberi, cardiac symptoms develop, accompanied by disturbances of the circulation of the blood, especially evident in the venous stagnation, which is never found in rice disease.

8. Loss of appetite and disorders of the intestinal tract are common in rice disease, but in beriberi they are not pronounced, although marked constipation is a common complaint.

Anatomically.—1. Distinctive changes in the heart of patients with beriberi are dilatation and hypertrophy of the right ventricle. This is not the case with rice disease; rather, in the latter we often detect atrophy of the heart in contrast to beriberi.

2. The lung in beriberi is voluminous, and general passive congestion is a common finding; in chronic cases, even pigmented cells or the so-called *Herzfehlerzellen* of German writers occur in air cells of the lung. These changes are not found in rice disease.

3. In beriberi, we find everywhere chronic passive congestion, which is most pronounced in the liver and the kidney, contrary to rice disease. Necrosis in the liver (Nagayo) and the kidney (Yamagiwa) are often encountered in beriberi, and, especially in the cardiac form of beriberi, we can detect fat and glycogen deposit in the liver (Nagayo).

4. Rice disease, and especially hypovitmainosis, is accompanied with anemia, contrary to beriberi. In consequence of this, a pronounced siderosis takes place in the spleen and the liver.

5. The lymphatic system is also in an entirely different state in the two diseases. Though in rice disease regressive metamorphosis or atrophy in accord with the leukopenia are constant findings, in beriberi swelling of the lymphatic apparatus is frequently encountered. The status thymicolymphaticus is sometimes found in the acute form of beriberi and in the beriberi of infants (Nagayo).

6. I have already reported that hypertrophy of the medullary substance of the suprarenals, with increase in the chromaffin reaction, occurs in some cases of beriberi, especially in grave cardiac forms. This has been confirmed by some authors, and a distinct increase in epinephrin content was also proved after quantitative measurements by Ohno. In rice disease, hypertrophy of the cortical instead of the medullary substance is common, but as to the epinephrin content authors differ in opinion, some asserting an increase (McCarrison, Oka), others (Suto, Go) denying it. Commonly, we cannot detect hypertrophy of the medullary substance or increase in the chrome reaction in rice disease.

7. As to the lesions of the nerves, Honda carried out a careful investigation in our institute. In the peripheral nerves, the changes found in beriberi and rice disease are similar. As these changes, however, may arise in man and animals under other conditions, for instance, in various intoxications and in metabolic diseases, one must be guarded against identifying the two diseases on the basis of these lesions.

From these facts is seems difficult and unwarranted to consider beriberi as identical with the avitaminosis or hypovitaminosis of animals.

Furthermore, it is altogether appropriate to consider the rice disease as an avitaminosis, because of the fact that in the animal suffering from rice disease, the amount of vitamin B contained in the tissue and organs is remarkably diminished as compared with the normal state. In beriberi, however, no decrease of vitamin is noticed. These conditions, as well as the results obtained by Ogata in his experiment of curing avitaminosis, would also give us another reason to distinguish beriberi from rice disease.

Moreover, I am in a position to emphasize another important point in solving this problem. A condition similar to experimental rice disease exists also in human beings. It is a peculiar form of farinaceous malnutrition (*Mehlnährschaden*), and may occur in badly nourished infants of the poor, who are continually fed with solutions of polished rice powder. With us it is called Chichiko dyspepsia. It is now rarely encountered in consequence of progress in pediatrics. I have examined two of these rare cases anatomically. The findings in the organs coincide in every respect with those of rice disease, showing wasting, anemia, siderosis, atrophy of lymphatic apparatus and thymus, and other

conditions. The recently discussed alimentary anemia is presumably the same as our Chichiko dyspepsia.

For such reasons, I think it is proper to conclude that beriberi must be distinguished from rice disease, while a condition which is similar to rice disease may also to be found in human beings in Chichiko dyspepsia.

I dare not, however, say that beriberi has nothing to do with a rice diet or with vitamin deficiency in food. It is quite probable that the eating of rice as the main diet may in itself contribute a factor to the occurrence of beriberi, and administering vitamin B may produce good results in preventing or curing beriberi. Therefore, the close connection between beriberi and rice eating or vitamin deficiency is beyond doubt, and it is evident that rice disease is in itself an avitaminosis; but I wish to emphasize that I cannot agree with the opinion that human beriberi is altogether one and the same with rice disease, as observed in experimental animals.

The real cause of beriberi can probably be explained by admitting one or more factors to the etiologic agents of rice disease in animals. And the determination of this factor will be the most important subject of further investigations in the problems of beriberi.

THE THERAPEUTIC VALUE OF TYPE I ANTIPNEUMOCOCCUS SERUM *

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Despite the excellent results of treatment of Type I lobar pneumonia with antipneumococcus serum which have been reported by Cole,[1] no final agreement as to the value of the procedure has been reached by clinicians. Approximately 1,000 treated cases are now on record in the literature.[2] They have been reported, for the most part, in small groups, and the mortality rates have varied from 0 to 27 per cent. Each observer is naturally influenced by his own series, and, in fact, in certain quarters skepticism seems to exist as to the real value of the serum.

It is obvious that with the criterion of success which has hitherto been relied on, namely, the degree of reduction in the gross mortality of treated Type I infections, a huge number of cases will have to be collected before the matter will be settled to the satisfaction of every one. At the present rate, years may elapse before an adequate series will be on record, and it seems highly desirable to obtain data on the value of the serum from other points of view.

If one studies the natural history of lobar pneumonia, the outstanding feature is the abrupt turn either for better or for worse which usually takes place at a certain stage of the disease. In the majority of cases, from five to nine days after the onset, it suddenly becomes apparent that the patient is either about to recover or has gone into collapse. During the preceding days, even if the reaction is severe, there is no way of discovering by clinical observation what the outcome will be. Were there some means of determining in this precritical period the probable mode of termination, it might be possible to evaluate better the effect of serum treatment in the individual case.

A great amount of work has been done on the development of antibodies in patients with lobar pneumonia. A review of the literature may be found in Clough's paper.[3] While the occurrence of agglutinins, opsonins and bacteriotropins, has been reported by a variety of workers, it is notable that such "substances" appear only at or about the time of the crisis, and hence a consideration of them early in the disease is of no use from a prognostic standpoint. Rosenow [4] studied the exudate from consolidated lungs obtained during life by lung puncture, and found that, in cases in which the patients recovered, the viable pneumococci in the aspirated material diminished rapidly as crisis was approached. From the fatal cases, on the other hand, huge numbers of organisms were uniformly obtained. Thomas and Parker,[5] using a similar method of study, found that the death of the organisms in the lung might occur several days before crisis. In forty-two cases in which the lung puncture was "positive," the mortality was 43 per cent.; in thirty-one cases with "negative" lung puncture, the mortality was 6.45 per cent.

With these observations in mind, it was hoped that some simpler criterion might be found which would be of prognostic import. A large number of histories of patients with lobar pneumonia from the records of the Johns Hopkins Hospital were therefore studied. It was soon apparent that neither the degree of pulmonary involvement, the blood count, the temperature, nor the care before entry were of material value in predicting the outcome of individual cases. A survey of the blood culture findings, however, yielded information which forms the basis of the present note.

It is well known that a high percentage of pneumonia patients who have positive blood cultures die, whereas those whose blood remains bacteria free throughout the course of the disease, for the most part, recover. This matter was studied in detail several years ago in the Johns Hopkins Clinic.[6] Daily quantitative blood cultures were made in a series of cases of lobar pneumonia, and the course of the bacteremia was noted in relation to the outcome. It was found that practically every death was associated with the presence of great numbers of pneumococci in the blood, and also that such overwhelming terminal bacteremias might be preceded by very slight blood invasions at a time when clinically the patient still seemed in excellent condition. It is evident, therefore, that as long as the blood is sterile, the issue of the case may usually be regarded as an open one—no critical phenomenon determinative of outcome has necessarily taken place. On the other hand, the presence of organisms in the blood, even if few in number, may indicate that a collapse of the defensive mechanism is already under way, and that, in a sense, the patient is doomed.

With this point in mind, 260 blood culture reports from 198 typical cases of acute lobar pneumonia have been analyzed in regard to the relationship of blood invasion and day of disease to outcome. The cases were taken from the hospital records without selection, and cover a period of ten years from 1913 to 1923. All the blood cultures that are tabulated were made at least one day before death, or one day before clinical phe-

* From the Biological Division of the Medical Clinic, Johns Hopkins Hospital and University.

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2. Locke, E. A.: Treatment of Type I Pneumococcus Lobar Pneumonia with Specific Serum, J. A. M. A. **80**: 1507 (May 26) 1923.
3. Clough, P. W.: Bull. Johns Hopkins Hosp. **30**: 167 (June) 1919.
4. Rosenow, E. C.: J. Infect. Dis. **8**: 500, 1911.
5. Thomas, H. M., Jr., and Parker, F., Jr.: Results of Antemortem Lung Punctures in Lobar Pneumonia, Their Bearing on the Mechanism of Crisis, Arch. Int. Med. **26**: 125 (July) 1920.
6. Sutton, A. C., and Sevier, C. E.: Bull. Johns Hopkins Hosp. **28**: 315 (Oct.) 1917.

nomena indicative of recovery were manifest. The results are shown in Table 1.

The part of Table 1 dealing with the eventual outcome of cases in which the blood cultures were previously negative is especially to be considered. It is seen that a negative blood culture early means

TABLE 1.—*Mortality Statistics of Lobar Pneumonia in Relation to Blood Culture Findings on Various Days*

	Positive Blood Cultures			Negative Blood Cultures		
Day of Disease	Total Cases	Died	Mortality Percentage	Total Cases	Died	Mortality Percentage
2	2	0	0.0	11	3	27.3
3	2	2	100.0	30	9	30.0
4	9	3	33.3	32	8	25.0
5	13	8	61.5	20	3	15.0
6	14	6	43.0	26	5	19.2
7	10	6	60.0	28	4	14.3
8	8	6	75.0	21	1	4.7
9	6	4	66.6	10	0	0.0
10	6	4	66.6	9	1	11.0
Average			55.5			18.1

nothing save that at that time the issue is still an open one, and that the mortality rates correspond with the total rates for larger series of pneumonia cases. The patient may continue his course to recovery without bacteremia or he may later suffer a blood invasion and die. However, if the blood culture remains sterile until the sixth or seventh day, there is much less likelihood of its later becoming positive, and the recovery rate is considerably greater.

The bearing of these observations on the theory of serum therapy is obvious. Many physicians believe that, to be effective, the serum must be given during the first three days of the disease. Theoretically, this view appears erroneous. The serum, to be most effective, should be given, to be sure, before the critical turn for the worse has taken place, but, from the figures presented, it is seen that as long as the blood culture remains negative, the patient's chances of recovery improve and do not decline as the disease progresses; hence one would expect to see the greatest benefit from therapy regardless of the day of disease, provided the blood was still sterile, whereas less benefit would be expected in cases with bacteremia, even if treated on the second or third day.

To verify this idea, the cases treated with serum in the Johns Hopkins Hospital are tabulated in a similar way to the untreated (Table 2). The total number is small, but the results seem striking enough to justify conclusions. It appears that no patient who received serum at a time when the blood culture was negative—regardless of the day of disease—died, whereas the results were no better in patients with blood invasion than in a similar group of untreated controls. There were, however, in the series certain individual cases with bacteremia in which the patients apparently were saved by serum therapy.

TABLE 2.—*Mortality Statistics of Type I Cases in Relation to Day of Disease, Blood Culture Findings and Serum Treatment*

	Positive Blood Cultures						Negative Blood Cultures					
Day of Disease	Treated Cases	Died	Mortality Percentage	Untreated Cases	Died	Mortality Percentage	Treated Cases	Died	Mortality Percentage	Untreated Cases	Died	Mortality Percentage
1	..	..	....	..	..	...	..	..	...	..	..	...
2	3	2	75.0	..	..	...	1	0	0.0	1	0	0.0
3	1	0	0.0	..	..	...	6	0	0.0	4	2	50.0
4	2	1	50.0	2	0	0.0	4	0	0.0	2	1	50.0
5	3	2	75.0	5	3	60.0	3	0	0.0	3	0	0.0
6	3	3	100.0	6	3	50.0	..	0	0.0	5	1	20.0
7	2	1	50.0	3	3	100.0	2	0	0.0	4	1	25.0
8	1	1	100.0	2	1	50.0	2	0	0.0	8	0	0.0
9	..	..	....	..	..	....	1	0	0.0	2	0	0.0
10	..	..	....	..	..	....	..	..	...	1	0	0.0
Average			75			55			0.0			16.5

COMMENT

The fundamental experiments on which the treatment of lobar pneumonia with serum are based show that after the infection has progressed beyond a certain point, no amount of serum will save the infected animal. Evidence is collected here which seems to show that an analogous state of affairs exists in pneumonia in man, and that the best indication that the case is still favorable for treatment is the absence of bacteremia and not the day of the disease. Furthermore, the mortality figures on this basis bring out, in a much more striking way, the therapeutic value of the serum than general gross mortality statistics.

CONCLUSIONS

1. The occurrence of bacteremia in relation to the day of disease affords an index for prognosis in lobar pneumonia.

2. As long as the blood culture is negative, spontaneous recovery is possible in the majority of cases.

3. In the present series, the percentage of recoveries of patients treated with serum at a time when the blood culture was negative was 100, regardless of the day of disease.

4. Bacteremia in the majority of instances of lobar pneumonia indicates, on the other hand, a type of reaction which is lethal despite serum therapy, although undoubtedly certain cases in this group can be saved as well.

5. In summary, it is believed that the present study reinforces the view that Type I antipneumococcus serum is of real value. The serum appears indicated in all cases, regardless of the day of disease, save those in which an overwhelming bacteremia is present.

Heredity and Crime.—It seems, therefore, that we can regard the hereditary constitution of the criminal as having at most but an indirect influence. The family temperament, first manifested in the lawlessness of his parent, is not, of necessity, a specifically criminal endowment, hereditary as such, but a more general condition, analogous rather to the congenital enfeeblement of intelligence or physique—extreme degrees of common weaknesses to which we are all more less susceptible in a minor measure; such weaknesses, when excessive, may favor moral lapses in later life; they in no way constitute a fatal or inexorable impulse toward them.—Cyril Burt: *Brit. J. Med. Psychol.* **3**:15, 1923.

SUGAR TOLERANCE TESTING

IMPORTANCE OF BLOOD SUGAR CURVE DURING THE FIRST HOUR AFTER GLUCOSE MEAL *

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It has long been recognized that alimentary hyperglycemia may reach its maximum in considerably less than one hour, and that if the first estimation of blood sugar is made only at this time, the peak of the rise may be missed. Jacobsen [1] pointed out that in normal persons an increased blood sugar content might be present within five minutes of a 100-gram glucose meal, and that the highest figures were usually obtained in thirty minutes. In seven cases, the blood sugar had fallen to its original level in one hour. Graham [2] found increased values as early as ten minutes, and maximal values from twenty to thirty minutes after the glucose meal. Hopkins [3] and Hamman and Hirschman [4] made blood sugar estimations at fifteen-minute intervals after glucose ingestion, and obtained the highest percentage, as a rule, at thirty minutes. Bailey [5] found a rapid increase and decrease in blood sugar in cases of uncomplicated mild diabetes, of dyspituitarism, and in some cases of hyperthyroidism and of renal glycosuria. The curves in these cases, as in normal persons, usually reached their maximum under one hour, and at one hour were often fairly low. Bailey concluded that tests of alimentary hyperglycemia, if made at one-hour intervals, had little clinical value, since the blood sugar figures an hour after glucose ingestion might be the same in patients with renal glycosuria, early diabetes and in normal persons. Goto and Kuno,[6] estimating the blood sugar at twenty-minute intervals after glucose feeding, obtained maximal figures at forty minutes. Freidenwald and Grove [7] found the fifteen-minute sugar curve crest at forty-five minutes in the majority of normal persons, as well as in patients with carcinoma of the gastro-intestinal tract. Gray,[8] in a study of blood sugar at one-half hour intervals after glucose in a large series of normal persons, obtained the highest values at thirty minutes. Other observers might be cited.

It seems to be well established, therefore, that the hyperglycemia following glucose ingestion in normal persons usually does, and in certain diseases may, reach its maximum in from thirty to forty-five minutes. Yet this fact seems to be quite generally disregarded. The literature abounds in blood sugar curve studies in which the first blood sample is taken an hour after the glucose meal. In many instances, direct reference is made to the technic of Janney and Isaacson.[9] These authors recommended a uniform procedure for testing alimentary hyperglycemia, with the use of a glucose dosage apportioned to the patient's body weight (for each kilogram of body weight, 1.75 gm. of glucose, is given, dissolved in 2.5 c.c. of water per gram of glucose), the blood sugar being estimated before the glucose meal and at hourly intervals thereafter. Yet in a table giving the results in a series of their patients whose blood sugar was studied at thirty-minute intervals, there occurs one case in which the fasting blood sugar was 0.102 per cent.; thirty minutes later, the blood sugar reached the high point of 0.161 per cent., while at the end of an hour it was 0.097 per cent., below the fasting value.

The rapidity with which blood sugar may rise to the point of causing glycosuria and then promptly fall to normal within one hour of glucose ingestion was strikingly called to our attention in a patient in the University Hospital.

REPORT OF CASE

H. M., a white man, aged 36, was admitted to the service of Dr. Alfred Stengel, April 4, 1922, complaining of nervousness, palpitation, loss of weight, and swelling of the neck. Physical examination showed the typical findings of exophthalmic goiter, and the basal metabolic rate was 57 per cent.

TABLE 1.—*Results in the Sugar Tolerance Test*

	Blood Sugar Per Cent.	Urinary Glucose Per Cent.
Fasting	0.067	0
One hour after glucose	0.137	Trace
Two hours after glucose	0.058	1.7
Three hours after glucose	0.068	Trace

above the normal. In the course of a routine urinalysis, a small amount of sugar was found, and the urine of the subsequent twenty-four hours contained 4.5 gm. of glucose. Since the fasting blood sugar was only 0.105 per cent., a sugar tolerance test was made according to the technic of Janney and Isaacson.[9] Glycosuria resulted, yet, as can be seen in Table 1, the highest blood sugar figure was only 0.137 per cent. The estimations were made in duplicate, and after the method of Folin and Wu.[10]

TABLE 2.—*Results in the Sugar Tolerance Test Repeated, with Readings at Fifteen Minute Intervals*

	Blood Sugar Per Cent.	Urinary Glucose Per Cent.
Fasting	0.081	0
One-quarter hour after glucose	0.148	—
One-half hour after glucose	0.165	0.35
Three-quarters hour after glucose	0.161	—
One hour after glucose	0.114	2.1
One and one-quarter hours after glucose	0.103	—
One and one-half hours after glucose	0.097	Trace
One and three-quarters hours after glucose	0.086	—
Two hours after glucose	0.064	0
Three hours after glucose	0.075	0

In order to rule out a glycosuria due to a lowered renal threshold, the test was repeated, blood sugar readings being made every fifteen minutes. The results are shown in Table 2.

It will be seen that the blood sugar rise was very abrupt, giving a figure at fifteen minutes that is higher than any obtained in the first test, reaching its maximum

* From the Medical Division of the Hospital of the University of Pennsylvania and the William Pepper Laboratory of Clinical Medicine.

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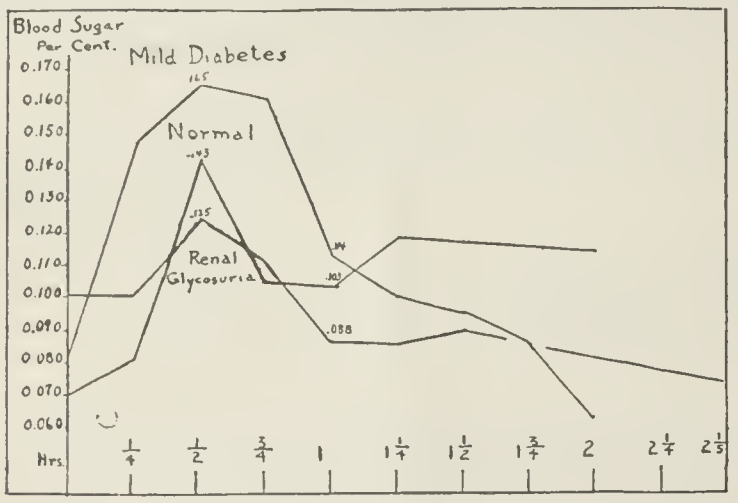
at thirty minutes, and falling to practically a normal level at the end of an hour. The glycosuria in this case we consider to be due to a mild but true diabetes mellitus, since it depended wholly on the diet, sugar appearing in the urine whenever the carbohydrate intake exceeded 150 gm. Nor did any increase in carbohydrate tolerance accompany a later improvement in the hyperthyroidism.

It is of interest to compare this fifteen-minute blood sugar curve (Table 2) with two others, the first obtained in a case of renal glycosuria, the second in a normal control. The renal glycosuria patient by mistake was given his breakfast about an hour before the glucose meal. The first figure of Table 3, therefore, does not represent a fasting level, which on another day was 0.079 per cent. The figures are given in Table 3.

A similar test was made in a person not suffering from any metabolic or renal disorder, with the results shown in Table 4.

In the accompanying chart the three curves have been superimposed.

Each curve reaches its peak at thirty minutes. In all three, the figures at one hour fall within the normal



Blood sugar curves.

range, yet in two of the patients the urine at this time showed sugar. Only a knowledge of the curve in the first hour made it possible to diagnose one of the cases as renal glycosuria with a low kidney threshold, while in the other case it showed that a normal renal threshold for glucose had been reached.

A glance at the first table will show that in the diabetic patient the glycosuria continued for some time after the blood sugar level had fallen below the primary threshold value. This phenomenon is a matter of common observation, and yet it has led to erroneous diagnosis of renal glycosuria, or at least of lowered renal threshold when an inadequate blood sugar study was made. For example, Levin and Kahn,[11] in a sugar tolerance study of twenty-three cases of acne vulgaris, concluded that in four of the cases "the presence of a glycosuria following administration of 100 grams of glucose, the presence of a normal blood sugar curve and the absence of other symptoms of diabetes warranted a diagnosis of decreased renal glucose threshold." Yet the blood sugar figures — fasting, three-fourths hour and two hours after glucose—in these cases were: (1) 0.080, 0.100 and 0.090 per cent.; (2) 0.135, 0.165 and 0.100 per cent.; (3) 0.110, 0.170 and 0.090 per cent.; (4) 0.090, 0.160 and 0.100 per cent. It might be argued that the figures in the last three cases showed a maximum level that was very close to the normal renal threshold for glucose, and that the curves are scarcely "normal blood sugar curves"; but, quite aside from that, it is not improbable that the blood sugar level was distinctly higher at some time prior to forty-five minutes after the glucose meal.

11. Levin, O. L., and Kahn, M.: Biochemical Studies in Diseases of the Skin, Acne Vulgaris, Am J. M. Sc. **164**: 379 (Sept.) 1922.

TABLE 3.—*Results in a Fifteen-Minute Blood Sugar Test in a Case of Renal Glycosuria*

	Blood Sugar Per Cent.	Urinary Glucose Per Cent.
After breakfast	0.101	—
One-quarter hour after glucose	0.101	—
One-half hour after glucose	0.125	1.9
Three-quarters hour after glucose	0.111	—
One hour after glucose	0.088	3
One and one-quarter hours after glucose	0.087	—
One and one-half hours after glucose	0.091	0.5
Two and one-half hours after glucose	0.075	Trace

Therefore, since the finding of glycosuria and a blood sugar figure under the normal threshold level at one hour after a glucose meal necessitates a repetition of the test if only hourly blood examinations were made, the following routine for sugar tolerance testing is suggested. The glucose meal as described by Janney and Isaacson is given in the morning on a fasting stomach, the patient receiving 1.75 gm. of glucose for every kilogram of body weight. The glucose is dissolved in water, 2.5 c.c. for each gram of glucose, and a little lemon juice is added to make the drink more palatable. Blood samples are collected from a vein just before, and one-half hour, one hour and two hours after the glucose meal. This means only one additional vein puncture that should ordinarily present no difficulties. Five cubic centimeters of blood drawn into a tube containing a few oxalate crystals is sufficient. If the available veins are few or small, it may be found practicable to obtain the blood through a hypodermic needle attached to a 5 c.c. glass syringe, into the barrel of which have been dropped a few oxalate crystals. In this way, less trauma is inflicted on the vein, a hematoma is less likely to result, the same vein may be used more than once, and fairly small veins may be punctured in the absence of larger ones.

TABLE 4.—*Results in a Blood Sugar Test Made on a Normal Person*

	Blood Sugar Per Cent.	Urinary Glucose Per Cent.
Fasting	0.070	0
One-quarter hour after glucose	0.082	—
One-half hour after glucose	0.143	0
Three-quarters hour after glucose	0.105	—
One hour after glucose	0.103	0
One and one-quarter hours after glucose	0.120	—
One and one-half hours after glucose	0.118	0
Two and one-half hours after glucose	0.115	0

SUMMARY

The curve of alimentary hyperglycemia may reach its maximum and return to normal within one hour after glucose ingestion. This is true in certain diseases, notably mild diabetes mellitus, as it is in normal persons. In order to differentiate such cases of mild diabetes from conditions in which there is a lowered renal threshold for glucose, it is necessary to determine the blood sugar percentage at less than hourly intervals. It is therefore recommended as a routine in sugar tolerance testing

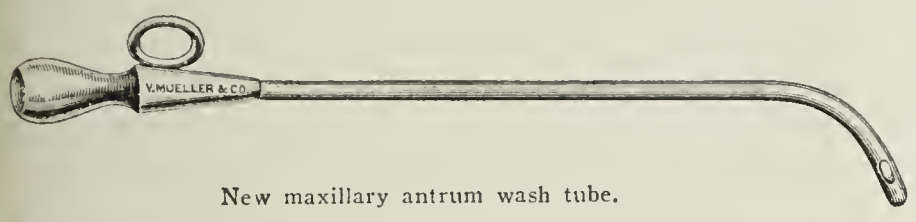
that blood sugar estimations be made just before, one-half hour, one hour and two hours after a standard glucose meal.

Clinical Notes, Suggestions, and New Instruments

A NEW MAXILLARY ANTRUM WASH TUBE

EARL L. VERNON, M.D., CHICAGO

This improved maxillary antrum wash tube is made of silver, fitted to a brass, nickel-plated connection which can be attached direct to either tubing or cutoff as desired, thus eliminating the additional connection used on so many other models. By so doing, the weight of the instrument is reduced to a minimum and the technic of the operation also is thus simplified. The openings of this instrument are placed laterally, assuring full capacity flow when in the sinus. The openings of many other models are placed anteroposteriorly, and apt to be occluded if in contact with the posterior antral wall. It is patterned after the fashion of the eustachian catheter, and is adapted to either antrum alike, thus eliminating the necessity of right and left instruments.



New maxillary antrum wash tube.

7 West Madison Street.

IMPROVISED RUBBER CORK—FOUNTAIN SYRINGE

O. M. RHODES, M.D., BLOOMINGTON, ILL.

Not infrequently one has need or desire for a rubber cork, and almost as frequently is unable to find one of suitable size or condition about his office or in the drug store. This need caused me to improvise this suitable article: Over an ordinary cork, a little smaller than the bottle one wishes to fit, is slipped a piece of rubber tubing up over it so as to fit tightly. The tubing is then cut off about one-eighth inch below the bottom end of the cork. The space thus formed is filled with melted paraffin, and thus a very satisfactory substitute is quickly obtained.

FOUNTAIN SYRINGE

When one has use for a fountain syringe and there is none in the home, or if there is one it is found to be out of repair when wanted, a substitute may be made by having the tinner solder two one-fourth inch tubes into the top of an ordinary mason fruit jar cap, enlarging the ends of the tubes so they will hold the rubber tubing when attached. Each tin tube should extend through the top, one extending from three-fourths to 1 inch above and the other the same distance below the top. This top with several feet of rubber tubing does not take up much space in one's grip, and one can find a half gallon mason fruit jar in practically every home. All that is necessary is to screw on the top, attach the tube with the hard rubber tip to the outside tube and a piece of tubing long enough to extend to within half an inch of the bottom of the jar, to permit the entrance of the air when the jar is inverted, and one is ready for business. This will be found especially convenient in country practice.

405 Corn Belt Bank Building.

Adult Tuberculosis from Childhood Infection.—Numerous cases of adult tuberculosis do spring from childhood implantations. The primary outbreaks of clinical tuberculosis of later life frequently emerge from a background of years-old infections.—A. K. Krause: Rest and Other Things, p. 48.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

CHEPLIN'S B. ACIDOPHILUS MILK.—A milk culture of *Bacillus acidophilus.* It contains not less than fifty million of viable organisms (*B. acidophilus)* per cubic centimeter at the time of sale.

Actions and Uses.—See Lactic Acid-Producing Organisms and Preparations (Jour. A. M. A., Sept. 8, 1923, p. 831).

Dosage.—For adults, from 500 to 1,000 Cc., increased or decreased to meet individual requirements. When employed in infant feeding, it may be diluted with water which has been boiled and cooled, or with lime water in such proportions as the case may demand; lactose (sugar of milk) should be added to restore the normal sugar content. Cheplin's *B. acidophilus* milk is marketed in bottles containing respectively 200 Cc. and 400 Cc. It must be kept on ice and should be consumed within the period of time stamped on the package (three weeks from date of preparation).

Manufactured by Cheplin Biological Laboratories, Inc., Syracuse, N. Y. No U. S. patent or trademark.

Fresh skimmed cows' milk is sterilized in one heating at 120° C. for 15 minutes. After cooling to at least 37° C. the milk is inoculated with a twenty-four hour culture of pure strains of *B. acidophilus* which have been grown, by repeated transfers, sufficiently long in milk to develop rapidly and bring about proper coagulation of the casein. Viable milk cultures of the organisms are employed as the inoculum. After inoculation the milk is kept at 37° C. for from 20 to 24 hours until an acidity is reached so that 10 cubic centimeters will require for neutralization 10 cubic centimeters of tenth-normal sodium hydroxide solution using phenolphthalein solution as indicator. The product is then agitated until completely homogeneous, transferred to 200 and 400 cubic centimeters bottles, which are closed with seals and cooled to 5° C. This strain of *B. acidophilus* used is one isolated by Cheplin. To insure maximum therapeutic effects and colonization within the human alimentary canal, the organism is freshly isolated from human intestinal contents as frequently as is found necessary through actual feeding experiments.

DIPHTHERIA ANTITOXIN CONCENTRATED (See New and Nonofficial Remedies, 1923, p. 283).

H. K. Mulford Company, Philadelphia.

Diphtheria Antitoxin Standard (Purified and Concentrated Globulin).—(Formerly marketed as "Diphtheria Antitoxin Concentrated [Globulin]." See New and Nonofficial Remedies, 1923, p. 283); also marketed in packages of one syringe (*M-020-07*), containing 20,000 units.

Diphtheria Antitoxin Superconcentrated.—The product resembles Serum Antidiphthericum Purificatum, U. S. P.; it differs in that the volume per thousand units is smaller and the protein content is claimed to be lower. Marketed in packages of one syringe (*M 6-04*) containing 1,000 units in a volume of approximately 0.7 Cc.; in packages of one syringe (*M 10-05*) containing 3,000 units in a volume of approximately 1.5 Cc.; in packages of one syringe (*M 14-02*) containing 5,000 units in a volume of approximately 3 Cc.; in packages of one syringe (*M 18-03*) containing 10,000 units in a volume of approximately 5 Cc.; in packages of one syringe (*M 20-07*) containing 20,000 units in a volume of approximately 6.5 Cc.

PROTEIN EXTRACTS DIAGNOSTIC-P. D. & CO. (See THE JOURNAL, Aug. 11, 1923, p. 477).

The following products have been accepted:

Colon Bacillus Protein Extract Diagnostic-P. D. & Co.; Gonococcus Protein Extract Diagnostic-P. D. & Co.; Micrococcus Catarrhalis Protein Extract Diagnostic-P. D. & Co.; Pneumococcus, Type I, Protein Extract Diagnostic-P. D. & Co.; Pneumococcus, Type II, Protein Extract Diagnostic-P. D. & Co.; Pneumococcus, Type III, Protein Extract Diagnostic-P. D. & Co.; Pseudodiphtheria Bacillus Protein Extract Diagnostic-P. D. & Co.; Staphylococcus Albus Protein Extract Diagnostic-P. D. & Co.; Staphylococcus Aureus Protein Extract Diagnostic-P. D. & Co.; Staphylococcus Citreus Protein Extract Diagnostic-P. D. & Co.; Typhoid Bacillus Protein Extract Diagnostic-P. D. & Co.

Prepared by the following method: Bacteria are grown on solid media and incubated from 24 to 48 hours. Each flask represents approximately 30 square inches of surface area. The growth is removed with 15 Cc. of physiologic solution of sodium chloride. The bacterial suspension is centrifugalized and washed twice, recentrifugalizing after each washing. After the second washing, the supernatant solution is removed and the bacterial culture from each flask is shaken with 15 Cc. sterile glycerin. The glycerin suspension is then shaken in a mechanical shaker for several hours. It is then heated for one hour at 60 C. and tested for sterility. The sterile suspension is then mixed with powdered boric acid in the proportion of two parts of glycerin suspension to three parts of boric acid.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1923, p. 284).

Lederle Antitoxin Laboratories, New York.

Diphtheria Toxin-Antitoxin Mixture (0.1 L+).—Also marketed in 30 Cc. vials.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, OCTOBER 27, 1923

THE ACTION OF ARSENICALS IN THE BODY

To the chemist, the toxicity associated with arsenical compounds has long been surrounded by mystery. The growing use of arsenicals in certain fields of therapy has given an impetus to the demand for precise information as to their mode of action. In some types of cases, the results of the employment of various organic compounds of arsenic have been little short of brilliant, while in seemingly related conditions they may be far less effective. This is especially true with reference to the management of protozoal infections of the central nervous system. Arsenical compounds, such as arsenous or arsenic acid, do not show the marked "affinities" of many other chemical substances for the chief components of protoplasm. Their solutions are without immediate visible effects on the structure or functional activities of living cells, yet sooner or later the latter die as the result of the contact. To assume that arsenical compounds act through some vague catalytic process is not particularly enlightening. A recent writer [1] remarks that the investigator who has the temerity to attack the newer problems of chemotherapy is naturally confronted by great difficulties on account of the complexity of the heterogeneous system that constitutes protoplasm, and for this reason little or no information is available concerning the cellular action of most chemicals. Textbooks of pharmacology, therefore, are largely concerned with a description of what might be called the gross or more obvious effects produced by drugs and poisons. This is true of the action of arsenic.

Voegtlin [1] and his pharmacologic associates in the Hygienic Laboratory of the United States Public Health Service have observed that certain compounds containing sulphur groups in the SH form are able to counteract the toxic effect produced by arsenoxid on trypanosomes and a representative mammal. Hopkins, in particular, has arrived at the conclusion that compounds containing the SH group are concerned in certain phases of biologic oxidations and reductions. He has actually isolated from tissues a comparatively simple substance, glutathione, which doubtless plays such a part. The government experts, having found that trypanosomes, like all cells with an active metabolism, contain an SH compound (possibly glutathione), advance the theory that arsenic in certain trivalent forms is a specific poison for the SH groups therein. If, they remark, glutathione really plays such an important part in the life of the cell, then it is not at all surprising that substances such as arsenoxid, which react with the SH group of glutathione, should exert a toxic action. In final analysis, they add, arsenic would have to be considered as a poison that causes death of the cell by interfering with the oxidative processes governed by glutathione.

The clinically established fact that intravenous injections of various arsenicals are far less potent against infecting protozoal organisms that have invaded the central nervous system than against the same infections in earlier stages, before the micro-organisms are found in the cerebrospinal fluid and beyond, has been most puzzling. Voegtlin [2] and his associates attribute it to the behavior of the therapeutic products thus far most commonly used. From their experimental work they have arrived at the conclusion that the failures recorded are probably due to the fact that arsphenamin, neoarsphenamin and silver arsphenamin lack the essential penetrative power for the infected tissues, and for this reason they do not reach the last parasites in sufficient amounts to cause their death. The result is a relapse after treatment has been discontinued. In the effort to secure a more complete sterilization of syphilitic patients in more advanced stages of disease, sulpharsphenamin, tryparsamid, and 3-amino-4-oxyphenyl arsonic acid are suggested as remedies of superior penetrative power. At any rate, it is believed that an exhaustive trial of these compounds is now indicated in view of the fact that the treatment of neurosyphilis and the treatment of trypanosomiasis in its later stages have been such hopeless propositions.

1. Voegtlin, Carl; Dyer, Helen A., and Leonard, C. S.: On the Mechanism of the Action of Arsenic upon Protoplasm, Pub. Health Rep. **38**: 1882 (Aug. 17) 1923.

2. Voegtlin, Carl; Smith, M. I.; Dyer, Helen, and Thompson, J. W.: Penetration of Arsenic into the Cerebrospinal Fluid, with Particular Reference to the Treatment of Protozoal Infections of the Central Nervous System, Pub. Health Rep. **38**: 1003 (May 11) 1923.

RENAL BLOOD PRESSURE AND URINE FORMATION

Adequate knowledge of the factors that enter into the formation of urine and determine the conditions under which it is excreted by the kidneys must obviously be of great importance in many considerations of the functions of the living organism. What is it that promotes, what retards, the renal activities? Strange as it may seem in this era of experimental physiology, the answers to these questions have been under debate for nearly half a century. Consequently, teachers and textbook writers have become accustomed

to present the problem of kidney function with unusual deliberation and—what is always unsatisfactory—without marked conviction as to the proper conclusion to be drawn. Students have thus been taught for years to rehearse the competing theories respecting the secretion of urine.

Has not the time arrived to recognize that a satisfactory answer to some of the aspects of the subject is now at hand? The fact that there may be a parallelism between urine elimination and renal blood pressure has been recognized since the days of Carl Ludwig. His contemporary Heidenhain emphasized the fact that most conditions that alter blood pressure also affect the blood flow through the kidneys. It was not easy to distinguish the effects due to one of these factors to the exclusion of the other. Heidenhain, indeed, favored the view that the rate of urinary secretion depends on the rate of flow of the blood rather than on the capillary pressures in the kidney.

In an enlightening lecture before the Harvey Society in New York in 1921, Richards [1] presented evidence that increment of blood pressure, unaccompanied by increase in velocity or volume of blood flow in the kidney, increases urine formation. With his co-workers at the University of Pennsylvania, he [2] succeeded in perfusing the kidney by a method that permits the pressure within the renal circulation to be altered without necessarily altering the total blood flow through the organ. Changes in perfusion pressure induced by splanchnic stimulation, by introduction of epinephrin and nitroglycerin, by compression of the renal vein and by stimulation of the medulla were accompanied by parallel changes in the rate of urine elimination. The results are believed to constitute direct evidence in support of the filtration hypothesis of glomerular function.

At the Institute of Physiology in University College, London, Dreyer and Verney [3] have well substantiated these conclusions, being able to show anew that changes in the rate of urine secretion are determined primarily by changes in the height of the blood pressure and not by the velocity of blood flow when the composition of the blood remains unaltered. They have added the demonstration that changes in the composition of the blood are also preeminently important in this direction when the blood pressure remains constant, being often unaccompanied by any change in the velocity of blood flow. The English physiologists are therefore forced to the conclusion that the two physicochemical factors of primary importance in the causation of the flow of urine are the height of the arterial blood pressure and the chemical composition of the blood. Blood flow is a necessary accompaniment of secretion, but is not to be regarded as a cause per se. Some of the obstacles to more than a tentative theory of kidney function seem at length to be definitely removed.

1. Richards, A. N.: The Harvey Lectures, 1920-1921, Philadelphia, J. B. Lippincott Company, p. 163.
2. Richards, A. N., and Plant, O. H.: Urine Formation in the Perfused Kidney: The Influence of Alterations in Renal Blood Pressure on the Amount and Composition of Urine, Am. J. Physiol. **59**: 144 (Feb.) 1922.
3. Dreyer, N. B., and Verney, E. B.: The Relative Importance of the Factors Concerned in the Formation of the Urine, J. Physiol. **57**: 451 (Aug. 16) 1923.

"FRIENDS OF MEDICAL PROGRESS"

In the face of the astonishing modern advance in medical knowledge that has come as the result of well organized scientific experimentation, a remarkable phenomenon is presented by the activities of certain organizations, which have endeavored to obstruct such advance by perverting the truth, misleading the ignorant, and endangering the public welfare. Leagues organized to assure individual freedom, however dangerous that may be to community health, cults laboring to lower the standards of medical education and practice, antivaccination societies striving to abolish a well demonstrated protection against a devastating disease, and opponents of animal experimentation, doing their utmost to check or stop an essential method of medical progress, are striking illustrations of such efforts.

The perils that lurk in such mischievous propaganda have been augmented in recent years by placing the decision on scientific matters on a popular vote. By specious arguments for personal liberty, by subtle appeals to tender emotions and kindly sentiments, many voters have been led to oppose well founded measures for the protection of the public health. Physicians have repeatedly pointed out these perils. Practically, however, our profession is not favorably placed to oppose them. Physicians who denounce the exploiting of the public by ignorant and ill-trained charlatans, or who vigorously support medical measures for the promotion of individual and community hygiene, are often charged with selfish motives—they are supposed to be looking out for their own welfare and using the public welfare as a façade. Even if the unjustness of this view were recognized, physicians and health officers have neither the time nor the financial backing required to oppose effectively the fanatical campaigns constantly being waged. After all, intelligent laymen are quite as responsible for public security as are the members of the medical profession.

Under these circumstances, it is highly gratifying to note the creation of a national lay organization—the "Society of Friends of Medical Progress." The object of this society is "(1) to encourage and aid all research and humane experimentation for the advancement of medical science; (2) to inform the public of the truth concerning the value of scientific medicine to humanity and to animals; (3) to resist the efforts of the ignorant or fanatical persons or societies constantly urging legislation dangerous to the health and well-being of the American people."

The honorary president is Charles W. Eliot, ex-president of Harvard University; among the vice presidents are James R. Angell, president of Yale

University; Right Rev. Alexander Mann, bishop of the Episcopal Diocese of Pittsburgh; Cardinal O'Connell of Boston; Ellen F. Pendleton, president of Wellesley College, and Hon. Charles E. Hughes of Washington, D. C. The acting president is Thomas Barbour, the naturalist. Ernest Harold Baynes, whose articles on the value of vivisection to mankind and the lower animals have done much to popularize professional information in this subject, is the field secretary.[1]

This new organization appears at an opportune time, when widespread and dangerous movements are afoot to discredit scientific medicine, to procure legislation that would prevent the progress of medicine and surgery, and to destroy the bulwarks of preventive medicine and permit the incursion of diseases now held in check. The "Friends of Medical Progress" is to be a national society: if it spreads as a strong organization throughout the United States, it should perform a highly important function hitherto assumed with difficulty and with sacrifices, as a civic duty, by the medical profession.

Current Comment

THE CULT OF ABRAMS AND THE SCIENTIFIC AMERICAN

The "Electronic Reactions of Abrams" [2] are being investigated by the *Scientific American*. While The Journal is still of the opinion, expressed several times, that the whole scheme is so preposterous a fake as to stand self-condemned, yet, there are, presumably, some people who demand demonstrable evidence of the fact that the moon is not, and never was, made of green cheese. A preliminary article regarding the investigation to be undertaken by the *Scientific American* appeared in the October, 1923, issue of that publication. The first test to determine the accuracy of the "Electronic Reactions" diagnosis is reported in detail by the managing editor of the *Scientific American* in the current (November) issue. It makes amusing reading. Six tubes of pure germ cultures were submitted to an Abrams disciple with the request that he identify the cultures. The first tube was a pure culture of typhoid. The Abramsite diagnosed it as "acquired syphilis, congenital syphilis, tuberculosis, gonorrhea, Pneumococcus, malaria and influenza" but failed to diagnose typhoid. The second tube was a pure culture of pneumococcus. The "ERA" ("Electronic Reactions of Abrams") gentleman diagnosed the contents of this tube as "congenital syphilis, tuberculosis, gonorrhea, malaria, influenza and colon septecemia" but did not find what it really was, pneumococcus. The fourth was a tube containing a pure culture of tetanus. It was diagnosed as "malaria, influenza, colon septecaemia and diphtheria," but not tetanus. The sixth culture was of diphtheria. The Abrams wizard found "congenital syphilis, tuberculosis, gonorrhea, pneumococcus, malaria and colon septecemia." And so it went. When the Abrams disciple found that he was falling down hopelessly he began casting around for excuses. Looking at the vials which he had already tested, he discovered for the first time that the labels had red edges and bore blue handwriting. This catastrophic chromatic combination, naturally, shot the "ERA" all to pieces. The disciple explained how, quite recently, he had obtained very unsatisfactory results all one morning to find later that the cause was due to his "subject" (the healthy individual whose abdomen is percussed) having a piece of red cardboard, a theater seat check, in his trousers pocket. However, the *Scientific American's* committee removed the red bordered labels with the blue handwriting and substituted a set of plain labels prepared on the typewriter; but the diagnostic results were no more satisfactory than before. It may be said in closing that Albert Abrams has disowned the disciple who flunked the tests as not being a Simon Pure hundred percenter and has promised the *Scientific American* to give a personal demonstration "some time in the near future, if time permits." The whole thing is very funny and very foolish.

1. The organization may be addressed as The Society of Friends of Medical Progress, 28 Newbury Street, Boston.
2. A reprint of the matter that has appeared in The Journal on the Abrams vagaries will be sent on receipt of five cents in stamps.

CHOOSING A PROFESSOR OF MEDICINE IN DENMARK

The retirement of Prof. C. Gram, whose name is familiar to every physician in connection with a certain stain, has left a vacancy in the professorship of internal medicine at the University of Copenhagen. The search for a successor has given rise to incidents that show the conditions under which professors seem to be appointed in Denmark. These conditions are certainly exacting. Five candidates applied for the vacant post, but before the final tests one withdrew, and the competitors left in the field were Dr. C. Lundsgaard, Dr. E. Meulengracht, Dr. C. Sonne and Dr. T. E. Hess Thaysen. From September 3 to September 12, these four had to give public lectures to a jury of Scandinavian experts, some of whom had come from Norway and Sweden at the invitation of the Danish medical authorities. Some inkling of the severity of the tests is to be found in the fact that they had to lecture not only on subjects chosen by themselves, but on others chosen by the jury. The scientific records of the competitors were also scrutinized by the jury, which in the end failed to agree. The majority voted in favor of Dr. Lundsgaard, while a minority of three voted in favor of Dr. Sonne. The majority report, which was signed by six members of the jury, throws out the comforting hint that a new professorship may shortly be created, and that Dr. Sonne had proved himself a good second in the competition. The publication of the deliberations of the jury has evoked a storm of criticism from the medical profession in Denmark, and an appeal, signed by 136 physicians, has been addressed to the medical faculty and the ministry of education, urging that the final decision be not taken till the medical faculty has had an opportunity to investigate all the circumstances of the examination. It is pointed out, in this appeal, that the subject of a lecture chosen by the jury was one on which Dr. Lundsgaard had

specialized. He had, in fact, written a paper on a closely allied subject, and this paper had been among others sent to the jury, some of the members of which had not known of its existence. The suggestion is made that in this matter Dr. Lundsgaard was given an unfair advantage. Be this as it may, it is evident that attaining a professorship of medicine in Denmark is an arduous task requiring not only high qualifications but also a thick skin capable of withstanding the fierce light of publicity. Appointments *in camera* are, of course, liable to abuse, but it is obvious that public competitive examinations of potential professors are not without their serious drawbacks.

BARTER IN MEDICAL DIPLOMAS

Elsewhere in this issue [1] appears an account of the ease with which an impostor obtained a degree in medicine and a diploma in osteopathy, and arranged to have his state examination taken by an impersonator. Another item [2] refers to an exposé of a notorious ring of diploma-venders now being carried on by the newspapers of St. Louis and Kansas City. For several years there have been occasional indications of the existence of this ring of diploma-venders; of late they have been less discreet in their methods. Now their manipulations are being exposed, but there are doubtless others who will promptly take up the business where these have left it. The important thing is that adequate safeguards are being established which will prevent the use of such diplomas. In fact, the diplomas already sold are scarcely worth the paper they are printed on. Even had such diplomas been obtained by bona fide students, they would be almost worthless owing to the extremely low grade of the institution granting them. At this time the diplomas sold will admit their holders—or possibly their impersonators—to the licensing examinations in only three states, Massachusetts, Wyoming and Connecticut, and the District of Columbia, and even in these states, the door will be closed just as soon as practice laws will give the licensing boards the needed authority to close them. The time is quite near when purchasers of medical diplomas will not be able to secure a license in any state of this country and when the diploma-venders will be forced to seek some other calling.

A PASTEUR INCIDENT, 1885-1923

A foreign dispatch that appeared in the lay press a few days ago announced the death of Jupille, for many years a laboratory helper attached to the staff of the Pasteur Institute in Paris. Those who have read Vallery-Radot's fascinating biography of the great French savant may identify Jupille as the shepherd lad who at the age of 14 was bitten by a mad dog near Villers-Farley, in the Jura, and six days later reached Paris for antirabic treatment. The boy was the second person to receive from Pasteur preventive treatment of hydrophobia after a bite, in October of 1885, the little Alsation boy Joseph Meister having been the first to enter the laboratory for this purpose, July 6 of the same year. What anxious days they were—days of hopes, fears and anguish until the success of the novel effort to vanquish the virus of one of the most terrible of diseases was established. Today, thirty-eight years later, as we contemplate the greatness of the blessing Pasteur conferred on the world by his researches on rabies, we can scarcely realize what vision, conviction and courage it required to undertake preventive inoculation in man. It was in connection with the report on Jupille that the chairman of the Academy of Sciences uttered the memorable words:

> We are entitled to say that the date of the present meeting will remain for ever memorable in the history of medicine, and glorious for French science; for it is that of one of the greatest steps ever accomplished in the medical order of things—a progress realized by the discovery of an efficacious means of preventive treatment for a disease, the incurable nature of which was a legacy handed down by one century to another. From this day, humanity is armed with a means of fighting the fatal disease of hydrophobia and of preventing its onset. It is to M. Pasteur that we owe this, and we could not feel too much admiration or too much gratitude for the efforts on his part which have led to such a magnificent result.

This prophesy has been verified. Since the year when Meister and Jupille received the first Pasteur antirabic treatments, the mortality in thousands on thousands of cases has been kept at less than 1 per cent.; without the treatment, it would certainly have been more than 16 per cent. The formal "Service de la rage" was organized in Paris thirty-eight years ago. Antirabic institutes, formerly termed Pasteur institutes in many cities, are now to be found throughout the civilized world.

1. Medical Education, Registration and Hospital Service, this issue, p. 1463.
2. Missouri News, this issue, page 1448.

Association News

ANNUAL FELLOWSHIP DUES AND SUBSCRIPTION TO JOURNAL REDUCED

The Board of Trustees of the American Medical Association has authorized the reduction of the annual Fellowship dues and subscription to THE JOURNAL to five dollars per annum, to take effect, January first, 1924.

PRESENTATION OF PAPERS BEFORE SECTION ON OBSTETRICS, GYNECOLOGY AND ABDOMINAL SURGERY

To Fellows:

Any Fellow who would like to present a paper before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Chicago session is requested to write the secretary before Dec. 15, 1923. So far as possible the papers for the final program of this section are selected from the subjects submitted by members for the preliminary program. The preliminary program consists of all papers submitted prior to the date on which the final program must be forwarded to the Secretary of the American Medical Association. A brief outline showing the scope of the paper should be submitted with the title. No one is asked to write a paper except under the following conditions: (1) lack of suitable papers; (2) to round out a symposium, or (3) an invited guest not eligible to fellowship in the Association.

Papers of a highly technical or theoretical nature are not desirable for use in this section.

The total time permitted for the presentation of a paper, including lantern slides, is fifteen minutes. This time limit is strictly followed.

Whenever two or more members of the Association have worked together on a subject, it is best presented in a joint paper. This lessens the possibility of something interfering with the presentation of the paper, since at least one of the co-authors will be able to attend the session.

The executive committee aims to secure a well rounded program which will be worth your making the trip to Chicago. The secretary wishes to have a large number of possible papers in the preliminary list from which the final selections may be made. Your help will be appreciated.

Carl Henry Davis, M.D., Milwaukee.
Secretary, Section on Obstetrics,
Gynecology and Abdominal Surgery.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ARIZONA

Personal.—Dr. Lewis A. W. Burtch, Phoenix, has been appointed superintendent of an industrial hospital at Pachuca, Hidalgo, Mexico.——Dr. B. E. Galloway, El Paso, has located in Aguascalientes, Mexico.——Dr. Caleb C. Hedberg, Los Angeles, has been appointed on the staff of the United Verde Hospital, Jerome.

ARKANSAS

Harding Memorial Hospital.—The Harding Memorial Hospital Fund will soon be launched for the purpose of raising $150,000 for the erection and equipping of one of the main wings of the Baptist State Hospital, Little Rock, as a memorial to the late President, Warren G. Harding. Former Governor Brough has been appointed chairman of the general committee and will tour the state on behalf of the fund; $5,000 has already been subscribed by a person who wishes to remain anonymous.

Personal.—Dr. Morgan Smith, dean of the University of Arkansas Medical Department, Little Rock, has resigned and will resume private practice.——Dr. John E. Marvin Taylor, Sparkman, has been appointed secretary of the Dallas County Medical Society to succeed Dr. Claiborne J. March, Fordyce, who resigned.——Dr. W. Turner Wootton, Hot Springs, addressed the joint meeting of the Medical Society of the Missouri Valley and the Interstate Society of Radiology and Physiotherapy at Omaha, Neb., recently.——Dr. Hison F. Williams, Ozark, was elected president of the Tenth Councilor District Medical Association at the annual meeting in Fort Smith.

CALIFORNIA

British Surgeon Entertained.—Sir William Macewen, regius professor of surgery, University of Glasgow, Scotland, was the guest of the California Academy of Medicine, San Francisco, September 20, when he addressed about 150 physicians, among whom was Ray Lyman Wilbur, President of the American Medical Association. Sir William is en route to Australia as representative of the British Medical Association (of which he was president in 1922) at the Australasian Medical Congress.

Medical Practice Act Amended.—The California legislature of 1923 amended the medical practice act providing that those who file an application for written examination between Aug. 18, 1923, and Dec. 31, 1923, are not legally required to show premedical education qualifications of more than a high school education. This postpones the additional requirement of one year of college work till Jan. 1, 1924. Previously, the law was that this requirement should be completed before the student began the last half of the second year's medical work.

State Hospital Conference.—The third annual conference of the hospitals of California was held in San Francisco, October 18-20, under the auspices of the League for the Conservation of Public Health. Free hospital care and the narcotic situation in California were the chief topics of discussion. Dr. Dudley A. Smith, Oakland, president of the League for the Conservation of Public Health, presided at the meeting for the discussion of the narcotic situation, at which Curtis Wilbur, chief justice of the supreme court of California, gave an address. Dr. Ray Lyman Wilbur, President of the American Medical Association, spoke on "The Duties and Responsibilities of the American Medical Association in Hospital Betterment." More than 300 hospitals were represented.

COLORADO

Psychiatric Clinic for Denver.—It is reported that the National Committee on Mental Hygiene of New York has offered to establish in Denver a psychiatric clinic for backward and delinquent children and to operate the clinic free of expense to the city for a period of one year, provided that the city will furnish the quarters and equipment and continue to maintain the clinic for at least five consecutive years on a budget of not less than $25,000. Such clinics have been established in Minneapolis, Cincinnati and Dallas, Texas. A special committee has been appointed to investigate the offer.

CONNECTICUT

Yale School of Nursing.—Miss Annie W. Goodrich, dean of the new Yale School of Nursing, New Haven (The Journal, April 28, p. 1249) which will receive its first students in February, 1924, has announced the following appointments: Effie J. Taylor, Hamilton, Ont., Canada, associate professor of nursing; Bertha Harmer, Toronto, Canada, assistant professor of nursing and assistant superintendent of nurses at the New Haven Hospital; Margaret Carrington, St. Paul, instructor of nursing and supervisor in the New Haven Hospital; Helen M. Stelling, Hartford, instructor in nursing and assistant supervisor of obstetrics and gynecology; Mabel Fletcher, resident director of the Yale School of Nursing, and Dorothy Tarbox, Westport, Maine, assistant superintendent of nurses.

DELAWARE

Delaware State Medical Society.—At the annual meeting of the Medical Society of Delaware at Middletown, October 8-9, held under the presidency of Dr. Dorsey W. Lewis, Middletown, the following officers were elected for the ensuing year: president, Dr. John Roscoe Elliott, Laurel; vice presidents, Drs. Isaac J. MacCollum, Wyoming, and William V. Marshall, Wilmington; secretary, Dr. William O. LaMotte, Wilmington, and treasurer, Dr. Samuel C. Rumford, Wilmington. The 1924 session will be held at Milford, October 14-15. Drs. Charles P. Noble, J. P. Crozer Griffith and William L. Clark, all of Philadelphia, and Dr. Tom A. Williams, Washington, D. C., were among the visiting physicians who addressed the meeting.

FLORIDA

Child Welfare Clinic.—The Kiwanis Club of West Palm Beach recently subscribed nearly $1,000 toward a clinic for the free examination and medical attention of the poor and needy children of the city. The Good Samaritan Hospital Association has offered to make a special rate of $1.50 a day for children placed in the hospital by the club, with free use of the operating room.

ILLINOIS

Tuberculosis Association to Meet.—The fourteenth annual meeting of the Illinois Tuberculosis Association will be held in Springfield, October 29-30.

Physician Gives Hospital to Baptists.—At the Illinois State Baptist Convention at Oak Park, October 17, Dr. Arthur W. Allen, Robinson, presented the association with a $150,000 hospital at Robinson.

DuPage County Offers Free Medical Service.—DuPage County, through the board of supervisors, has arranged to provide, at public expense, the surgical and medical care necessary for the welfare of children whose parents are unable to provide such service, according to newspaper reports. The administration of this public service will be carried out under the direction of the county physician, Dr. W. L. Migely of Naperville. The board proposes to make the service county-wide.

Baby Conferences.—During September the division of child hygiene and public health nursing of the state department of public health directed fourteen better baby conferences. A total of 2,291 children between 6 months and 5 years of age were examined. In all instances the professional services of a physician and nurse were furnished by the division, which also supplied standard record forms and literature

for distribution. Local organizations of various character, including members of the medical profession, were responsible for the undertaking of the conferences and participated generously in the work. Beginning with October, the division resumed its activity of conducting diagnostic orthopedic clinics, a service that was interrupted during August and September because of the heavy baby conference schedule. ——Among 1,076 children between 6 and 72 months of age examined at the annual better babies conference at the state fair, 380 had enlarged glands in the neck, 155 had some abnormality of the feet and legs, 199 had some minor skin trouble, 76 had nutritional disturbances, 97 had decayed teeth, and 403 had enlarged tonsils. There was but one child that measured up completely to the standard of measurements used. In all, 614 of the 1,076 examined were registered as having been breast fed, with 130 others recorded as having been partly breast fed. Of the whole number, 533 were boys and 543 girls.

Chicago

Research Fellowships Announced.—The Michael Reese Hospital announces the establishment of two fellowships of $30,000 each and two research funds of $50,000 each; the first by Mr. and Mrs. John Hertz, the second by the trustees of the Joseph G. Snydacker estate, the third by the trustees of the Gusta Morris Rothschild estate and the fourth by Albert Kuppenheimer.

Northwestern's Drive for Funds.—With more than $1,700,000 contributed in precampaign gifts, Northwestern University's drive for a $5,000,000 building and endowment fund was formally opened, October 22. It is planned to erect a medical school and hospital skyscraper at Chicago Avenue and Lake Shore Drive. Schools also of law, dentistry and commerce will be built there.

Personal.—Dr. Emilius C. Dudley, who in the last two years has been visiting professor of gynecology at Hunan-Yale Medical School, Changsha, China, the Peking Union Medical College, Peking, China, and the University of the Philippines College of Medicine and Surgery, Manila, P. I., has resumed practice in Chicago.——Dr. Franklin C. McLean, for several years director of the Peking (China) Union Medical College, has been appointed professor of medicine at the University of Chicago Medical School.——Dr. B. Barker Beeson, Chicago, has been elected a corresponding member of the Société médicale des hôpitaux de Paris.

American Association of Railway Surgeons.—The annual meeting of the association was held in Chicago, October 18-20, under the presidency of Dr. John H. Rishmiller, Minneapolis, chief surgeon of the Soo Line. The following officers were elected for the ensuing year: president, Dr. Duncan Eve, Jr., Nashville, Tenn.; vice presidents, Drs. Clay L. Nichols, Louisville, Ky.; James Y. Welborn, Evansville, Ind., and H. Clay Manning, Cushing, Okla.; secretary-editor, Dr. Louis J. Mitchell, Chicago (reelected), and treasurer, Dr. Frederick G. Days, Chicago (reelected).——Dr. Thomas R. Crowder, Chicago, was elected president of the Association of Railroad Chief Surgeons.

Hospital News.—Mr. E. I. Erickson has succeeded the late Dr. Matthias Walstrom as superintendent of the Augustana Hospital, Chicago.——The Ravenswood Hospital, Chicago, opened its new $336,000 building, October 13, thus giving the institution a total capacity of 125 beds.——More than $100,000 was collected on the annual tag day of the Chicago Children's Benefit League, October 15. Fifty-one charities were represented. In 1922 the sum of $92,600 was collected.——The German Evangelical Deaconess Hospital will hold open house during the Milwaukee convention of the American Hospital Association, and welcomes all visitors to inspect the new building recently opened.——Dr. Isaac J. Frisch and Dr. Samuel C. Greenwald of Michael Reese Hospital, Chicago, have purchased the Cottage Hospital, Harvard, owned by Dr. C. M. Johnson, at a cost of $20,000.

INDIANA

"M.D." Instead of "Dr."—At the recent Terre Haute session of the state medical association a motion prevailed in the house of delegates to the effect that members of the association should use the letters "M.D." after their names in preference to the prefix "Dr." which is now used by so many non-medical men.

Tuberculosis Conference.—At the eleventh annual Mississippi Valley Conference on Tuberculosis, held at Evansville, October 8-10, the following officers were elected: president, Dr. James S. Pritchard, Battle Creek, Mich.; vice president, Murray A. Auerback, Indianapolis, and secretary-treasurer, Dr. H. M. Cass, Huron, S. D. The next annual convention will be held in Sioux Falls, S. D., in 1924. The National Tuberculosis Association was petitioned by the society to hold its convention next year in some state in the Mississippi Valley.

Dr. Smith Appointed Provost.—Dr. Samuel Edwin Smith, East Haven, superintendent of the Eastern Indiana Hospital for the Insane, Richmond, since 1891, has resigned to accept the position of medical provost of Indiana University, Indianapolis, which includes the Indiana University School of Medicine, the Robert W. Long Hospital, the City Dispensary, the James Whitcomb Riley Hospital for Children, the social service department and the Indianapolis branch of the extension division. Should Indiana take over the Indiana Dental College or establish a school of dentistry, it would also be under Dr. Smith's supervision. The office of provost is a new one created by the board of trustees of the university to relieve the president of the university of duties necessary at Indianapolis in connection with his work at Bloomington.

IOWA

Hospital News.—The addition to the tuberculosis sanatorium, Oakdale, is to be ready for occupancy, November 1, according to a recent announcement. The four-story structure, erected at a cost of $188,000, will be used only for patients in an advanced stage of the disease.——The new eighteen bed addition to the People's Hospital of Buchanan County, Independence, will soon be ready for occupancy.——The Iowa Methodist Hospital, Des Moines, has just completed the $60,000 remodeling program.——The Morningside General Hospital, Sioux City, was opened to the public, September 1. This, the eighth hospital to be established in Sioux City, is being sponsored by the Morningside Commercial Club. Dr. Charles Thompson is president.

LOUISIANA

New Board of Health.—Mayor Baucum has appointed Drs. James D. Baucum, Leonard Green and William Lannie Waller, Luther Beene and L. E. Martin to serve as city board of health for Haynesville.

Governor's Home Will Be Sanatorium.—The old Fort St. Leon plantation, formerly the home of Governor Villere, near New Orleans, is being converted into the Rosella Sanatorium for the treatment of tuberculosis, at a cost of $70,000. Rosella Sanatorium will be conducted privately by Dr. Emile A. Bertucci, and will have accommodation for forty patients. It is expected that the institution will be opened to the public, November 15.

MARYLAND

Pilgrimage to Jewish Home.—The tenth annual pilgrimage to the Jewish Home for Consumptives at Reisterstown, held recently, was participated in by 500 Jews. Tree planting in honor of patrons and officials who have died is a feature of the yearly visit to the home; 500 trees have been planted, each with an engraved plate affixed.

Plans for Sanitation.—The bureau of sanitary engineering of the state department of health has presented plans for water works, sewerage systems, and other municipal and sanitary district improvements that will require more than $15,000,000 to complete. More than $2,000,000 will be spent shortly on plans that have already been presented and approved by the bureau.

Dedication of Pathologic Laboratory.—Formal dedication of the new pathologic laboratory building of the Johns Hopkins Medical School will be held, November 1. Leading scientists of the country have been invited to attend. Addresses will be made by Dr. Frank J. Goodnow, president of the university; Dr. William G. MacCallum, Baxley professor of pathology, and Dr. William H. Welch, director of the Johns Hopkins School of Hygiene and Public Health.

Administrative Health Practice Bureau to Be Established.—Quarters for the Administrative Health Practice Bureau of the American Public Health Association have been provided at the School of Hygiene and Public Health, Johns Hopkins University. The bureau will be under the auspices of the U. S. Public Health Service and the committee on municipal health practice of the American Public Health Association, and will be financed by the federal government. Baltimore was selected for this bureau at the annual meeting of the association in Boston, because it is convenient, and quarters were available at the School of Hygiene.

Hospital News.—The new Union Memorial Hospital, Baltimore, opened September 22, will accommodate twice as many

free patients as the old building. There are 182 beds in the new hospital. Thirty-two of the ninety-six private rooms will be used for nurses' quarters until a nurses' home is built. On the sixth floor is the suite of operating rooms installed in honor of Dr. J. M. T. Finney, by his associates.——The campaign to raise $300,000 for the new West Baltimore General Hospital opened, October 12, with $31,875 in special contributions pledged. The drive, conducted under the direction of Judge Jacob Moses, continued two weeks. The new hospital will occupy the building formerly owned by the Hebrew Orphanage, and the funds raised will be expended for new buildings, and repairs, furnishings and equipment.——The Hebrew Hospital and Asylum, Baltimore, will soon take bids for the new hospital building and nurses' home.

MASSACHUSETTS

Personal.—Dr. George G. Parlow has resigned as pathologist at the City Hospital, Fall River. Dr. James H. Walsh, bacteriologist for the board of health, will undertake part of Dr. Parlow's work.——Dr. L. E. Phaneuf, Boston, has been elected a fellow of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons.

Illegal Practitioners Fined.—According to reports, Joe Guey Shong, Boston, was fined $200 by Judge Sanderson of the superior court, recently, for illegally practicing medicine.—— Dr. T. E. Walsh, Boston, was fined $200 recently, according to reports, for continuing to have his name listed in the telephone book as a physician. Dr. Walsh's certificate of registration was revoked two and a half years ago.

MINNESOTA

Academy of Medicine Elects Officers.—At a meeting of the Minnesota Academy of Medicine, September 19, Dr. Arthur S. Hamilton, Minneapolis, was elected president; Dr. Harry P. Ritchie, St. Paul, vice president, and Dr. John E. Hynes, secretary-treasurer.

Central School of Nursing.—The Central School of Nursing of the University of Minnesota, Minneapolis, will enter during the ensuing year only two classes, one for the fall quarter, the other for the spring quarter. A high school diploma is required for admission. The school commands the nursing service for educational purposes of four associated hospitals, the University Hospital (Minneapolis), the Charles T. Miller Hospital (St. Paul), the Minneapolis General Hospital and the Northern Pacific Hospital.

Pirquet Resigns to Return to Vienna.—Dr. Clemens F. Pirquet, for two weeks head of the department of pediatrics at the University of Minnesota has resigned and will return at once to Vienna, Austria. The principal reason for leaving given, in a statement, by Dr. Pirquet was that the research work in which he is engaged requires a large amount of clinical material and an organized hospital and that the comprehensive plans for a hospital provided by the Eustis bequest would require considerable time for completion. Dr. Pirquet also expressed a feeling of homesickness for his Vienna hospital and of inability to adapt himself to his new conditions; a third reason was the continued illness of Mrs. Pirquet since her arrival in the United States.

MISSISSIPPI

Formal Transfer of Hospital.—The formal transfer of patients from the Matty Hersee Hospital, which is being abandoned as a charity hospital, to the new East Mississippi Charity Hospital, Meridian, was made, September 28. Several civic organizations of the city furnished rooms at the new institution and aided in moving. Dr. Samuel H. Hairston, who purchased from the city the Matty Hersee building and site, will convert it into a private hospital after general remodeling.

MISSOURI

Kansas City Clinical Conference.—The Annual Fall Clinical Conference of the Kansas City Clinical Society was held, October 8-13. Among the physicians who addressed the sessions were Drs. Lewellys, F. Barker, Baltimore; Peter Bassoe, Chicago; Russell D. Carman, Rochester, Minn.; Henry Dwight Chapin, New York; Edward V. L. Brown, Chicago; Walter Timme, New York; John H. Cunningham, Boston; John B. Deaver, Philadelphia; Joel E. Goldthwait, Boston; Reuben Peterson, Ann Arbor, Mich., and Francis M. Pottenger, Monrovia, Calif. The next conference will be held in Kansas City, Oct. 13-18, 1924. The society had a special session on Friday, October 12, in connection with the annual meeting of the Southwest Branch of the American Urological Association.

A Missouri Diploma Mill.—During the past week the St. Louis *Star* has published a series of sensational articles exposing a traffic in fraudulent medical diplomas and high school certificates. A member of the staff of the paper is said to have purchased within the past ninety days a fraudulent high school certificate alleged to have been signed by W. P. Sachs and dated 1914 and also an equally fraudulent medical diploma purporting to be from the Department of Medicine of the National University of Arts and Sciences (which went out of existence in 1918), dated 1916. The reporter also obtained a certificate of license to practice medicine in the State of Tennessee, the name of the person to whom the license was originally issued having been erased and the newspaper man's name filled in in its place. The newspaper presented its evidence to state and federal prosecuting authorities and reports that, as a result, Drs. Ralph A. Voigt and D. R. Alexander, both of Kansas City, Dr. Robert Adcox of St. Louis and Professor W. P. Sachs, also of St. Louis, have been arrested.

NEW JERSEY

Society News.—At the annual meeting of the Cumberland County Medical Society in Bridgeton, October 2, Drs. Clarence Percy Lummis, Bridgeton, and H. C. Miller were elected president and secretary, respectively.—— Dr. John Edgar Howard, Haddonfield, was elected president of the Camden County Medical Society, October 10, at the annual meeting in Camden; Dr. Charles H. Jennings, Merchantville, was elected vice president and Dr. Thomas B. Lee, Camden, secretary.

NEW YORK

"Medical Week" Moves.—The editorial office of *Medical Week*, the official organ of the Medical Society of the County of New York, has been moved from 47 West Thirty-Fourth Street to 67 West Ninety-Fourth Street, New York City.

Memorial Service for Physician.—The Buffalo Academy of Medicine, the Physicians' Protective Association and the Erie County Medical Society held a memorial meeting, October 10, for Dr. John H. Pryor, who died, July 20. Dr. Pryor was given credit at the meeting for introducing into this country the Rollier treatment for tuberculosis, and for founding the first public institution for the exclusive treatment of tuberculosis, the Raybrook Hospital, near Saranac.

Society News.—At the annual meeting of the New York Society for Clinical Psychiatry, October 11, at the New York Academy of Medicine, Dr. Albert M. Barret, professor of psychiatry at the University of Michigan Medical School, Ann Arbor, spoke on "Constitutional and Dispositional Factors in Psychiatry."——The decennial banquet and dance of the Bronx County Medical Society will be held, Jan. 9, 1924, at the Coucourse Plaza.——The First District Branch of the Medical Society of the State of New York held its annual meeting in Tuxedo Park, October 16, under the presidency of Dr. Edward C. Rushmore. Dr. Joseph A. Blake spoke on "The Larger Aspect of the Treatment of Fractures." He considered his subject from the point of view of how fractures might be handled from the practical and economic side, stating that he wished to bring this subject before the profession because the public had become interested in it. This had come about largely because of results shown by roentgenograms in fracture cases, and the public had come to accept these instead of the functional result as the criterion. Dr. Blake discussed three ways of handling fracture cases: (1) the use of easily accessible hospitals located at strategic points; (2) the development of certain surgeons so that they would be especially equipped to care for such cases, and (3) the general practitioner.

Campaign to Improve Economic Status of Physicians.—A movement has been initiated by Dr. Orrin Sage Wightman, president of the medical society of the state of New York, to awaken laymen and municipal administrators to recognize the value of the medical services rendered to municipalities and to the hospitals and dispensaries under their control. It will be shown that physicians have long considered it their duty and privilege to care for the sick poor of the community. In so doing they have pauperized themselves, and the public has come to expect this free service as a matter of course. Even when physicians receive compensation for their services, the amount represents an entirely inadequate return on the expenditure for the capital invested. No other class of persons in the community works for the city for nothing. The city pays for police protection, for fire protection and for other services. The time has arrived when municipalities must consider paying physicians on the basis of a limited

per capita fee, and it is well that the public begins to consider this matter. Action will have to be taken soon, for even now there is a dearth of interns and medical students who are willing to give their time in hospitals and dispensaries without compensation, and the problem of manning these institutions is growing acute. Dr. Wightman is presenting this problem to physicians throughout the state and asking their cooperation in enlightening the public to the existing situation whereby physicians are bearing practically the entire burden of providing medical services to the sick poor.

New York City

Illegal Practitioner Convicted.—Samuel Barnett, who was arrested last August on the charge of practicing medicine without a license at 132 West One Hundred and Thirty-First Street, has been found guilty by Justices Herrmann, O'Neill and Herbert. The defendant was remanded to the Tombs for sentence, October 15.

Fewer Drug Addict Cases.—At the annual conference of the state association of magistrates, held in Geneva, October 13, Judge Cornelius F. Collins of New York, chairman of the Committee on the Drug Evil, reported a falling off of 35 per cent. in the number of cases of drug addiction passing through the court of special sessions in New York.

Food Handlers Must Be Licensed.—Every man and woman in Greater New York who comes in personal contact with the public handling of food must obtain a license from the department of health by November 1, certifying that he or she is free from either contagious or infectious disease. Dr. Frank J. Monaghan, health commissioner, estimates that about 180,000 persons will require licenses.

Chamber of Commerce Names Public Health Committee.—At a meeting, October 12, the Brooklyn Chamber of Commerce appointed a public health committee which will have to do with the plans concerning sewage and garbage disposal, and the health exposition to be held in November. The committee consists of: Dr. Frank D. Jennings, chairman, Drs. Alfred E. Shipley, Thomas M. Brennan, William S. Hubbard, Carl H. Laws, Joseph W. Malone, N. P. Rathbun, Charles T. Schendelmeier, Luther F. Warren and a number of lay members.

Polyclinic Post-Graduate Medical School and Hospital Reopened.—This institution, which has been closed since used as an army hospital, has been renovated and reopened, largely through the efforts of Dr. Charles Gardner Child, Jr., Dr. Edward L. Kellogg and Dr. Orrin Sage Wightman. The faculty and the staff of the hospital have been reorganized. Dr. Ellsworth Eliot, Jr., is president of the faculty, and Dr. Charles N. B. Camac, secretary. Dr. Eliot is head of the surgical staff of the hospital; Dr. Orrin Sage Wightman is head of the medical staff. The membership of classes has been limited until the reorganization plans are more fully completed. The plans include a Spanish department, in which classes will be conducted by Spanish professors.

Four Free Clinics Opened.—The Jewish Board of Guardians, supported by the Federation for the Support of Jewish Philanthropic Societies, has opened four free clinics where medical, neurologic, psychiatric and psychologic examinations and treatment will be given. They will be available to all men and women under the board's supervision. Dr. Spencer Strauss, New York Post-Graduate Medical School and Hospital, is director of the psychopathic clinic. Dr. Newton Thomas Saxe, pediatrician of the New York Post-Graduate Medical School and Hospital, will be in charge of the medical clinic. Mrs. Joseph Hardy is chairman of the mental hygiene committee of the board, and Mortimer L. Schiff is president of the board.

Personal.—Dr. Frederick Luithin, professor of dermatology of the University of Vienna, recently delivered a lecture at the Post-Graduate Hospital on the subject of "Recent Advances in the Therapy of Skin Diseases."——Dr. Hugh Cabot, Ann Arbor, Mich., addressed the stated meeting of the New York Academy of Medicine, October 18. His subject was "Some Observations on Renal Affections."——Dr. William C. Finnoff, Denver, read a paper before the section on ophthalmology of the New York Academy of Medicine, October 15, on "Ocular Tuberculosis, Experimental and Clinical."——Dr. David Dudley Krupp, Brooklyn, has been placed in charge of the roentgen-ray department of the South Side Hospital, Bay Shore, L. I.——Mr. Clifford Beers, New York City, recently spent six weeks in England, France and Belgium in the interest of an International Congress on Mental Hygiene, to be held in America in 1924 or 1925. Mr. Beers, who is secretary of the National Committee for Mental Hygiene, was received by the king of Belgium, Cardinal Mercier, Premier Poincare and M. Clemenceau.

NORTH CAROLINA

Clinic at Charlotte.—Dr. Alfred Stengel, professor of medicine at the University of Pennsylvania, Philadelphia, will be the guest of honor at a two day clinic to be held in Charlotte, November 2-3, to which all physicians are invited.

Hospital Contracts Let.—Three contracts have been let at a cost of $233,800 for the erection of three buildings at the State Hospital, Morganton, which, when completed, will afford room for 500 additional beds. The facilities at all the hospitals, including institutions for the negroes, are being materially enlarged.

OREGON

Hospital Donated to Medical School.—As a memorial to the late Frank S. Doernbecher, his son and daughter have donated $200,000 to the University of Oregon Medical School, Portland, for the erection of a hospital to be known as the Doernbecher Memorial Hospital for Children. Dr. Richard B. Dillehunt, dean of the medical school, announced that the board of regents gratefully accepted the gift. Tentative plans made by the board call for the erection of the hospital on a site just east of the two recently completed units of the medical school on Marquam Hill. Its architecture will be consistent with the medical school building plan.

PENNSYLVANIA

History of Medical Society.—At a meeting of the Fayette County Medical Society, in January, 1922, it was resolved that a history of the society and a medical biography of every physician who had practiced medicine in the county, with his photograph, should be prepared and published in book form. Dr. Jacob S. Hackney, Uniontown, was appointed a committee of one to compile and edit this work. At the meeting of the society, September 3, Dr. Hackney reported the data completed and presented it to the society. The work consists of more than 300 pages and 130 photographs, some of which are of physicians who practiced in Fayette County more than a century ago. The book is now in the hands of the printer. In appreciation of his work, Dr. Hackney was made a life member of the medical society without the payment of dues or assessments, following a resolution offered by Dr. James B. Ewing, the oldest practitioner of the county.

Philadelphia

Personal.—Prof. C. E. Bloch, Copenhagen, Denmark, was a guest speaker at the meeting of the section on general medicine of the College of Physicians of Philadelphia, October 22. His subject was "Diseases Due to Deficiency in A-Vitamines."——George E. Vincent, president of the Rockefeller Foundation, New York City, was the guest of honor of the Medical Club of Philadelphia, October 19.

The Alvarenga Prize.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize of $300, will be made July 14, 1924, provided an essay deemed by the committee of award worthy of the prize shall have been offered. Essays intended for competition may be on any subject in medicine, but cannot have been published; if not in English, they should be accompanied by an English translation, and be in the office of the secretary of the college not later than May 1, 1924. Each essay must be sent without signature, but plainly marked with a motto. It must be accompanied by a sealed envelop having on the outside the motto of the paper, and within the name and address of the author. The Alvarenga Prize for 1923 has been awarded to Dr. Edward P. Heller, Kansas City, Mo., for his essay entitled: "Treatise on Echinococcus Disease."

Pennsylvania University to Extend Field.—An elaborate program for expansion in the field of graduate medicine will be put into operation by the University of Pennsylvania Medical School officials in connection with the Graduate School of Medicine of the University of Pennsylvania. Philadelphia, Scranton, Sayre and Pottsville have been selected as centers from which to work. Medical associations in the cities are cooperating with the university. In Philadelphia the extension work will be conducted Monday, Tuesday and Thursday evenings and Wednesday afternoon. The course will include lectures in psychophysiology, which Dr. Edward Lodholz, professor of physiology at the University of Pennsylvania, will present. The department of neuropsychiatry

will provide six weeks of instruction in clinicopathologic neuropsychiatry to one representative of the medical staff of each of ten of the state's psychopathologic hospitals. Seventy-five physicians from all parts of the world, including men from Switzerland, China, Japan and England, have enrolled in the graduate school, which opened October 20.

TENNESSEE

Personal.—Dr. Leonard D. Murphy, Buena Vista, has been elected secretary of the Carroll County Medical Society to fill the unexpired term of Dr. Grailey H. Berryhill, McKenzie, who has removed to Memphis.——Dr. John W. Ross, Clarksville, has accepted the position of chief surgeon of the United Fruit Company's 125-bed hospital at Quiriqua, Guatemala.

UTAH

Public Health Meeting.—The annual meeting of the Utah Public Health Association was held in Salt Lake City, October 15, under the presidency of E. O. Howard. Dr. Joseph R. Morrell, Ogden, president of the state medical association; Dr. Frederick L. Stauffer, Salt Lake City, president of the state board of health; Dr. Willard Christopherson, health commissioner, Salt Lake City; Dr. Warren L. Lindsay, Salt Lake City, U. S. Veterans' Bureau; Dr. Clarence C. Jensen, Riverton, state superintendent of schools, and Dr. Ralph T. Richards, Salt Lake City, Utah director of the National Association for the Prevention of Cancer, were among those who addressed the meeting.

VIRGINIA

Personal.—Dr. Rudolf Teusler, who was in Richmond at the time of the earthquake in Japan, has returned to Tokyo to aid in reconstructing St. Luke's Mission Hospital, of which he is superintendent. Dr. Teusler states that all the American physicians at the hospital are safe. The foundation of the new St. Luke's Hospital, which had been completed as far as the first floor, was also destroyed.——Drs. William O. McCabe, Thaxton, and Joseph A. Rucker, Bedford, were elected president and secretary-treasurer, respectively, of the Bedford County Medical Society, recently.

WASHINGTON

Fifty-Seven Poisoned by Food.—According to reports from Seattle, seven women are dangerously ill as the result of food poisoning at a luncheon given by the Parent Teachers' Association at Roland School, October 13. More than fifty other persons became ill, but physicians stated that these would recover.

WEST VIRGINIA

Hospital Changes Name. — Drs. Thomas W. Moore and William F. Beckner announce a change in the name of the Moore-Beckner Hospital, Huntington, to the Huntington Eye, Ear and Throat Hospital.

Ohio County Medical Society. — Officers recently elected were installed at the first regular meeting of the Ohio County Medical Society at Wheeling, October 3. Dr. William Turner Morris is president; Dr. Edward S. Bippus, vice president, and Dr. John E. Marschner, secretary. Dr. William H. Guy, professor of dermatology at the University of Pittsburgh School of Medicine, spoke on "Precancerous Dermatoses."

WISCONSIN

Medical Women Elect.—At the annual meeting of the Wisconsin Medical Women's Society in Milwaukee, October 6, Dr. Eleanore S. Cushing Lipitt, Milwaukee, was elected president; Dr. Irene G. T. Stemper, Oconomowoc, and Dr. Ella Chafee Fay, Whitewater, vice presidents, and Dr. Rose Kriz, Milwaukee, secretary-treasurer.

Chiropractic Degree Outlawed. — Persons not licensed to practice medicine, surgery or osteopathy are not permitted to use the letters "D.C.," meaning doctor of chiropractic, after their name, the attorney-general held at Milwaukee, October 13, in an opinion to Dr. John M. Dodd, secretary of the state board of medical examiners.

PHILIPPINE ISLANDS

Personal.—Drs. Leoncio Lopez-Rizal, Philippine Health Service; P. Gutierrez, University of the Philippines Medical School; Herbert W. Wade, health service, and Prof. F. G. Haughwout, Bureau of Science, were appointed to represent the Philippine government at the Fifth Congress of Far Eastern Association of Tropical Medicine at Singapore in September.——The Council of State has recently designated, as pensionados to the United States, Drs. Jose Fernandez, Jose Guidote and Mariano Tolentino for the purpose of doing graduate work in mental disease, public health work and hospital administration.——Dr. Cristobal Manalang, bacteriologist of the Philippine Health Service, represented the Philippine Islands at the Pan-Pacific Scientific Congress in Australia, August 22-September 3.——Dr. Sixto Y. Orosa, chief of the Sulu Public Hospital, has been appointed acting head of the newly created Division of Hospitals of the Philippine Health Service. He will be stationed at Manila.

Public Health News.—The public welfare commission is launching a modern health crusade in the schools of the Philippines. It is hoped to make it a part of the school curriculum. Pamphlets explaining the movement are being widely distributed.——A committee has been formed by Vice Governor Gilmore for the study of the beriberi problem. The report of the committee will serve as the basis of the instructions to be given the delegates who will represent the Philippines at the fifth congress of the Far Eastern Association of Tropical Medicine at Singapore, Sept. 3-17, 1924.——The director of public health has appointed a committee to make plans providing for the maintenance in the insular treasury of a special fund to be known as the pension and retirement fund of the Philippine Health Service, to be recommended to the next session of the legislature.——Following reorganization of the Philippine Health Service and the creation of the office of general inspection, the archipelago has now been divided into five territorial inspection districts.

CANADA

New Requirements for Licensure.—At the annual meeting of the Nova Scotia Medical Board, it was announced that the board now requires of all candidates for licenses to practice in the province of Nova Scotia evidence of preliminary education at least equivalent to the complete senior matriculation of chartered Canadian universities, followed by five years of professional study. The matter of requiring six years of professional study is under consideration. Dr. J. G. MacDougall and W. H. Hattie were reelected president and registrar, respectively.

Society News.—A joint meeting of the Ontario and Quebec sections of the American College of Surgeons will be held in Ottawa, November 22-23, to discuss hospital standardization. A community health meeting will be held at which Drs. George W. Crile, Cleveland, George D. Stewart, New York, Walter W. Chipman, Montreal, and Franklin H. Martin, Chicago, will speak.——The forty-fourth annual meeting of the Ontario Medical Association will be held, June 17-20, 1924, conjointly with the Canadian Medical Association and under the auspices of the Ottawa Medico-Chirurgical Society, in Ottawa.

Care of Mental Cases.—Members of the Canadian National Committee for Mental Hygiene recently made a trip throughout western Canada to lay the foundation for an educational and financial campaign in 1924. Committees were organized in eight large cities; the new institutions, on which the Canadian government has expended more than $5,000,000, were visited. Among noteworthy improvements are: the training school for nurses at the Provincial Mental Hospital, Brandon, Sask.; the organization of a thoroughly equipped occupational therapy division at the Provincial Mental Hospital, Battleford, Sask.; the formation of a division for the care of the feebleminded in Alberta, and the erection of a new occupational therapy building at the Hospital for the Insane, New Westminster, B. C.

GENERAL

Legion of Honor for American Nurse.—Miss Evelyn G. Smally, an American nurse, was made a chevalier of the Legion of Honor, October 4, for distinguished services during the Champagne offensive. General Gouraud, military governor of Paris, conferred the honor.

American Dietetic Association.—Mrs. Octavia Hall Smillie, Andalusia, Ala., was reelected president of the American Dietetic Association at the sixth annual meeting in Indianapolis, October 15-17. Anna E. Boller, Central Free Dispensary, Chicago, was elected treasurer.

American Association of Oral and Plastic Surgeons.—At the annual meeting of the association in Chicago, October 22-23, the following officers were elected for the ensuing year: president, Dr. Thomas L. Gilmer, Chicago; vice president,

Dr. Ernest F. Risdon, Toronto, Ont., Canada, and secretary, Dr. Leroy M. S. Miner, Boston.

American Association of Clinical Research.—At the annual meeting of the Association in Philadelphia, October 13-15, the following officers were elected for the ensuing year: president, Dr. Roger M. Griswold, Kensington, Conn.; vice presidents, Drs. Curran Pope, Louisville, Ky., and Elbert B. Swerdfeger, Denver, and secretary, Dr. James Krauss, Boston.

Mississippi Valley Medical Association.—At the forty-eighth annual conference of the association in Hot Springs, Ark., October 9-11, Dr. Charles A. L. Reed, Cincinnati, was elected president for the ensuing year. Drs. Edwin P. Sloan, Bloomington, Ill., Joseph Louis Ransohoff, Cincinnati, and Charles W. Hanford, Chicago, were among the visiting physicians who gave addresses.

Medical Association of the Southwest.—At the recent annual meeting in Kansas City of this society, the following officers were elected: president, Dr. Williston H. Addington, Altoona, Kan.; vice presidents, Drs. Leonard S. Willour, McAlester, Okla., Joseph D. Becton, Greenville, Texas, Oscar B. Hall, Warrensburg, Mo., and St. Cloud Cooper, Fort Smith, Ark., and secretary-treasurer, Dr. Edward H. Skinner. It was voted to hold the 1924 meeting also in Kansas City. The *Medical Herald and Electro-Therapist* was selected as the official organ of the association.

Influenza Study.—The U. S. Public Health Service, Washington, D. C., started an investigation of influenza in the universities of the country, October 6. Blank forms have been distributed to students, who are requested to fill in their health records and to supplement this information twice monthly through the fall and winter on other blanks to be supplied them. The number of colds, coughs and cases of influenza and pneumonia, and general health conditions as well, will be recorded. Statistics for Southern colleges will be gathered by taking Tulane University of Louisiana as an average.

National Safety Council.—At the twelfth annual congress of the National Safety Council at Buffalo, October 1-5, the following officers were elected for the ensuing year: president, L. A. DeBlois, Du Pont de Nemours & Company, Wilmington, Del.; vice presidents, C. B. Auel, Westinghouse Electric Company, Pittsburgh, in charge of general activities; Marcus A. Dow, executive secretary, Bureau of Public Safety, Police Department, New York City, in charge of public safety; George T. Fonda, Fonda Tolsted, Inc., New York City, in charge of local councils; H. A. Reninger, Lehigh Portland Cement Company, Allentown, Pa., in charge of industrial safety; David Van Schaack, Aetna Life Insurance Company, Hartford, Conn., in charge of public relations, and vice president and treasurer, Homer E. Niesz, Commonwealth Edison Company, Chicago.

American Child Health Association.—At the annual meeting of the American Child Health Association in Detroit, October 15-17, Herbert Hoover, secretary, U. S. Department of Commerce, Washington, D. C., was reelected president of the association for the ensuing year. Among the speakers were: Drs. Haven Emerson, professor of public health, College of Physicians and Surgeons Columbia University, New York City; George E. Vincent, president of the Rockefeller Foundation; John M. Dodson, Chicago; Everett C. Hartley, director of child hygiene, state board of health, Minnesota; Mary Riggs Noble, chief, division of child health, Pennsylvania State Department of Health; Arnold L. Gesell, professor of child hygiene, Yale University Medical School; Mons. J. Maquet, directeur-general de l'Oeuvre de l'enfance, Brussels, Belgium; Frances S. Bradley, director of bureau of child hygiene, state department of health, Arkansas, and Henry F. Vaughan, commissioner of health, Detroit.

American Hospital Association.—The silver jubilee convention of the association will take place in Milwaukee, October 29-November 2, under the presidency of Asa S. Bacon, superintendent of the Presbyterian Hospital, Chicago. Dr. Malcolm T. MacEachern, Vancouver, B. C., is president-elect. An exposition of hospital supplies and equipment, including a complete laundry and kitchen designed for a 100 bed hospital, will be held at the Milwaukee Auditorium. The allied associations—the Protestant Hospital Association, the American Occupational Therapy Association, the hospital council of the American Dietetic Association and the American Association of Hospital Social Workers—will convene in Milwaukee at the same time. Among the speakers will be Mr. E. S. Gilmore, superintendent, Wesley Memorial Hospital, Chicago; Mr. Charles S. Pitcher, superintendent of the Presbyterian Hospital, Philadelphia; Dr. Herman Bundesen, health commissioner of Chicago; Dr. J. H. Kellogg, superintendent, Battle Creek (Mich.) Sanitarium; Dr. Sigismund S. Goldwater, superintendent of Mount Sinai Hospital, New York, and Dr. James B. Herrick, president, Chicago Association for the Prevention and Relief of Heart Disease. The National Hospital Day Committee will have an exhibit indicating what the hospitals of the United States and Canada do on National Hospital Day to win the interest and support of their communities.

American College of Surgeons.—The thirteenth annual congress of the American College of Surgeons opened at the Congress Hotel, Chicago, October 22, with a large attendance. Among the speakers at the opening session were Dr. Harvey Cushing, Boston, the retiring president; Dr. Franklin H. Martin, Chicago, director general, and Dr. John B. McKenzie, New Brunswick, Canada. At the evening session in Orchestra Hall, Dr. Albert J. Ochsner, Chicago, president-elect, was installed, and Dr. George Crile, Cleveland, delivered the John B. Murphy oration in surgery. Dr. Ochsner emphasized the work of the college in the standardization of hospitals of which there are now 1,176 on the list. He said, in part, standardization enables hospitals to eliminate from their staffs men who are hopelessly unfit, but who have stayed on because there was no standard of education, experience, or ethics by which they could be measured. Dr. Crile is reported to have said, "we consider that electricity keeps the flame of life burning in the cell and the flame—oxidation—supplies electricity used in operating the animal," and that the body is made up of twenty-eight trillion cells of which each was a tiny wet battery with negative and positive pole. The brain cells are most positive, the cells of the liver the most negative. Sir William I. de Courcy Wheeler, president of the Royal College of Surgeons of Ireland, was the invited foreign guest. The cornerstone of the John B. Murphy Memorial, to be erected at 44 East Erie Street, was laid October 23, when Dr. William J. Mayo, Rochester, Minn., gave an address. Dr. Mayo is reported to have said that there was a sufficient number of trained surgeons to do the surgical work but that there were a great many engaged in surgical practice who were not properly qualified, and that "the untrained man in justice to the patient, should not undertake surgery." Clinics were held in the leading hospitals and medical schools of the city.

LATIN AMERICA

Pan-American Sanitary Conference.—The seventh Pan-American Sanitary Conference will be held in Havana, Cuba, November 5-15, under the provisional presidency of Dr. Mario G. Lebredo. The sixth sanitary conference of the American republics was held in Montevideo, Uruguay, Dec. 12-20, 1920, when a resolution was adopted for the assembling of the Seventh Pan-American Sanitary Conference.

FOREIGN

Physics and Chemistry Fellowships.—A society of Bologna has founded an endowment of 6,000 francs yearly for an Italian student of physics and chemistry who wishes to do research work in the Curie Laboratory, Paris. The fellowship is endowed for ten years.

London School of Dermatology.—In order to further the study and teaching of dermatology in London, lectures will be conducted on Tuesdays and Thursdays at St. John's Hospital for Diseases of the Skin by the honorary medical staff of the hospital, together with the physician in charge of the dermatologic departments of the twelve London teaching hospitals.

Seventy-Fifth Anniversary of the Amsterdam Medical Society.—The festal celebration of the foundation of the Geneeskundiger Kring of Amsterdam in 1848 was accompanied by an interesting historical loan exhibition, and concluded with a banquet at the Amstel-Hotel. The Amsterdam Medical Society is the Amsterdam section of the Netherlands Medical Association, the daughter being older than the mother.

Mexico and the Institute for Tropical Diseases.—The *Deutsche medizinische Wochenschrift* reports that a party from the public health service in Mexico has been visiting the Institute for Tropical Medicine at Hamburg, to aid in establishing closer relations between the institute and the state of Mexico. The party consists of Dr. Gabriel M. Malda, chief of the Mexican public health service, and Drs. Servando Osornio and Carlos Augurio.

Expedition to Study Elephantiasis.—An expedition will be sent to Samoa by the London School of Tropical Medicine to

study the prevention of elephantiasis and filariasis, diseases which affect 85 per cent. of the inhabitants of the Samoan group. Dr. Patrick Buxton, entomologist to the Palestine government at Jerusalem, will head the expedition, which will leave England, November 15, for two years. Headquarters will be established at Apia.

Maudsley Hospital Courses.—The second part of the sixth course of lectures and demonstrations for the diploma in psychologic medicine opened at the Maudsley Hospital, London, October 8. Dr. Edward Mapother will deliver eight lectures on morbid psychology on Mondays; Dr. Bernard Hart, eight lectures on the psychoneuroses on Mondays, beginning November 5, and Sir Frederick Mott, six lectures on the pathology of mental diseases, on Tuesdays, beginning November 6.

Precautions Against Alastrim.—Notice has been published at Basse Terre, Guadeloupe, that vessels plying between France and the Panama Canal and stopping at Basse Terre and Pointe à Pitre will require all persons sailing from ports in the islands of Guadeloupe, where alastrim prevails, to be revaccinated on board en route and to show a sanitary passport to that effect at St. Nazaire, on landing. Persons not so vaccinated will be subject to twenty days' observation at St. Nazaire.

Belgian Anticancer Congress. — The National Belgian League for the Control of Cancer will hold a national congress in Brussels, November 18-20. The opening session will be addressed by Viscount Paul Berryer, minister of the interior and hygiene. Addresses will be given by Professors Bergonne, Bordeaux; Hartmann, Paris; Depage, and Firket, Liége; Goris and Mayer of Brussels, and others. Frederick L. Hoffman, Newark, N. J., will represent the American Society for the Control of Cancer.

Royal Institute of Public Health.—The council of the Royal Institute of Public Health has accepted invitations from the university and municipality to hold the next congress in Bordeaux, France, June 4-9, 1924, under the presidency of Viscount Burnham. The meetings will be held in the following sections: (1) State Medical and Municipal Hygiene; (2) Naval, Military and Air; (3) Industrial Hygiene; (4) Tropical Diseases; (5) Pathology, Bacteriology and Biochemistry, and (6) Women and the Public Health.

Antitrachoma League. — At the annual congress of the Société française d'ophthalmologie in 1922, it was proposed to form the Ligue contre le trachome, and at the meeting of the Colonial Congress of Public Health at the Pasteur Institute, Paris, in April, the league was definitely established. The first number of the *Bulletin de la ligue contre le trachome* has just been issued and contains an account of the proceedings which led to the formation of the league. The officers elected were: president, Dr. Charles Nicolle; vice presidents, Drs. Morax and Aubaret, and secretary, Dr. Paul Petit, 19 rue de Bourgogne, Paris.

Physicians in Hungary.—According to a report issued by the Hungarian Medical Association there are at present 4,489 practicing physicians in Hungary which has a population of more than 8,000,000. Of these, 2,012 practice in Budapest. The number of physicians is decreasing on an average 225 a year. The number of medical students in the country in 1922-1923 was 6,751. The medical association is advising parents not to encourage their children to enter this overcrowded profession. The distribution of physicians is very uneven; in towns the ratio of medical men to the population is 1 in 350-500, but numerous small provincial towns have no resident physician at all.

Health in New Zealand.—The report of the New Zealand Department of Health for the year ended March 31, 1923, shows that the standardized death rate for the dominion fell from 10.93 per thousand in the previous year to 10.70. The infant mortality rate was only 41.9 per thousand. The director general of health stated that the population of New Zealand has the greatest expectancy of life of any of the leading countries of the world. The death rate from cancer was 8.52 per 10,000, and that of tuberculosis, 6.5.——A recent exhibition of hygiene was held in Wellington.——An analysis of the New Zealand Medical Register shows that the total number of names of registered practitioners has mounted from 969 in 1917 to 1,073 in 1922. The population of New Zealand, exclusive of Maoris, is 1,218,913. The number of births registered in 1922 was 29,000.

School of Nursing for Physicians.—The *Lancet* states that a school of nursing for physicians was opened some months ago at the Pirquet Clinic (Vienna University Clinic for Children), Vienna, for instruction in the every-day care of the child. The physician and the mother work often at cross purposes, through the former's ignorance of domestic exigencies. The program is as follows: Four physicians of the clinic are entrusted with the care of the ward, doing all the nurses' work. At 5:45 a. m., the physicians take over the charge of the ward and must wash, bathe and tidy the children, serve their breakfast, give them medicine, make the temperature charts and prepare them for the morning round of the professor. The night duties at present are performed by a nurse, but will soon fall to the lot of student physicians, who must serve a term of two months in all at the school. The idea has been approved by the medical profession generally. It is contemplated that the new curriculum for medical students, which is under consideration and which will necessitate a year of internship before engaging in practice, might include a course in this school.

Personal.—Dr. Pautrier, professor of skin and venereal diseases at the University of Strasbourg, is delivering a series of lectures at the Notre-Dame Hospital at Montreal.——Dr. F. Lieras and Dr. M. Aya delivered addresses at the recent unveiling of the statue of Pasteur, erected on a prominent street of Bogota, by popular subscription. The entire issue of the *Repertorio de Medicina y Cirurgia* for July is devoted to these and other addresses.——A two volume souvenir compilation of scientific works by the pupils and friends of Dr. Santiago Ramón y Cajal was recently presented to him.——Dr. C. Gram, professor of internal medicine at the University of Copenhagen, has been allowed to retire, on a pension, before quite reaching the age limit.——The Fothergillian medal and prize of the Medical Society of London, England, has been awarded to Sir Arthur Keith.——The first Victor Horsley Memorial Lecture was delivered by Sir Edward S. Schäfer before the Royal Society of Medicine, London, October 25.——The gold medal founded by Sir Gilbert Blane has been awarded by the presidents of the Royal College of Physicians of London and the Royal College of Surgeons of England to Surgeon Lieutenant Commander Julian L. Priston, Royal Navy.——Dr. Adam Patrick, Glasgow, has been appointed to the chair of medicine of the University of St. Andrews, Scotland, to succeed Professor Stalker.——A special triple number of the *Klinische Monatsblätter für Augenheilkunde* has been dedicated to Uhthoff, the ophthalmologist, as a *Festschrift* in honor of his seventieth birthday.——A volume of Virchow's *Archiv* is to be dedicated in the same way to Eugen Fraenkel, professor of pathology at Hamburg and pioneer research worker in various lines, whose seventieth birthday occurred in September.——Prof. Leon Asher of Berne has been elected honorary member of the Harvey Society of New York.——Dr. Santiago Cavengt of Madrid has been awarded the prize founded by Dr. Sarabia y Pardo of Madrid for distinguished work in pediatrics during the year. Cavengt is editor of *Pediatría Española* and has published articles on hysteria and endocrinology in children and on vomiting in infants.——Dr. E. Perroncito, professor of pathology at Turin, retires from his chair this year, having reached the age limit. The *Riforma medica* states that his discovery that the hookworm caused miners' anemia in St. Gothard tunnel, and that salt killed the larvae, allowed the completion of the Simplon tunnel in seven years without a case of miners' anemia. He is an honorary member of scientific societies in many countries and is to preside at the much postponed international congress on comparative pathology that was to have convened in Italy this year.——Many of our European exchanges are paying tribute to Prof. C. Eijkman, of the chair of hygiene at Utrecht, as preparations are being made to celebrate the twenty-fifth anniversary of his incumbency. His research on beriberi, which laid the foundation for our knowledge of deficiency diseases, was done in the Dutch East Indies in the eighties.

Deaths in Other Countries

Dr. **R. A. Reddingius**, professor of pathology at Groningen, aged 66.——The death is reported at Paris of Dr. **Bernardino Mosquera**, president of the faculty of medicine at Caracas, one of the founders of the Academia de Medicina of Venezuela, and official delegate from Venezuela to the Pasteur centennial.——Dr. **F. Helme**, a specialist in otolaryngology at Paris and editorial writer on the *Presse médicale* for many years.——Dr. **T. Veiel** of Cannstadt, recently president of the German Dermatologic Society, aged 75.——Dr. **G. Ordóñez**, professor of medicine in the University of Quito.——Dr. **J. M. Nilsson**, a medical officer of high rank in the Swedish navy, aged 62.——Dr. **E. de Menezes** of Juiz de Fora, Brazil, to whose initiative are due the Pasteur Institute and many other medical institutions of Minas province.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 8, 1923.

The Crisis in the Panel Service

The crisis in the panel service has at last come to a head. For some time it has led to a controversy in the press and at public meetings between the representatives of the friendly societies alleging that the panel physicians are paid too much and give a perfunctory service in return, and representatives of the physicians stating that the pay is not sufficient. Each side, by deputation and otherwise, has brought pressure to bear on the ministry of health, which is a third controlling party, representing the taxpayer, who has to find a good deal of the money. The prewar capitation fee was about $1.75. With the great increase in prices, including the cost of living, during and after the war, the fee was raised to $2.75, part of the increase being provided for by special grant of $0.50 by the government. On the fall of prices, the physicians after arbitration accepted in 1920 a reduction amounting to 36 cents. But the financial depression due to the war and still more to trade-union exactions, to which the Lloyd George government was prodigally complaisant, not only during the war, for which there was some excuse, but after the war when the most rigid economy was necessary, still continues. Lloyd George's neglect of economy has rendered economy still more necessary to the present government, and it is now engaged in the difficult task of reducing expenditure. At the suggestion of the Geddes committee on economy, the government refused to continue the special grant of $0.50, and the representatives of the friendly societies refused to find it. Hence all the trouble.

The minister of health, after much negotiation with both sides, now offers the panel physicians a capitation fee of $2 for an agreement for three years, or one of 36 cents less for an agreement for five years. In the course of a long memorandum, he states that he accepts the view of the Insurance Acts Committee of the British Medical Association that the rewards of medical practice should be such as to attract the right type of recruit to the profession, and that the remuneration of insurance practice should not compare unfavorably with that derived from private practice of a comparable kind. But he considers that due regard must be had to the advantages of payment at a contract rate, which obviates the risk of bad debts and the labor and expense of collecting fees. Referring to the arbitration award of 1920, he describes that year as a time of optimism and inflation. The earning power of the medical profession, too, was temporarily enhanced on account of the shortage of physicians due to the war. This does not apply now to anything like the same degree; ordinary economic criteria must and can now be applied. What effect, he asks, had the reduction of the capitation fee two years ago by 36 cents on the total number of physicians accepting service? In the eighteen months from January, 1922, to July, 1923, there was a net increase of the panel physicians by 552. The minister refuses to accept the contention of the association that physicians must be secured "against any lowering of their prewar standard of living beyond that entailed by increased taxation." For comparison, he takes the administrative section of the civil service, in which, since the last adjustment of the war bonus, a basic salary of $5,880 now yields a remuneration of $7,000. The reduction to this figure closely corresponds to that which he proposes for the panel service. The minister draws another argument from the investigation of 446 practices of physicians known to be keeping careful records of their attendances. The average number of attendances in 1922 was slightly in excess of 3.5 per insured person. On an estimate favorable to the physician, the ratio of office attendances to visits to the patient would be 2:1. Inquiries from experienced physicians indicate that without overwork this proportion of attendance could be given to 2,000 insured persons, and an equal amount of private work also done. Assuming the private practice to be only equally as remunerative as insurance practice, the physician could earn on the basis of a $2.25 capitation fee an income of $9,000. This income was named by the Insurance Acts Committee of the British Medical Association in 1920 as offering a fair reward for the whole time of a physician. A fall in the cost of living and the expenses of practice has taken place since then. The minister adds that he has been impressed in his discussions with the representatives of the profession and of the friendly societies with the general desire for a development of the present "general practitioner service" into one of the widest scope. He warmly sympathizes with this desire, but he cannot now deal with it. It raises the whole question of the insurance system, the financial position and the practicability of providing finance and personnel for such development.

The reply of the Insurance Acts Committee of the British Medical Association will be handed to the minister by a deputation. As far as is known, his terms will be refused. On the other hand, the representatives of the approved societies are also opposed to the terms, asserting that the physicians should not be paid more than the prewar $1.75. Besides the British Medical Association there is another but much smaller body, called the National Medical Union, which consists of physicians who do not practice under the panel and are entirely opposed to it. They stand for (1) the maintenance of the freedom of the medical profession in its relation to the public and of a corresponding freedom for the public, and (2) the provision of medical service for needy persons and for them only. They are opposed to state control of the profession, and demand radical changes in the present system. So far they have not been able to exert much influence. This is not surprising, for the very fact that they refuse panel service deprives them, to a certain extent, of locus standi in the discussion of its terms.

PARIS

(From Our Regular Correspondent)

Oct. 5, 1923.

The Diminution of Alcoholism

I have referred to the results of two inquiries, instituted by the minister of labor, which point to a decrease of alcoholism among the laborers of Paris and the region of the North (THE JOURNAL, July 21, 1923, p. 227, and Sept. 22, 1923, p. 1035). According to M. Louis Sadoul, counselor of the Court of Appeals at Nancy, this is general throughout France. Continuing his interesting study on criminality since the war, which I discussed in my letter last week (THE JOURNAL, Oct. 20, 1923, p. 1375), M. Sadoul does not hesitate to attribute the diminution of crime, at least in the departments of the East, to the decrease in alcoholism.

In 1913, the total amount of pure alcohol on which tax was paid in French territory as a whole was 1,566,858 hectoliters. In 1921, the total had dropped to 788,839 hectoliters, a decrease of approximately 50 per cent. In reality, the decrease is more than 50 per cent., since the statistics for 1921 include the not inconsiderable amount consumed in the three restored departments of Alsace-Lorraine. The internal tax is imposed not only on beverage alcohol but also on alcohol used in laboratories, in industries, in pharmaceutic preparations, and in perfumes. Just what proportion of this alcohol was used for external purposes it is not possible to determine exactly, but one may assume that this proportion has remained more or less constant, though the trade in

perfumes would seem to have increased. It is therefore quite probable that the consumption of beverage alcohol has decreased more than 50 per cent. The figures for four departments of the East (Ardennes, Meuse, Meurthe-et-Moselle and Vosges) seem to indicate an even greater decrease than for the country as a whole. In Meurthe-et-Moselle the total for 1913 was 22,987 hectoliters; in 1921, 5,629 hectoliters, or a decrease of about 75 per cent. In the department of Vosges, the total for 1913 was 15,282 hectoliters; in 1922, 3,488 hectoliters, a decrease of almost 80 per cent. An improvement may be noted especially in the mountain arrondissements, which were formerly most affected by alcoholism. In the arrondissement of Saint-Dié, the total taxed consumption for 1913 was 6,282 hectoliters; the figure for 1921 was 1,205, a decrease of more than 80 per cent. The same situation is found in the two other departments of the judicial district: Meuse only 2,205 hectoliters, as against 11,609, a decrease of more than 80 per cent.; Ardennes, 16,665 hectoliters, as against 3,949, more than a 75 per cent. decrease. These official figures accord with information secured from the wine merchants and saloonkeepers who were interrogated by M. Sadoul. All stated that their sale of alcoholic beverages had decreased enormously, some reporting a 65 and others a 75 per cent. decrease. In one district of the Vosges which had been formerly known for its large number of alcoholics, where women and children, factory workers and woodcutters had all been in the habit of drinking heavily, the decrease reported amounted to 80 per cent.

While the consumption of alcoholic beverages as a whole has decreased, the consumption of wine has increased. The soldier in the army has learned to drink wine, and the same is true of the numerous refugees from the invaded departments. The war thus served to make wine more popular, especially in the departments where large quantities of beer and "cider" were consumed. Indeed, the consumption of beer has decreased markedly.

M. Sadoul is laboring under no misapprehension as to the causes for the diminution of alcoholism. The causes are by no means purely moral; legislative and economic problems play an important part, more particularly, the prohibition of absinth, of the use of alcohol needed in industry as a beverage, and of brandy made from grain, potatoes or beets *(betteraves)*. Brandy from these sources constituted the pernicious "drop" which sold for two sous and caused widespread intoxication. In addition to the two legislative measures mentioned, in 1920 the tax on pure alcohol was raised from 220 to 1,000 francs per hectoliter. Other taxes, such as the 25 per cent. tax on luxuries, have served to undermine the custom of the "petit verre," while the considerable increase in the cost of brandy production has likewise had an effect. In short, the "drop" for two sous has become a thing of the past, while the "petit verre" of rum or marc, much reduced in size, costs in cabarets at least 75 centimes. The price is higher in more pretentious cafés, in which the average price is 1 franc, or possibly more. It is true that salaries have also been raised, but they do not permit the expenditure of such large sums for liquor as formerly. Along with its many disadvantages, the high cost of living in general has doubtless had some effect in checking the consumption of alcoholic drinks.

Promotions in the Legion of Honor on the Occasion of the Pasteur Centenary

Professor Calmette, assistant director of the Pasteur Institute, and Professor Bergonié of Bordeaux have been made grand officers of the Legion of Honor. Prof. Léon Bernard of Paris, Professor Borrel, director of the Institute of Hygiene and Bacteriology of Strasbourg, E. Forgue, professor of the surgical clinic of the Faculty of Medicine of Montpellier, and René Vallery-Radot, Pasteur's son-in-law and president of the administrative council of the Pasteur Institute, have been made commanders. A large number of collaborators of the Pasteur Institute have been elected officers of the Legion of Honor, and others have been made "chevaliers" of the order. Among the latter are included Drs. Besredka and Weinberg, both of Russian origin, and Drs. Danysz and Pozerski, both of Polish descent.

The Workmen's Compensation Act

Legislation recently promulgated extends the application of the workmen's compensation act to domestic employees.

A Gift to the University of Paris

Mr. George Blumenthal of New York has recently presented to the University of Paris 250,000 francs, which is placed at the disposal of the administrative council of the university to be used in the interests of science, education and art.

MEXICO CITY

(From Our Regular Correspondent)

Oct. 7, 1923.

Hookworm Disease

The Institute of Public Health has just published a pamphlet by Dr. Nicolas Leon, containing references to hookworm literature published in this country, as well as notes on the geographic distribution of the disease. He points out that hookworm infection has long been known to Mexican clinicians; Dr. J. G. Lobato called attention to the disease in 1850, and Dr. M. F. Jimenez lectured on it at the medical school. The first printed reference appears in a thesis by Dr. Lobato, published in 1871. The same author reverted to the subject in a paper in the *Gaceta Medica de Mexico*, in 1875. At that time the patients with miners' anemia were called "maduros" (ripe)—maybe because their color resembled that of ripe fruits—and the disease was attributed to the "deleterious atmosphere of mines." Manuell succeeded, in 1902, in demonstrating the cause of this anemia by finding hookworm ova in the patients' stools. At this time the patients were no longer called "maduros;" but were considered to be suffering from chronic malaria. As regards geographic distribution of the disease, available data are rather incomplete. The reports sent from several places read "probably exists," which shows that no laboratory tests were made to verify the suspicion. An extensive survey by experts would be necessary in many places to determine the prevalence of the disease. This would also be the first step toward its control. The last reference in Dr. Leon's paper is to the description by Dr. Neftali Rodriguez of his experience with carbon tetrachlorid in hookworm disease.

Medical Legislation

Two bills relating to medical matters have been introduced recently in the house of representatives. The first provides for autonomy or self-government of the national university. For a long time, this institution has been a victim of politics; the secretary of education is charged with the duty of appointing all professors, prescribing or approving curriculums, and preparing the budgets of the several schools. In earlier times, each school had its own funds, derived largely from bequests. These funds have been seized in economic crises by several administrations, and now the schools are supported by the government and are at the mercy of the secretary, who often may not possess the necessary qualifications. The other bill, dealing with immigration, has been introduced by the government. In addition to other provisions, the bill forbids the admission of alien prostitutes—now on the increase—and also of female minors unless accompanied by parents or guardians, who must prove their moral integrity. If approved, the bill will have an indirect influence on the prevention of venereal diseases. It will also place Mexico

on a par with other civilized countries. In spite of the obvious advantages of these bills, should they be placed on the statute books, it is surmised that they will not be put into force for a long time.

National Academy of Medicine

The Academy of Medicine began its sixtieth year of existence, October 1. The occasion was duly celebrated at the medical school. The rector of the university, Mr. E. A. Chavez, LL.D., presided. As customary, the secretary, Dr. Eliseo Ramirez, read the annual report. The report was noteworthy because of the energy with which the secretary attacked those physicians who, either from a gullibility hardly befitting members of the academy or from various motives, had dared to exhibit cases of cancer said to have been cured with the "oscilloclast," or to mention diagnoses made with the "reflexophone." These physicians, it was stated, must have known that unbiased and competent persons, after studying the new and so-called "miraculous" method, had declared it to be fraudulent.

The dean of the medical school and Dr. Florestan Aguilar of Spain attended the meeting as guests of honor. At the election, Dr. Fernando Ocaranza was appointed vice president, and Dr. Jesus Arroyo treasurer and editor of the *Gaceta Medica de Mexico*. Some amendments were made to the existing rules and regulations, such as the creation of a perpetual secretary; an increase in the number of members from sixty-five to eighty-two; the organization of a section of physiotherapy; the suppression of the per diem formerly received by members; the creation of a membership fee of $5 a month; the voluntary withdrawal, after fifteen years' service, of active members, who become honorary members; and placing the editorship of the *Gaceta* in charge of one person instead of a committee.

Honors for American Physicians

October 3, the Academy of Medicine unanimously elected as honorary members Dr. W. J. Mayo of Rochester, Minn., and Dr. A. J. Ochsner of Chicago. This was not only a tribute to the scientific accomplishments of the two surgeons, but also an expression of the great appreciation in which they are held by Mexican physicians.

Spanish Physician in Mexico

Dr. Florestan Aguilar, a prominent Spanish physician and odontologist, recently spent a few days in Mexico. During his stay, he gave three lectures, one on aid to Russian professionals; another on the relation between dental troubles and general diseases, and the last, on mouth hygiene. After visiting medical institutions, Dr. Aguilar left for New York, on his way to Germany. On returning to Madrid, he intends to bring about closer relations between Spanish and Mexican physicians. Dr. Aguilar was also appointed an honorary member by the Academy of Medicine.

Personal

Dr. E. Pous Chazaro has been appointed editor of the *Revista de Ciencias Medicas*, the organ of the army medical corps.——Dr. U. Valdes, a prominent Mexican surgeon, has left for Chicago to attend a medical meeting.——Dr. L. Madrid Mendizabal has been appointed secretary of the medical school.——Charges against Dr. R. Tamez, governor of the state of Nuevo Leon, have been filed with the house of representatives.——In the last elections, Dr. G. Hurtado Suarez was elected governor of the state of Colima, a position once held by his father, also a physician.——Dr. J. Siurob, the defeated candidate for the governorship of the state of Queretaro, has registered a protest in the courts of justice. ——Dr. R. Ortega, a corresponding member of the Academy of Medicine, has died.——Dr. R. Tapia Fernandez, the laryngologist, has returned from Europe.——Dr. A. Vallarino, a former professor of the preparatory medical school, has been appointed superintendent of the institution.——Dr. F. Reyes, a member of the superior board of health, has left for Europe to study the methods used in the fight against cancer.——Dr. E. I. Vaughn and Dr. A. M. Walcott, of the International Health Board, and members of the yellow fever commission, have been sent to Brazil. Their departure is much regretted both because of their services and because of their personal charm.——Dr. A. Urrutia, former dean of the medical school and secretary of the interior, who has resided for several years at San Antonio, Texas, returned to Mexico, but left immediately, because of the charges preferred against him.

Radio Propaganda

In view of the development of radio service in Mexico and the interest shown by the people, one of the transmitting stations in this city (under the war and navy department) has decided to include in its weekly programs a health number, placing the matter in charge of the Perrin Laboratories. The first lecturer was Dr. T. G. Perrín, a professor in the Army Medical School, who discussed the danger involved in the use of water from barrels.

BELGIUM

(From Our Regular Correspondent)

Oct. 1, 1923.

Hematosis and Shock

The Royal Academy of Medicine has awarded the Alvarenga prize to Dr. Baruch, author of an important contribution on hematosis following surgical shock. This problem was much studied during the war, and, just recently, Quénu, Duval and Mocquot presented an exhaustive paper on the subject before the International Congress of London. The contribution of Baruch, which has been thus favorably recognized by the academy, deals exhaustively with the literature and records experimental work of a high order. He ascribes all the phenomena of shock to a primary disturbance of hematosis. In shock the venous blood is and remains red. The metabolic activity of the tissues as a whole is retarded, with consequent hypothermia and lessened production of carbon dioxid. The latter causes the red color of the venous blood, as is clearly established by the low carbon dioxid content of the blood. The author demonstrated that hemoglobin, which has a constant absorptive capacity, may be influenced as regards its respiratory value by various external factors. He has studied the oxygen fixing capacity of the blood during shock. By the micro-aerotonometric method of Krogh, he has shown that the blood of the carotid artery contains considerably less oxygen than is fixed by the blood of a normal subject. Shock, therefore, is characterized by permanent diminution of hematopoietic capacity. This diminution is not due to an extrinsic toxin but to an alteration in the hemoglobin, which causes the coloring substance of the blood to lose part of its essential function. According to this interpretation, shock is a hemo-intoxication.

Malaria on the Congo

I referred in a previous letter to the first results of the antimalaria campaign in the Congo region, and especially to the encouraging results in the treatment of trypanosomiasis. Sanitary movements in other fields are taking on more and more importance. Elizabethville deserves special mention. The hospital for Europeans is gradually being completed. During the past year, an operating room, a tuberculosis ward and a delivery room have been added. A rest room for nurses is in process of construction. A ward for infectious diseases, and modern kitchen and laundry equipment are soon to be provided. Furthermore, toward the end of the year, a large hospital for natives will be opened in the same city.

As the result of these improvements, together with the activities of the special missions, a marked decrease in malaria has been noted, especially at Elizabethville. An endeavor is being made to produce similar results throughout the colony, for which the remarkable success in Panama serves as an inspiration. With this object in view, a new mission has just left for Hebo.

Congress of Pediatrics

The third Congress of Pediatrics of French-speaking nations will be held soon at Brussels. The program will include topics of special and immediate interest: Prolonged Pneumonia in Childhood, by Dr. Charles Gardère of Lyons; Medical Treatment and Instruction of Abnormal Children, by Dr. Decroly of Brussels; the Diagnosis and Treatment of Intestinal Invagination, by Dr. Raphael Massart of Paris. In addition, a number of communications have been announced: Pneumonia in Childhood, by Mouriquand, and the Prophylactic Influence of the Grancher Movement, Dr. Armand Delille of Paris.

Spina Bifida Occulta and Pes Cavus

Before the Société medico-chirurgicale of Liége, Dr. Delrez reported recently some observations on pes cavus in relation to spina bifida, which were rendered possible through the application of roentgenography. These puzzling cases may be unilateral or bilateral, and present, at first, no obvious evidence of involvement of the organs of locomotion. Their pathogenesis often remains obscure, and, consequently, the treatment is difficult.

The epidural injection of an iodized oil preparation assists in the diagnosis of spina bifida, in which it forms a large accumulation. Study of these cases throws light on the pathogenesis of pes cavus, which, in fact, results from a monoplegic dystrophy.

The Crusade Against White Lead

In several letters I have referred to the activities of various societies, representing both employers and workmen, in the crusade for the suppression of white lead. I have mentioned also the untiring efforts of the Red Cross in this direction. The outcome of this propaganda has been that a law has been drafted to regulate the use of white lead, and white paints and pigments containing lead. The bill conforms with the conclusions reached by the technical commission created in 1922 by the government. The bill is also in accord with the convention proposed by the third International Conference of Labor, held recently at Geneva. The essential features are: prohibition of the use of white lead for interior decoration, and prohibition of dry rubbing or scraping white lead paint. Furthermore, the sale to, or fraudulent purchase by, private individuals of white lead and lead-containing paints is prohibited.

Congress of Professional Medicine

The annual congress of professional medicine organized by the Fédération médicale belge was held this year at Namur. The congress dealt more particularly with the regulation of midwifery. A request was made to the government that no obstetric establishment be allowed to operate unless the physician or the midwife in charge receives a permit from the minister of public health. Such authorization, which would be given only with the advice of the medical commission for the province, should be revocable at any time on the receipt of appropriate evidence from this commission. The congress declared that it was eminently desirable that midwives be encouraged and protected in every way possible, and that a campaign be launched to improve the position and status of midwives. With this object in view, scholarships should be created, and their privileges should be extended to permit them a wider range of activity.

VIENNA

(From Our Regular Correspondent)

Sept. 16, 1923.

The Problem of the Deaf and the Deaf Mute

The number of deaf mutes in this country is not definitely known, but is estimated at about 5,000, or less than 1 per thousand of the population. But the number of deaf persons, i. e., those who lost their hearing after having learned to speak, is much higher, and has been markedly increased by the war. Not only shell shock, but actual injuries to the external or conducting apparatus or to the nerves, has resulted in relative frequency of deafness in persons who served at the front. Until lately there was little done in the shape of organized welfare care for these patients. But with the formation of a society called "Vox," which has assumed the task of assisting the deaf and deaf-mute, a long step forward has been made. The existing schools and institutions for deaf mutes cooperate with this society. It has been ascertained that the majority of the inmates of deaf-mute institutes take up handicraft, (printing, painting, shoemaking, tailoring, carpentering) or agricultural work. It is interesting to find that they are not much handicapped by their defect; they frequently marry and can support a family. Intermarriages are frequent; and the offspring of these unions are not as a rule deaf mutes. Consanguineous marriage has not the overwhelming importance as an etiologic factor of deaf mutism, in the opinion of two leading experts, that has been ascribed to it by so many authors, but rather the defective germplasm when both parents are affected. Persons who have become deaf later in life (otitis media, labyrinth disease, syphilis, meningeal affections, traumatism) find the problem of vocation more difficult the later in life hearing is lost. Efforts to produce an apparatus for the ear as effective as a lens for the myopic or hypermetropic eye have been futile. The "Vox" endeavors to enable these unhappy people to secure jobs and to earn an independent living by conducting lip reading classes, by training them in handicrafts adapted to their social position before the loss of hearing, and by promoting public interest. For instance, an effort has been made to introduce a badge bearing the inscription "deaf" to be worn in conspicuous letters around the arm, in order to protect the bearer to some extent from the dangers of street traffic. It has also been suggested that the pitch of automobile horns be standardized to make them audible to the majority of persons who are not totally deaf. Deaf people and deaf mutes should not crowd into towns, and after leaving the training schools should receive additional instruction from time to time. The fate of women so afflicted is a little less sad. Often they can make a decent living as dressmakers or housewives, and they marry more often than one would expect. On the other hand, a deaf person often becomes distrustful, jealous and unsociable, and thus is most embarrassing to friends.

Medical Inspection of Public Schools in Austria

In the systematic after-care of children, which has been instituted by the Austrian ministry of health, a prominent part is played by the regular examination and medical control of the school children. Elementary schools, the so-called continuation schools and the "gymnasiums" or higher schools attended by young people of both sexes from 12 to 18 years of age, are visited regularly by specially trained school physicians. In a report on the work done by this branch of the medical staff of the ministry, some interesting figures are given. Three years ago, 6,840 children (in eight schools) were examined by seven physicians. The most recent report deals with more than a quarter million children distributed in 350 schools in Vienna and other larger communities of the republic, 46 per cent. boys and 54 per cent. girls. Com-

pared with the data found in the course of examinations for "famine relief" four and five years ago, there has been a distinct turn for the better. At that time the school children, who were the first recipients of the free meals supplied, were classified as underfed in from 70 to 80 per cent. of those examined, only 5 per cent. being reported as "satisfactory." The school report for the years 1922-1923 indicates that no less than 37 per cent. of the children examined were above the average for weight, height and general strength; only 7 per cent. were found to be weakly. In districts inhabited by laborers, the conditions are not so good, as the percentage of unemployed parents is rather higher than it was two years ago; in "bourgeois" as well as in rural districts, the health figures are a little better. Among pathologic conditions discovered, carious teeth, adenoids and enlarged tonsils rank first. Few children showed a "clean" health ticket. An unexpectedly large proportion of girls had deformities due to faulty posture. Slight curvatures of the spine were frequent in the upper grades (13 to 16 years), but they seem to be outgrown later. Ocular defects, chiefly myopia, were encountered in 5 per cent. of the city pupils, less in the country. Even in the lowest grades, such defects, including hypermetropia, were found, which shows that eye work alone cannot be held responsible for the defects in refraction. Tuberculosis of manifest type is rare in schools—no doubt because such children are kept at home in bed. But scrofula was noted in 4 per cent., especially in the country. Surgical tuberculosis and lupus were also rather rare.

Much attention has been paid to gymnastics and sports. A series of examinations of school children immediately after a game of football, a swim, or one of the excursions in which our schools often indulge, revealed no instance of harmful effect. Among the many suggestions made by the school physicians one is important: The necessity for standards of ventilation, heating, illumination and cubic air space for classrooms, which will no doubt be followed in future buildings. The average daily number of hours of teaching has also been considered by one contributor. While children up to 10 years should not be subjected to more than from twenty to twenty-four hours a week (three or four daily), the age-group of 10 to 14 may have up to twenty-six hours weekly. Five hours daily (except Sundays) will be found to be too much for a protracted period and will cause anemia, one of the most frequent complaints in the girls' classes. Especially about the age of puberty, girls should not be required to sit too long in the classroom. Boys seem to suffer less from this requirement.

Postgraduate Courses in the Fall for Rural Practitioners

The Vienna medical faculty opens its tenth series of postgraduate classes with twenty lectures devoted to subjects needed by rural practitioners. The courses are condensed into a fortnight's work, and include chiefly ophthalmic, rhinolaryngologic, otologic and psychiatric problems, besides three lectures on special subjects pertaining to diseases of children and two classes on modern cardiotherapy and diseases of the liver. Physicians attending these courses will be housed in the hospital of Vienna, and all facilities are afforded them to keep abreast of the trend of modern medicine. The cost of the classes is defrayed from a grant made conjointly by the ministries of education and public health, and are open to Austrian physicians only. Other physicians wishing to attend the lectures are charged a special fee, amounting to about $70, which does not entitle them to free lodging.

Two Unusual Cases of Addison's Disease

Professor Kreidl recently demonstrated specimens from two cases of suprarenal disease at a meeting of the medical society which presented some unusual features. A woman, aged 56, who was thought to be suffering from cardiac insufficiency and cholelithiasis, became asthenic and complained of severe pains in the legs and perineal region. She looked a little bronzed, but not markedly so. Physical examination revealed nothing to explain her condition except an increase of erythroblasts, with marked polychromatic staining. She died suddenly on the day after this first examination in the hospital. Necropsy revealed a small carcinoma of the gallbladder, numerous metastatic deposits in the portal and retroperitoneal glands, a large secondary mass in the left suprarenal gland, numerous deposits in the bones and in the lymphatics of both lungs—a rare finding at this stage. The unusual blood finding, which is not consistent with the diagnosis of Addison's disease, is explained by the metastatic tumors of the bones, while the slight discoloration and the weakness was due to the secondary destruction of the suprarenal gland.

A strong, stout man, aged 47, also complained of weakness and pains in the lower limbs. No change was found except a slight "bronze" color of the face, hands and shoulders. This patient also died suddenly. At the postmortem examination tuberculosis of both suprarenals, of long duration, was discovered, without any active tuberculous focus elsewhere. The adynamic condition and the discoloration were the only indications for the correct diagnosis. The sudden death, which is rare in Addison's disease, was not explained by the pathologic findings; examination of the brain did not reveal anything.

Death of Professor Heitler

With the decease of Dr. Moritz Heitler, professor of materia medica in Vienna, the last member of the group of physicians who helped to build up the reputation of Vienna as the Mekka of medicine has passed away. Born seventy-four years ago, he was influenced to take up the study of medicine by the rapid progress in knowledge and the scientific attitude of medical friends. He studied chiefly the physical side of our art, and physiologic experimentation with pharmacologic substances was his hobby. He studied the action of drugs on the heart and published numerous small but important contributions to the literature of cardiac pathology and therapeutics. He built up a practice, but he did not keep up to date, his scientific position was slowly undermined, and he fell into oblivion. Recently he published some experimental work on nutrition during war time, and on cardiac reflexes due to ingestion of various condiments and foods; this, however, aroused but little interest. A large number of foreign pupils will regret to learn of his death.

Death of Dr. Fritz Schlemmer

A few days ago, Dr. Schlemmer, one of the youngest specialists on laryngorhinology of the university, died after a short illness from the effects of appendicitis. Laryngology loses in him an energetic and industrious research worker, whose special knowledge of the pathology of the tonsils has commanded general recognition. Though under the age of 40 years, he succeeded in obtaining an influential position both as teacher and as surgeon in this city. Laryngology seems to be especially unfortunate in Vienna. No less than six men devoted to this specialty have died here within the last three years, 10 per cent. of the total: Chiari, Koschier, Roth, Teuzer Herrenheiser and Fein; now the seventh follows this sad series. He will be remembered by many physicians in the United States who attended his classes at the Chiari and Hajek Clinic for nose and throat diseases.

Overcrowding

Overcrowding, proportionate to the scarcity of housing, has commanded the attention of medical circles ever since the war. The municipality of Vienna has lately developed efforts in this direction, has erected a number of public lodging

houses, and has encouraged private citizens to erect buildings of this kind. Private enterprise has been stimulated by grants, by exemption from taxes and rates; and the movement known as "allotments" or "garden houses," called here "Schrebergarten" has resulted in the formation of definite colonies of small houses or cottages ("Siedlungshäuser") that have been built under municipal supervision according to a definite plan. The board of health has drawn up the following rules for prospective dwelling house societies: The aim must be to house families in cottages, not in flats; for industrial centers, small colonies, easily accessible to transportation and near the place of occupation, are required; for others, rural colonies are advisable, but the dwellers must have some knowledge of agricultural requirements. The board recommends a cottage, with at least one story above the ground floor, or a two-family cottage, as most economical. The construction material of choice should be clay, cement or impregnated timber. The height of the rooms should not be less than 7 feet, and an area of at least 90 square feet to each room is advisable. Regulations for sewage disposal and toilet facilities are outlined clearly. The American system of labor-saving kitchen devices, as well as cupboards and wardrobes built into the walls, is strongly recommended; heating arrangements must be adapted to local conditions (gas or electricity). Bathing facilities are strongly recommended. Already a marked improvement from the difficulty of finding room for the increasing population has taken place in this city, although the number of colonies is as yet small as compared with the actual needs.

BERLIN

(From Our Regular Correspondent)

Sept. 29, 1923.

Prohibition of Alcohol

In August, a conference was held in Hamburg to discuss the problem of prohibition of alcoholic beverages, in which representatives of all organizations interested in the passage of such legislation took part. After discussion of the questions at issue, the "Ausschuss für das Alkoholverbot in Deutschland" (comittee on prohibition in Germany) adopted unanimously the following resolution:

1. We welcome the present draft of a federal law regulating the dispensing of spirituous beverages, in that it recognizes the principle of local option or the right of the commune to regulate the liquor traffic within its borders, but we regret that the application of the law should have been surrounded with so many difficulties. In the interest of the important problem as to how Germany can best be freed from the pernicious scourge of alcoholism, the right of the people to determine its own laws should be given full sway.
2. In the present scarcity of food, it is regrettable that immense quantities of foodstuffs grown on German soil are either used here or exported abroad for the manufacture of alcohol or alcoholic beverages. We hold that emergency legislation is needed immediately to put a stop to this economic waste and preserve the lives of hundreds of thousands of persons.
3. Since the welfare of the masses is more important than any possible damage to special interests, every effort should be made to transfer men engaged in the production of alcohol to other needed forms of occupation. By lectures and other means of public education, influence should be brought to bear to effect such changes in our industries as will make it possible to utilize profitably our resources in fruit and grain without converting them into alcohol.
4. Systematic instruction should be given in the schools, which will teach the coming generation to protect itself better than former generations against the dangers of alcoholism.
5. Now that the first reliable reports on the favorable effects of the operation of the prohibition law in the United States are available, the question of a general prohibition law for Germany should receive serious consideration.

Health and Vital Statistics

The birth rate for the large cities of Germany for the first three months of 1922 was 18.6; for the corresponding period of 1923 it was 17. The mortality rate for these periods was, in 1922, 15.5; in 1923, 14.4. The number of live births in the second quarter of 1923 was only 15.8, as against 18.5 the previous year; the number of deaths was 12.7, as compared with 13.5 the year preceding. Infant mortality was 1.9, as against 2.3, per thousand of population. Mortality from tuberculosis was 1.91, an increase over the rate for 1922 (1.80). Affections of the respiratory apparatus and the gastro-intestinal tract have decreased in 1923, and the incidence of infectious diseases has continued low. With the exception of the slowly increasing mortality from tuberculosis, mortality conditions for Germany during the first six months of the year were somewhat more favorable than the previous year but not quite so good as in 1921. Conditions as affecting children are revealed by the school report for the city of Fürth in Bavaria for the school year 1922-1923. Fürth is a city of medium size, with a strongly industrial population. The country surrounding it is inhabited mainly by an agricultural population. Living conditions are, therefore, much better than in many parts of Germany. In considering statistics from such a city, one should bear in mind that the findings will naturally be more favorable than conditions in Germany as a whole would lead one to expect.

The results of the examination of 721 school children of the first grade in Fürth were as follows: The state of nutrition was good in fifty children, or 6.9 per cent., as against 4.5 per cent. the previous year. Only 82.3 per cent. were in an average state of nutrition, as compared with 89.3 per cent. the year preceding, and 10.7 per cent. were in a poor state of nutrition, a marked increase over the findings for the previous year (6.2 per cent.). Another sign of the times is the fact that sixty-one cases of nervous disturbances of heart activity were reported. Furthermore, there were eighty-three cases of rickets. Most frequent (515 cases) were small and medium sized swellings of the glands of the neck and jaws, presumably due to insufficient or improper food. The same manifestations were found in children of the second to the eighth grade. A number of cases of tuberculosis and epilepsy were found. Conditions of nutrition were much worse than in the previous year. Because of the progressive depreciation of the mark, shower baths could be provided only to a limited extent. For the same reason, the policlinic in the schools had to be abandoned. The custom of providing a glass of milk during the forenoon for the weakly and needy children had to be given up. However, the welfare centers were able to give 205 children suspected of tuberculosis an extended outing in the woods. A number of other children were installed in a school in the woods, and thirty-seven were placed in various homes where it was hoped their health might be built up.

Marriages

LESTER P. MARTIN, Mocksville, N. C., to Miss Frances Helen Bahnson of Farmington, August 14.

MARK SUTPHIN, Logan, W. Va., to Mrs. Laura Miller Walters, of Huntington, recently.

HAROLD JAMES CANNON, Milwaukee, to Miss Mary Finnegan of Chicago, October 13.

EARL R. MCCARTHY, Chicago, to Miss Elizabeth McEwen of Winnetka, Ill., October 20.

BLAINE WILSON CLAYPOOL to Miss Ruth Eloise Henninger, both of Chicago, October 27.

ARTHUR J. COLE to Miss Hazel F. Copeland, both of Holbrook, Mass., October 8.

EDMOND SOUCHON to Miss Marie Estoup, both of New Orleans, October 25.

ROBERT NEWELL LARIMER to Miss Miriam E. Chase, both of Iowa City, recently.

LINDLEY V. SPRAGUE to Miss Ruth Baker, both of Detroit, October 26.

BENJAMIN LEVINSON to Miss Rae Wind, both of Chicago, October 7.

Deaths

Henry Enos Tuley ⊕ Louisville, Ky.; died, October 21, of heart disease. Dr. Tuley was born in Louisville, 1870, and graduated from the Medical Department University of Louisville, 1890; the New York Polyclinic Medical School, 1891, and the Kentucky School of Medicine, Louisville, 1894; following graduation he was resident physician at the New York Infant Asylum and the Sloane Maternity Hospital, New York. At the time of his death, Dr. Tuley was dean and professor of pediatrics at the University of Louisville Medical Department; superintendent of the Louisville City Hospital and on the staffs of the Home for Friendless Women, the Norton Infirmary and the Masonic Widow's and Orphans' Home. He was chairman of the Section on Diseases of Children of the American Medical Association, 1898-1899, and a member of the House of Delegates, 1904, at which time he was a member of the Reference Committee on Sections and Section Work. Dr. Tuley was for twenty-five years secretary, and 1922-1923 president of the Mississippi Valley Medical Association. Among his well known works are "Obstetrical Nursing," "Pediatrics" and "Diseases of Children."

Luigi Celano ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1913; member of the New York Pathological Society; instructor of pathology at the University and Bellevue Hospital Medical College, New York; also a lawyer; on the staffs of the Harlem and Italian hospitals; aged 37; died, October 11, of streptococcic meningitis, resulting from an infection contracted while operating.

William S. Frost ⊕ Spokane, Wash.; University of Minnesota Medical School, Minneapolis, 1904; member of the American Academy of Ophthalmology and Oto-Laryngology; served in the M. C., U. S. Army, in France, during the World War; aged 46; died, September 29, of injuries received when the automobile in which he was driving was struck by a train, August 20.

John Linn Good, Harrisburg, Pa.; Medico-Chirurgical College of Philadelphia, 1915; member of the Medical Society of the State of Pennsylvania; served in the M. C., U. S. Army, in Mexico and during the World War; formerly on the staffs of the Stetson, Children's, and Maternity hospitals, Philadelphia, and the Harrisburg Hospital, where he died, October 2, aged 33.

Thomas Joseph McGuire, Parkersburg, W. Va.; Baltimore (Md.) Medical College, 1897; member of the West Virginia State Medical Association; served in the M. C., U. S. Army, during the World War; formerly on the staffs of St. Joseph's and the City hospitals; aged 53; was killed, September 28, when thrown from his automobile.

Richard Eden Walker, New Westminster, B. C., Canada; Trinity Medical College, Toronto, Ont., 1888; L.R.C.P., L.R.C.S., Edinburgh, and L.F.P.S., Glasgow, Scotland, 1888; president of the British Columbia Medical Association, member and past president of the Medical Council of Canada; aged 58; died, August 25.

Ben Barret Griffith ⊕ Springfield, Ill.; Rush Medical College, Chicago, 1882; Medical Department of Columbia College, New York, 1885; formerly on the staff of St. John's Hospital; for fourteen years member of the city board of health; aged 62; died, October 6, at Colorado Springs, Colo.

Alma Evelyn Fowler, Taunton, Mass.; Tufts College Medical School, Boston, 1917; member of the American Psychiatric Association; formerly on the staff of the Taunton State Hospital; aged 37; died, September 29, at the Boston City Hospital, of illuminating gas asphyxiation.

Frank William Searle ⊕ Portland, Me.; Medical School of Maine, Portland, 1889; formerly superintendent of the Maine Eye and Ear Infirmary; for many years secretary of the state board of registration of medicine; aged 69; died, October 13, following a long illness.

William Roe Murphy, Los Angeles; College of Physicians and Surgeons, Los Angeles, 1918; member of the California Medical Association; on the staff of the Los Angeles General Hospital; formerly member of the school board; aged 54; died, October 7, of heart disease.

Alfred H. Coleman, Tacoma, Wash.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1890; member of the Washington State Medical Association; past president of the Pierce County Medical Society; aged 61; died suddenly, October 3, of heart disease.

Charles Frank Connor ⊕ New Bedford, Mass.; Medical Department of Columbia College, New York, 1895; formerly on the staffs of the Worcester City (Mass.) Hospital and St. Luke's Hospital, New Bedford; aged 50; died suddenly, October 1, of heart disease.

Arthur Calvin Rhine ⊕ Captain, M. C., U. S. Army, Manila, P. I.; University of Illinois College of Medicine, Chicago, 1912; formerly a practitioner in Iowa; aged 49; died, September 30, at Camp Stotsenburg, of a self-inflicted bullet wound.

Joseph Robert Horn, Luverne, Ala.; Medical College of Alabama, Tuscaloosa, 1887; member of the Medical Association of the State of Alabama; formerly county health officer; mayor of Luverne; aged 63; died, September 28, of septicemia.

Conrad Berens, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1883; member of the Medical Society of the State of Pennsylvania; for thirty-one years on the staff of the Wills' Hospital; aged 64; died, October 6.

John Paxton Ward ⊕ Vevay, Ind.; Medical College of Ohio, Cincinnati, 1883; past president of the Switzerland County Medical Society; aged 63; died, October 1, at St. Mary's Hospital, Rochester, Minn., following an operation.

Herbert G. Shobe ⊕ Jefferson City, Mo.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1898; aged 52; was found dead in his office, September 30, with a bullet wound through his head.

Charles Leonard Smith ⊕ Independence, Kan.; State University of Iowa College of Medicine, Iowa City, 1904; past president of the Montgomery County Medical Society; aged 57; died suddenly, October 3, of heart disease.

Claude De Vere Mulbury, Windham, N. Y.; Baltimore (Md.) Medical College, 1898; member of the Medical Society of the State of New York; coroner; aged 50; died suddenly, September 5, of asthma and heart disease.

Rollin G. Knapp, Chicago; Chicago Homeopathic Medical College, 1893; Rush Medical College, Chicago, 1896; Hahnemann Medical College and Hospital, Chicago, 1905; aged 64; died, October 12, of myocarditis.

Stillman Perry Getchell, Wolfeboro, N. H.; Berkshire Medical College, Pittsfield, Mass., 1865; member of the New Hampshire Medical Society; Civil War veteran; aged 87; died, September 30, of senility.

Thomas Jefferson Wingo, Toccopola, Miss.; Vanderbilt University Medical Department, Nashville, Tenn., 1880; formerly a member of the state legislature; aged 68; died, August 20, of heart disease.

Fred A. Axline ⊕ Fultonham, Ohio; Medical College of Ohio, Cincinnati, 1895; for several years county coroner; aged 52; died, September 25, of a self-inflicted bullet wound, while suffering from ill health.

Isaac Clarence Sharp, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1885; formerly on the staff of the Montreal General Hospital; aged 67; died recently, at Ottawa, Ont.

Clinton Rench Ankeney ⊕ Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1894; on the staff of the Methodist Episcopal Hospital, where he died, September 30, aged 57.

William Lafayette McClendon, Hollywood, Ala.; University of Alabama School of Medicine, Tuscaloosa, 1894; aged 51; died, September 21, at St. Thomas Hospital, Nashville, Tenn., of Addison's disease.

Thomas Buckhead Reardan ⊕ Oroville, Calif.; Medical Department, University of California, San Francisco, 1882; county physician; aged 63; died suddenly, September 28, of heart disease.

Archibald Warren Titsworth, Marion, Ohio; Medical College of Ohio, Cincinnati, 1896; member of the Ohio State Medical Association; aged 52; died, October 6, of ulcer of the stomach.

Byron J. Ormsby, Norwich, N. Y.; University of Michigan Medical School, Ann Arbor, 1868; member of the Medical Society of the State of New York; aged 76; died, October 3, of senility.

William Junius Bulloch, Belhaven, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1858; founder of the town of Belhaven; aged 89; died, October 2, of senility.

James Greenfield Scott, Seaforth, Ont., Canada; University of Michigan Medical School, Ann Arbor, 1869; aged 81; died, August 25, of injuries received in an accident.

Charles W. Wainwright ⊕ Princess Anne, Md.; College of Physicians and Surgeons, Baltimore, 1887; formerly a druggist; aged 65; died, October 1, of heart disease.

William Dawson Row ⊕ Carlin, Nev.; College of Physicians and Surgeons, Baltimore, 1883; aged 62; died, September 19, of arteriosclerosis and diabetes mellitus, at the Southern Pacific General Hospital, San Francisco.

Edgar P. Cook ⊕ Mendota, Ill.; Northwestern University Medical School, Chicago, 1895; aged 53; died, October 15, of pneumonia and septicemia, at the People's Hospital, Peru.

Gilbert Hess, Ashland, Ohio; Medical Department of the University of Wooster, Cleveland, 1884; aged 63; died, September 22, of acute parenchymatous nephritis.

Anna Harris Barnes, San Francisco; Hahnemann Medical College of San Francisco, 1887; aged 73; died, September 28, of arteriosclerosis and chronic nephritis.

Thomas E. Arrington, Howard, Ga.; University of Georgia Medical Department, Augusta, 1883; aged 64; died, September 23, of cerebral hemorrhage.

Colim M. Lindley, Washington, Pa.; College of Physicians and Surgeons, Baltimore, 1886; Civil War veteran; aged 77; died, September 30, of senility.

Ross S. Cannon, Wynona, Okla.; Missouri Medical College, St. Louis, 1898; aged 46; died, September 20, following an operation on the gallbladder.

Harry William Cease, Johnson City, Tenn.; Vanderbilt University Medical Department, Nashville, 1894; aged 50; died suddenly, September 29.

Isaac Fox DeLony, Leighton, Ala.; Medical Department University of Louisiana, New Orleans, 1853; aged 95; died, September 25, of senility.

R. H. Baker, Jr., Clarksdale, Miss.; Memphis (Tenn.) Medical College, 1900; aged 52; died, September 28, at a hospital in Greenville.

Kate Dellcourt Barstow, Washington, D. C.; Howard University School of Medicine, Washington, 1884; aged 87; died, October 1, of senility.

Colin M. Hyde, Laurel, Miss. (licensed, Mississippi, 1886); city health officer; aged 59; died suddenly, October 3, following a long illness.

Ventura P. Fuentes, New York; Medical Department of Columbia College, New York, 1892; aged 55; died, September 23, of meningitis.

Robert Thomas Allan, Los Angeles; University of Edinburgh, Scotland, 1886; aged 63; died suddenly, September 30, of heart disease.

John J. Koller, Cleveland; University of Vienna, Austria, 1890; formerly on the staff of St. Alexis' Hospital; aged 59; died, October 6.

Samuel H. Metzger, Lancaster, Pa.; Homeopathic Medical College of Pennsylvania, 1861; aged 87; was found dead in bed, October 6.

Edwin Rossiter Mulford, La Crosse, Wis.; Rush Medical College, Chicago, 1895; aged 58; died, October 12, of pernicious anemia.

Willis A. Mellon, Rockton, Ill.; Hahnemann Medical College and Hospital, Chicago, 1873; aged 76; died, September 30, of senility.

Lafayette Woodruff, Asotin, Wash.; Detroit (Mich.) Medical College, 1883; aged 64; died suddenly, September 23, of heart disease.

Henry W. Curtin, St. Louis; St. Louis College of Physicians and Surgeons, 1895; aged 56; died, September 28, of heart disease.

John Perry Vrooman, Napanee, Ont., Canada; Victoria University Medical Department, Toronto, 1887; aged 64; died, August 20.

John Francis Manger, Baltimore; Baltimore University School of Medicine, 1897; aged 68; died, September 26, Los Angeles.

Clayton W. Locke ⊕ Lindsay, Calif.; Louisville (Ky.) Medical College, 1888; aged 61; died, September 26, of heart disease.

Conrad E. Nystrum ⊕ Medford, Wis.; Hahnemann Medical College and Hospital, Chicago, 1892; aged 54; died, October 6.

Charles S. Love, Greenville, Tenn. (licensed, Tennessee, 1889); aged 65; died, September 29, of cerebral hemorrhage.

John Henry Mitchell, Dallas, Texas; Eclectic Medical Institute, Cincinnati, 1861; aged 89; died, September 30, of senility.

Adolphus P. Keever ⊕ Lindsay, Okla.; Jefferson Medical College of Philadelphia, 1882; aged 69; died, September 29.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

VAN ESS

Another Bid for Bald-Headed Optimists

The Van Ess Laboratories, Inc., of Chicago, put out "Van Ess Special Dandruff Massage" and "Van Ess Liquid Scalp Massage." The concern seems to have behind it the following personnel:

ROBERT H. VAN SANT....President, Manager and Director
LEWIS E. BULKELEY.....Vice-President and Director
W. BLAIR BAGGALEY.....Secretary and Director
H. BLACKETT.....Treasurer and Director
FELIX LOWY .....Director

Van Sant, the first part of whose surname (Van S.) doubtless has been modified to name the products, seems, until within the last year or two, to have been connected with a San Francisco concern known as the Overseas Trading Company of California. The story goes that this concern went out of existence under somewhat sensational circumstances and with little satisfaction to the creditors. Lewis E. Bulkeley, the vice-president, is said to be a "broker" in food products. W. Blair Baggaley is, apparently, a druggist, although he does not seem to be in that line of businses at present. H. Blackett, the treasurer, appears to be in the advertising business, while Felix Lowy, the only one of the group who does not live in Chicago, is alleged to be connected with the Palm Olive soap concern of Milwaukee, Wis.

As is usual in the exploitation of all "hair growers," hair dyes, complexion beautifiers, bust developers and similar lines of cosmetic humbug, poor "Science" (with a capital "S") is dragged into the advertising. Some of the Van Ess advertisements illustrate the nostrum exploiter's pictorial conception of the scientist: A studious looking gentleman with horn-rimmed spectacles and laboratory gown, holding the inevitable measuring glass, while on the bench before him are beakers, bottles and a pestle and mortar. For some reason the Van Ess artist failed to get a glass retort in his depiction of Science Discovering Van Ess. The man is untrue to his craft.

HAIR TONIC HISTOLOGY

In the Van Ess advertising men are told that "Four Men in Seven are Bald at Forty." Now that Van Ess has been discovered, "Only Five Men in One Hundred Need Ever be Bald." The Van Ess advertisements show the typical, greatly magnified view, as conceived by the Amalgamated Hair Growers Union, of a cross-section of a hair with the dermis and epidermis. The tubule, through which the hair grows, looks, in the Van Ess advertisement, like a post hole with a somewhat bulbous base. Growing from the base is what appears at first sight to be a young spring onion but which, according to the advertisement, is a poor stunted hair that cannot grow because the top of the post hole is filled with small rocks labeled "caked sebum."

The physical make-up of the package in which a cosmetic nostrum is dispensed has large psychological possibilities. Van Ess comes in a wide-mouthed bottle of characteristic shape. Part of the paraphernalia is a rubber stopper that has several nipples on the outer surface. Three of the nipples are hollow. After opening the bottle this nipple-surfaced rubber cap is screwed onto the neck and the optimist who expects to grow hair rubs these nipples over the scalp. An interesting and highly imaginative picture in the little booklet that comes with the nostrum shows just how each rubber nipple fits into its own particular hair follicle, removes the caked sebum and causes the poor stunted hair to flourish like the green bay tree. Possibly a hundred years from now exploiters of "hair growers" (they will, doubtless, still be doing business) will know enough about elementary dermatologic histology to get away from the idea that the hair grows

out of the skin like a stalk of wheat or an onion growing out of the soil.

Some of the claims made for Van Ess are:

"We Guarantee To Make Hair Grow. To Make It Silky, Lustrous, Beautiful."

"Remove that infected oil—Sebum—and soon you hair has the silken loveliness, the sheen and beauty for which every woman strives. Our method accomplishes that result."

"We guarantee to stop falling hair in two weeks. We guarantee to grow new hair. If we fail, your money back without question."

"Experiments of years prove it effective on 91 heads in 100. Foremost authorities approve it. World noted dermatologists now employ it—many charge as much as $500 for the treatment."

The "money back guarantee" sounds plausible and should be counted on to sell many "treatments." The bald-headed contingent will use the stuff, decide after spending varying amounts of money on it that they have been humbugged once more, charge it up to profit and loss and forget it—until the



Greatly reduced reproduction of a typical Van Ess Advertisement. The original measured 9 inches by 13 inches. Such advertising in metropolitan papers is expensive, but the profits on Van Ess can doubtless stand it.

next sure-fire hair-grower comes to their attention. If, as someone who should know, has said, a sucker is born every minute, there is a bald-headed sucker born every ten minutes. This perennial group makes a sufficiently wide and lush field for the exploiters of cures for baldness. So long as hope springs eternal in the breast of the bald-headed and such cures are advertised the latter will sell and the former be "sold."

As THE JOURNAL has received many inquiries, a specimen of the Van Ess Special Dandruff Massage was purchased and turned over to the A. M. A. Chemical Laboratory. Here is what the laboratory reports:

LABORATORY REPORT

"'Van Ess Special Dandruff Massage' is sold in an amber colored bottle containing about 4 fluidounces. The label declares the presence of 20 per cent. of alcohol. The preparation is a perfumed liquid which separates into two layers on standing. The upper layer, which amounts to a little more than one-third (about 36 per cent.) of the whole, is pale yellow and consists essentially of a petroleum oil which appears to be kerosene. The lower layer, which is a darker yellow, appears to be composed of water and alcohol containing small amounts of quinin sulphate, coloring matter and perfume. Although 20 per cent. of alcohol is declared on the label, analysis disclosed only about 14 per cent. The results of the examination indicate that the composition of the preparation is essentially as follows:

Kerosene	36 per cent.
Alcohol	14 per cent.
Quinin sulphate	0.06 gm. per 100 c.c.
Water, perfume and dye to make	100 c.c.

"It seems probable that a mixture of 35 parts of kerosene and 15 parts of alcohol, denatured by the addition of 2 grains of quinin sulphate per fluidounce and 50 parts of water would have whatever therapeutic properties the Van Ess Special Dandruff Massage possesses."

If, as seems probable, Van Ess Special Dandruff Massage is made with denatured alcohol, the actual cost of the ingredients should not exceed twenty cents a gallon. The market price of the preparation is $1.50 for four ounces. Even after the Van Ess concern has paid its advertising bills, and they must be heavy, there should still be a handsome profit at selling twenty cents' worth of kerosene and alcohol for forty-eight dollars. Until the accumulated experience of the bald-headed public overcomes the persuasive psychology of the advertising, Mr. Van Sant's latest venture should prove more profitable than the Overseas Trading Company of California.

Correspondence

TRANSFUSION AND SPLENECTOMY IN PURPURA HEMORRHAGICA

To the Editor:—In a recent article on splenectomy in chronic hemorrhagic (thromboeytopenic) purpura, Brill and Rosenthal state that experience has led them to believe "that transfusion is not only useless as a curative measure, but seems to increase the bleeding" (*Am. J. M. Sc.* **166**:503, 1923). Unfortunately, they do not report their two cases in detail. Our experience in the blood service at the Boston City Hospital has been more with the acute than the chronic type, but it has led to quite the contrary opinion.

In these acute cases we have found the value of transfusion very great. In order, however, that its benefits may be realized, certain facts in regard to platelets and the limitations of the influence of transfusion on them must be heeded. It is true that a *single* transfusion will stop the bleeding only in a very mild case, and that the benefit even here is likely to be but temporary. A brief consideration will show why this is the case. Hemorrhages usually begin when the platelet count drops below 50,000 or 75,000; but most of our patients, when they came under observation, had counts much lower than this—often below 10,000. A single transfusion seldom increases the count by more than 20,000, often not by more than 10,000. Obviously, several transfusions must be done before the platelets are increased to the point at which bleeding will cease. Moreover, the life of a platelet in the blood stream does not exceed a week; hence the transfusions must be at short intervals—not over forty-eight hours.

In most cases we have found it possible thus to raise the red corpuscles and hemoglobin to somewhere near normal figures and to build up the platelet count to a point at which capillary hemorrhage is controlled. Occasionally another transfusion or two may be needed at longer intervals, but we have found that the acute cases usually go on to recovery, and further transfusion ceases to be needed (THE JOURNAL, March 24, 1923, p. 838). We have had two deaths, one from

appendicitis, weeks after complete cessation of bleeding, and one in which repeated transfusions were a frank failure.

As to splenectomy, our results agree with those of other observers, to the effect that there is a prompt increase in platelets after the operation. The brilliant results of Kaznelson and of Brill and Rosenthal seem to justify splenectomy in certain cases of this disease, though the surgeon must surely be plentifully supplied with sand to do a major operation on a patient spotted with petechiae and ecchymoses and bleeding from gums, nose and stomach, when every touch seems, like that of Moses' rod, to bring forth a gushing spring. Probably splenectomy will find its best application in chronic and recurring cases, and as a last resort in acute ones that cannot be controlled by transfusion. But when circumstances permit frequently repeated transfusions, due conservatism would seem to demand that they be tried first.

RALPH C. LARRABEE, M.D., Boston.

"THE STATUS OF BLOOD TRANSFUSION"

To the Editor:—In an editorial (THE JOURNAL, September 29, p. 114) you comment on the present status of blood transfusion. After reviewing some of the work showing the disadvantages of the citrate method of transfusion, you commend very heartily whole blood transfusion. This commendation appears to be in keeping with results of physiologic and clinical investigations, but it is difficult to understand your position with regard to direct transfusion, in which the blood is directly conveyed from the artery of the donor to the vein of the recipient. The obvious objections to blood vascular suturing in transfusion are the technical difficulties and the rather prolonged incisions necessary to expose the vessels. These objections do not obtain when a short jointed cannula, such as the Bernheim cannula, is used. In a communication in the *Archives of Surgery* (September, 1923, pp. 466-468) I have reported fifty-four consecutive cases, in which this method was used without a reaction. To the present date we have had four more cases, making a total of fifty-eight without reaction.

It is doubtless true that, from the moment blood leaves the vascular system, chemical changes occur. Clotting, which is supposed to take place in about three minutes, is not an instantaneous process, but progressive chemical changes toward clotting are probably inaugurated immediately after the blood leaves the vascular system. Many of these changes are so fine as to defy detection by chemical tests; but that they do occur, even in accurately matched bloods, seems to be the best explanation for the reactions after transferring whole blood by the indirect method without the use of anticoagulins. In many instances the blood and tissues of the recipient can absorb these changed products without a reaction; or the products may not be sufficient to produce a reaction. It would be interesting to know whether any one has ever noted a distinct reaction after the direct method of transfusion, when the bloods had been properly matched.

With the jointed Bernheim cannula, half of the cannula can be inserted in the radial artery of the donor under a local anesthetic in the operating room, and the other half in the vein of the patient in the patient's room. The donor is then brought to the patient's room, and the patient is no more disturbed than in the citrate transfusion. The incisions are very short.

The inability to measure the amount of blood is urged by some as an objection to the direct method. The object of transfusion is to obtain certain clinical results, and this is best regulated by frequent and careful observations of blood pressure and pulse rate, and of the general appearance of both the donor and the recipient. A therapeutic agent is used to obtain definite clinical results and not to give a certain measured amount. Standard dosages of drugs are merely for convenience, and usually vary within rather wide limits. If a small amount does not produce the desired effect, a larger dose is given. This is true of ether, digitalis, quinin and other drugs in active use.

Posttransfusional reactions are harmful. A severe reaction in the very ill patients that usually require transfusion may do fully as much harm as the transfused blood does good. Consequently, when a method can be employed that is followed by no reaction in properly matched bloods, and involves no more immediate tax on the patient than the technic of the citrate method does, it seems that if the object of transfusion is to benefit the patient, the direct method by a jointed cannula should at least receive very serious consideration.

J. SHELTON HORSLEY, M.D., Richmond, Va.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

UNILATERAL SWEATING

To the Editor:—What can be the cause of a unilateral sweating of the face in a woman, aged 35?

MORRIS H. NEWTON, M.D., Little Falls, N. Y.

ANSWER.—The fact that the sweating is unilateral suggests that the cause is a local one, and the most probable explanation is that there is some irritation of the cervical sympathetic fibers on the affected side. If this is correct, one would expect to find the pupil dilated, the palpebral fissure wider and the eyeball somewhat more prominent on the side of the sweating. The source of the irritation may be in the course of the nerves through the neck, for example by enlarged glands or other swelling, or from some lesion in the spinal cord or roots in the upper dorsal region. In the latter case one would expect to find other symptoms, such as pain or paresthesia, in the arm on the same side. It is not possible to make a diagnosis from the fact of sweating alone, but the suggestion for the direction of further study may prove of value.

PEDICULUS PUBIS

To the Editor:—I should like a little information on the subject of *Pediculus pubis:* 1. Is a person liable to become infested from the toilet or from bedding? 2. How long does it take the crab nits to hatch? After they have hatched, how long does it take them to develop into full grown insects?

W. G. JONES, M.D., Sedalia, Mo.

ANSWER.—1. Infestation with *Pediculus pubis* may occur through bedding, clothing or the toilet; the usual method, however, is close personal contact.

2. The female lays from ten to fifteen eggs, which hatch in seven days, and the resulting pediculi mature in about two weeks.

TREATMENT OF WHOOPING COUGH BY ROENTGEN RAY

To the Editor:—Kindly give details regarding technic and dosage or strength and length of exposure to roentgen ray in treatment of pertussis in children, as referred to in Queries and Minor Notes, THE JOURNAL, September 8.

C. J. REILLY, M.D., Beatrice, Neb.

ANSWER.—The exposure used in the treatment of pertussis patients by one pediatrician is: 4 milliamperes; 7 inch spark gap; 14 inches distance; 2 mm. filterer; four minutes' duration.

BRUNS' GLUCOSE SOLUTION

To the Editor:—Please give the method of preparing Bruns' glucose solution for clearing sections of tissue made by the freezing method.

H. M. E.

ANSWER.—Bruns' glucose solution consists of distilled water, 140 c.c.; glucose, 40 gm.; glycerin, 10 gm. About 5 c.c. of 40 per cent. solution of formaldehyd should be added to prevent decomposition and fix the tissues.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, November 13-14. Sec., Dr. J. W. Walker, Fayetteville.

CONNECTICUT: Hartford, November 13-14. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

CONNECTICUT: New Haven, November 13-14. Sec. Eelec. Bd., Dr. James E. Hair, 730 State St., Bridgeport.

CONNECTICUT: New Haven, November 13. Sec., Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

MAINE: Portland, November 13-14. Sec., Dr. Adam P. Leighton, Jr., 192 State Street, Portland.

NEBRASKA: Lincoln, November 6-8. Supt., J. D. Case, Lincoln.

NEVADA: Carson City, November 5. Sec., Dr. Simeon L. Lee, Carson City.

NORTH CAROLINA: Chapel Hill, December 4. Sec., Dr. Kemp P. B. Bonner, Raleigh.

SOUTH CAROLINA: Columbia, November 2. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Dallas, November 20-22. Sec., Dr. T. J. Crowe, Dallas County Bank Bldg., Dallas.

MEDICAL DIPLOMAS WHILE YOU WAIT

In December, 1922, as is revealed by an investigation conducted through the Council on Medical Education and Hospitals of the American Medical Association, one Edward J. Meelbusch of Chicago applied to the government for vocational training in medicine. His application was refused because he did not have the essential premedical college training. He then asked for a course in chiropractic, but was again refused because he could not show evidence of having obtained even a high school education. Then he requested and was granted a four months' course in physiotherapy, at which he was engaged until the end of April, 1923.

Further investigation reveals that he became possessed shortly thereafter of three documents: a high school certificate indicating that he had passed a state examination, supposedly the equivalent of a four year high school education; a degree in osteopathy from the American College, and a diploma from the St. Louis College of Physicians and Surgeons. The two diplomas are reproduced herewith. Meelbusch stated, at that time, that he was going to take an examination for a license in Illinois under the "other practitioners act"; that he had sent in an application, and a photograph, but that he had not received a reply. He stated frankly that another person was to take the examination for him for which he was to receive a fee of $150. Meelbusch is reported to have said also that he paid $250 for the osteopathic diploma and $750 for the degree in medicine. According to the results of an investigation into his occupational record, and by the definite information that he had taken no medical training up to the end of December, 1922, it is apparent that Edward J. Meelbusch had spent neither the four years required to secure a degree from a reputable medical college, nor had he spent one—the senior—year in residence at the St. Louis College of Physicians and Surgeons—the shortest time after which, under any circumstances, a degree could be granted to him by any medical school.

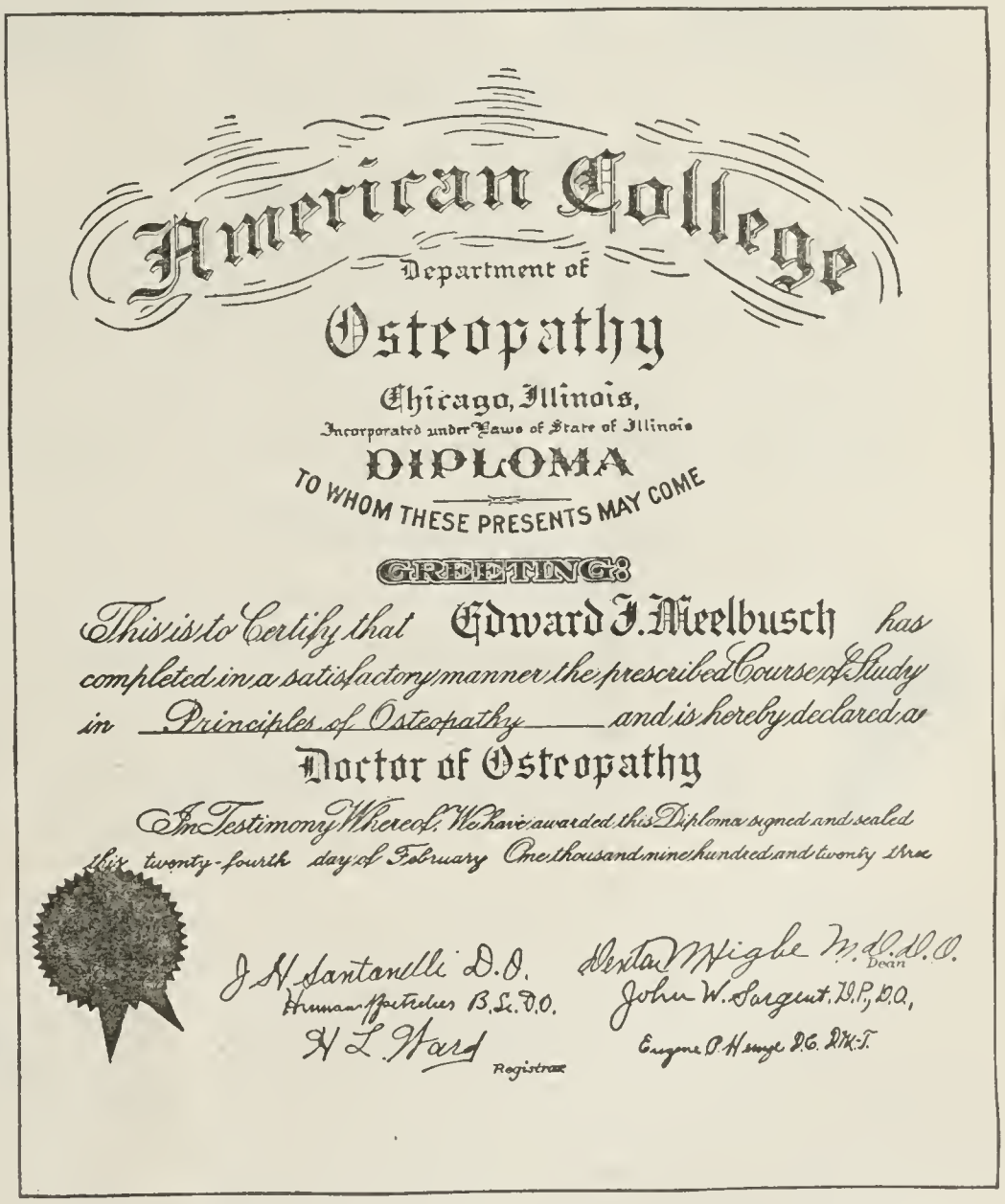

American College
Department of
Osteopathy
Chicago, Illinois,
Incorporated under Laws of State of Illinois
DIPLOMA
TO WHOM THESE PRESENTS MAY COME
GREETING:
This is to Certify that Edward J. Meelbusch has completed in a satisfactory manner the prescribed Course of Study in Principles of Osteopathy and is hereby declared a
Doctor of Osteopathy
In Testimony Whereof, We have awarded this Diploma signed and sealed this twenty-fourth day of February One thousand nine hundred and twenty three
J. N. Santarelli D.O.
Human Physiology B.S. D.O.
H. L. Ward Registrar
Dexter Wright M.D. D.O. Dean
John W. Sargent D.P. D.O.
Eugene O. Hough D.C. D.C.T.

Fig. 1.—The diploma of which this is a reduced facsimile is said to have been purchased by Meelbusch for $250.

According to a statement by Meelbusch, he was born March 28, 1894, and had completed the eighth grade in a public school at Oak Park, Ill., at the age of 12. He gave also his occupational history from that age until he entered the Navy in December, 1917. His occupational history has also been definitely outlined since he left the Navy in January, 1919.

DR. BRIGGS REMAINS SILENT

Oct. 2, 1923, a letter was sent to Dr. Waldo Briggs, dean of the St. Louis College of Physicians and Surgeons, stating that Edward J. Meelbusch held a diploma from that institution and asking when he had been in attendance. Up to the present date (Oct. 23, 1923) no reply has been received from Dr. Briggs, and no explanation has been forthcoming relative to the peculiar circumstances under which the diploma appears to have issued. A list of the students enrolled in the senior class of this college during 1922-1923 does not include the name of Edward J. Meelbusch.

THE AMERICAN COLLEGE

The college from which Meelbusch obtained the osteopathic diploma is an institution chartered in Illinois as the Metropolitan College, March 8, 1916, but which changed its name in 1919 to the American College. In a letter sent out by Denton B. Higbee, the "dean" of this institution, the reader is informed that "it conducts residence and correspondence courses in all methods of drugless healing, that is, chiropractic, osteopathy, naprapathy, etc." It is one of the large variety of miscellaneous degree conferring correspondence mills which, at the present time, are being chartered without hindrance in so many states of this country.

ST. LOUIS COLLEGE OF PHYSICIANS AND SURGEONS

This college was organized in 1869, was discontinued in 1873, but was reestablished in 1879. In 1907, it was rated in Class B by the Council on Medical Education, but in 1912 the rating was reduced to Class C—the lowest rating. In 1915, it merged with the Barnes Medical College and the American Medical College of St. Louis to form the Medical Department of the National University of Arts and Sciences. The control of its records and property, however, was retained by Dr. Waldo Briggs, the dean, and his associates. In 1916, the present institution, the St. Louis College of Physicians and Surgeons, withdrew from the merged institution and was reestablished.

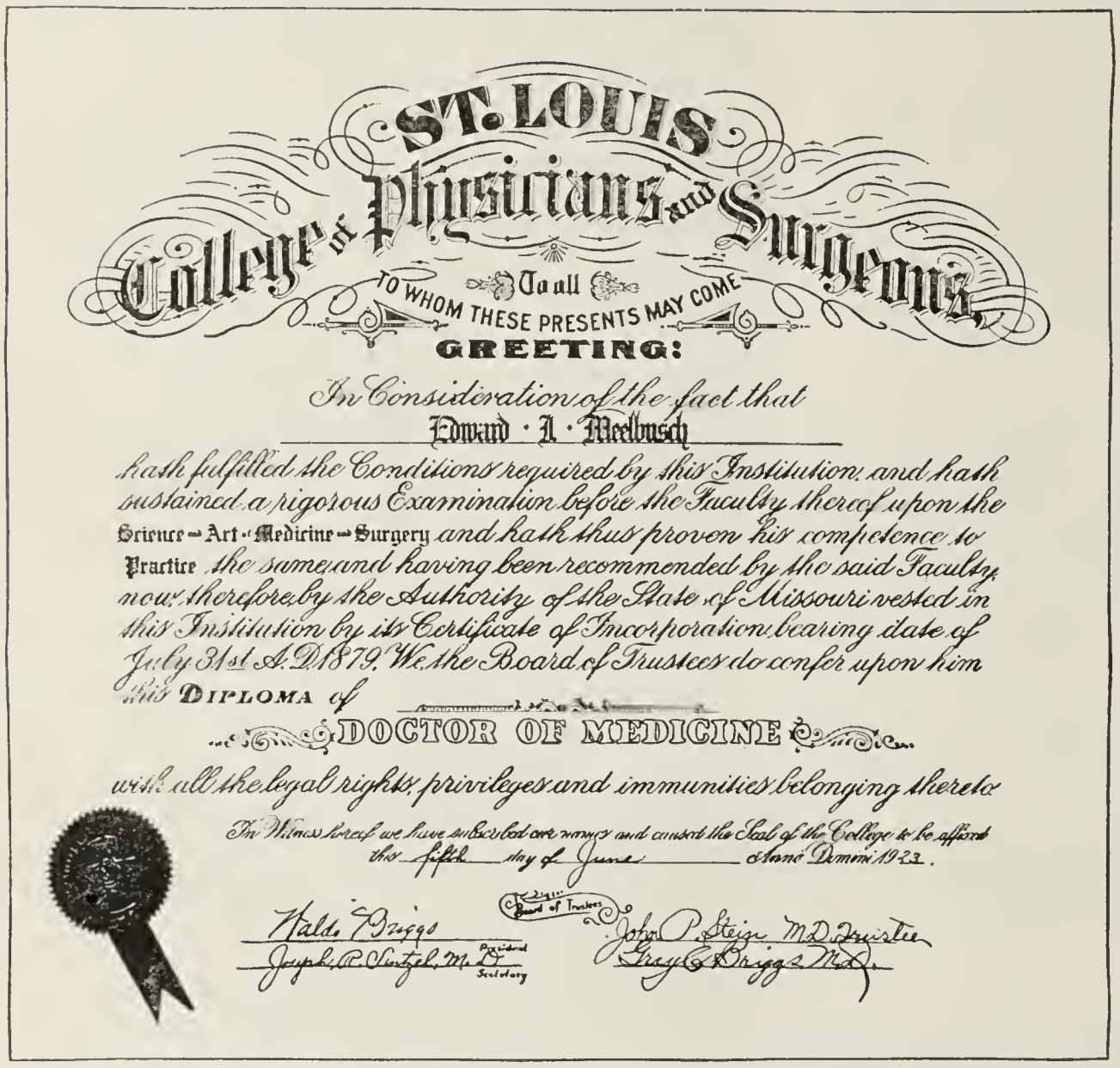
NONRECOGNITION BY STATE LICENSING BOARDS

In 1918, official reports from the licensing boards of thirty-eight states, including its home state, Missouri, indicated that recognition had been withdrawn from the St. Louis College of Physicians and Surgeons. At present, its graduates are admitted to the examinations of only three states and the District of Columbia. Massachusetts, Wyoming and the District of Columbia recognize this school because their inadequate laws do not give them authority to refuse recognition. In Connecticut, the Regular Board of Medical Examiners has refused to recognize graduates of this college, but during the last few years they have found easy entrance to examinations given by the Eclectic Board.

THE ST. LOUIS COLLEGE A "REGULAR" SCHOOL

Since its organization in 1869, the St. Louis College of Physicians and Surgeons has always claimed to be and has been listed as "regular"; the graduates, as they were licensed by various state boards, were classified as "regular" physicians, and nothing is found in the announcements of the college to indicate a change from its regular status. The licensing of its graduates in Connecticut, therefore, supposedly comes under the authority of the Connecticut Regular Board of Medical Examiners. In the three years 1920, 1921 and 1922, however, forty-four graduates of the St. Louis college have been licensed by the Connecticut Board of Eclectic Medical Examiners.[1] During the same three years this board, according to official statistics, licensed altogether 140 applicants,[2] who were graduates of either Class C medical colleges, or of low-type irregular institutions, or those for whom the evidence obtained fails to show that they ever studied in or graduated from any medical school.

The diploma now held by Meelbusch, therefore, is not the only one granted under peculiar circumstances.


ST. LOUIS
College of Physicians and Surgeons
To all
TO WHOM THESE PRESENTS MAY COME
GREETING:

In Consideration of the fact that
Edward · J · Meelbusch
hath fulfilled the Conditions required by this Institution and hath sustained a rigorous Examination before the Faculty thereof upon the Science — Art — Medicine — Surgery and hath thus proven his competence to Practice the same and having been recommended by the said Faculty now therefore by the Authority of the State of Missouri vested in this Institution by its Certificate of Incorporation bearing date of July 31st A.D. 1879. We the Board of Trustees do confer upon him this DIPLOMA of
DOCTOR OF MEDICINE
with all the legal rights, privileges and immunities belonging thereto
In Witness hereof we have subscribed our names and caused the Seal of the College to be affixed this fifth day of June Anno Domini 1922.
Board of Trustees
Walter Briggs
Joseph A. Sintzel, M.D. Secretary
John P. Steiger M.D. Trustee
Grayson K. Briggs M.D.

Fig. 2.—Reduced facsimile of a diploma which, according to Meelbusch's reported statement, was purchased for $750.

1. J. A. M. A., State Board Number, **78**: 1308 (April 29) 1922.
2. J. A. M. A., State Board Number, **80**: 1233, 1242 (April 28) 1923.

Michigan Reciprocity Report

Dr. Beverly D. Harison, secretary, of the Michigan Board of Registration in Medicine, reports that 32 candidates were licensed by reciprocity from March 12 to Aug. 15, 1923:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Chicago Coll. of Med. and Surg.	(1913) Illinois,	(1916)	Wyoming
Illinois Medical College	(1906)		Illinois
Loyola University School of Medicine	(1922)		Illinois
Northwestern University Medical School	(1909),	(1921)	Illinois
Rush Medical College	(1897)		Illinois
University of Illinois	(1917)		Illinois
State University of Iowa College of Medicine	(1922)		Iowa
University of Kansas School of Medicine	(1918)		Kansas
University of Louisville Med. Dept.	(1909) Missouri,	(1922)	Kentucky
University of Maryland	(1922)		Maryland
Harvard University	(1900)		Mass.
University of Minnesota Medical Dept.	(1920),	(1923)	Minnesota
Kansas City Medical College	(1903)		Kansas
St. Louis University School of Medicine	(1922, 2) Ohio,		Missouri
Washington University Med. College.	(1918),	(1921)	Missouri
Bellevue Hospital Medical School	(1898)		New York
Syracuse Univ. College of Med.	(1921),	(1922)	New York
Cleveland Homeo. Med. College	(1909)		Ohio
Medical College of Ohio	(1890)		Indiana
Western Reserve Univ. School of Medicine	(1919)		Ohio
Jefferson Medical College of Philadelphia	(1921)		Indiana
Vanderbilt Univ. School of Med.	(1916),	(1917)	Tennessee
University of Vermont College of Medicine	(1904)		New York
National University of Athens, Greece	(1904)		Illinois

South Dakota July Examination

Dr. H. R. Kenaston, director, Division of Medical Licensure, South Dakota Board of Health and Medical Examiners, reports the oral, written and practical examination held at Deadwood, July 17-18, 1923. The examination covered 15 subjects and included 100 questions. An average of 75 per cent. was required to pass. Thirteen candidates were examined, all of whom passed. Four candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED Year Grad.	Per Cent.
University of Arkansas Medical Dept.	(1923	75.8
Bennet College of Eclectic Med. and Surgery	(1901)	82.7
College of Physicians and Surgeons, Chicago.	(1901)	82.4
Harvey Medical College	(1898)	83
Rush Medical College	(1899) 83.4, (1923)	80.1
Tulane University School of Medicine	(1922)	76.8
St. Louis University School of Medicine	(1920)	82.3
John A. Creighton Medical College	(1920)	84.2
Columbia University College of Phys. and Surg.	(1914)	84.2
University of the City of New York	(1879)	84
Ohio Medical University, Columbus	(1898)	82.7
Jefferson Medical College of Philadelphia	(1922)	87.1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists	(1922)		California
University of Minnesota	(1921),	(1922)	Minnesota
Baylor University College of Medicine	(1921)		Texas

Tuberculous Infection and Manifest Tuberculosis.—All who are familiar with the subject know that the concepts "tuberculous infection" and "manifest tuberculosis" convey two very different meanings. The tubercle bacillus produces illness, but it also enters the tissues and rests there, living, silent and without noticeable effects. Infection engrafts itself on millions; manifest tuberculosis claims only its tens of thousands.—A. K. Krause: Rest and Other Things, p. 37.

Book Notices

AN INTRODUCTION TO APPLIED PSYCHOLOGY FOR NURSES. By Donald A. Laird, Assistant Professor of Psychology, University of Wyoming. Cloth. Price, $2.50. Pp. 236, with 48 illustrations. Philadelphia: J. B. Lippincott Company, 1923.

The ability of the nurse to understand her patient is often a matter of fundamental importance in the treatment of the patient. Much is therefore to be gained by including instruction in psychology in the curriculum of the nursing schools. But it is extremely important that the material for instruction be carefully selected and expressed in the simplest terms. In this little volume, the author not only has attempted to give some conception of the evolution of behavior, to discuss reflexes, instincts, emotions, temperaments, thoughts, the complex phenomena of repression, substitution and dreams, the use of suggestion, and the nature and causes of mental ill health and feeblemindedness, but also has entered in considerable detail into nervous anatomy and endocrinology. Much of this material is quite unnecessary for the purpose in view, and one inevitable result of the diffuseness is that all topics are sketchily handled and to the tyro must often be utterly confusing. The language is far from simple, and much of it would be Greek to the average student nurse. The diagrams and cuts are very technical for the most part, and have little bearing on the relation of the nurse to the problems of applied psychology. There are some serious errors such, for instance, as the statement that the human sphincter pupillae muscle reacts directly to the stimulus of light. One wonders how a boy "coaxes a growth of beard" and on what facts it is established, as well as what significance it has for applied psychology, that "the masculine type of woman is one with hyperactive adrenal." While behavioristic psychology does not lend itself readily to description in simple terms, often because words have taken the place of understanding, yet much more could be accomplished by attempting less than has been done in this volume.

PRACTICAL PHYSIOLOGY. By E. P. Cathcart, M.D., D.Sc., F.R.S., Gardiner Professor of Chemical Physiology, University of Glasgow, D. Noël Paton, M.D., LL.D., F.R.S., Regius Professor of Physiology, University of Glasgow and M. S. Pembrey, M.A., M.D., F.R.S., Professor of Physiology, Guy's Hospital, University of London. Cloth. Price, $6, net. Pp. 344, with 206 illustrations. New York: Longmans, Green & Co., 1923.

The medical student in this country is accustomed to view a textbook of physiology with misgiving. It is frequently a large, heavy volume, and its knowledge is extracted in most difficult ordeals. This English physiology is not a large book. Discussions, history, reviews and bibliographies, which are usually present in complete editions of textbooks on this subject, are omitted. It is, however, much more than a manual, although largely devoted to experimentation. It is an introduction to the study of vital phenomena. Part I comprises an elementary and an advanced course in experimental physiology; Part II, an elementary and an advanced course in chemical physiology.

KYSTOSKOPISCHE TECHNIK. Ein Lehrbuch der Kystoskopie, des Ureteren-Katheterismus, der Funktionellen Nieren-Diagnostik, Pyelographie, Intravesikalen Operationen. Von Dr. Eugen Joseph, A. O. Professor an der Universität Berlin. Price, $3.60. Pp. 221, with 262 illustrations. Berlin: Julius Springer, 1923.

The optical principles on which cystoscopy is based are more briefly and clearly described in this book than in many similar volumes. That a thorough examination of the entire body should precede the cystoscopy is illustrated by the citation of instances in which attention was called to spinal cord lesions by the cystoscopic findings. The author warns against the use of pneumoroentgenography of the urinary tract. A 25 per cent. solution of lithium iodid is preferable, in his opinion, to any other for pyelography. The absence of ill effects of the latter procedure is strongly emphasized. It is of interest to note that the faint shadow found in certain renal calculus cases is due to the absence of a colloid framework so that the calculus remains very soft. This is not only true of urates but also may be true of oxalates and phosphates. Such a soft calculus may be easily overlooked, and be the cause of a persistent pyelitis. One is surprised to find so little reference to sacral anesthesia in cases in which the bladder is so irritable as to make cystoscopy difficult or impossible by the ordinary method. The absence of a description of an American made cystoscope is not to be wondered at; but such difficulties as mentioned in Chapter IV, "that one is often not able to clear up a pyuria or a hematuria at the first sitting," would justify the introduction of the principles of constant irrigation which our cystoscopes possess. Apparently much reliance is placed on the guinea-pig test in renal tuberculosis; two colored illustrations of the postmortem changes following inoculation in these animals are most instructive. The chapter on anomalies is less satisfactory, but this is an exception. The one on pyelography is complete, and the same is true of that on functional tests. The author is a strong advocate of his own indigocarmin test, and places great reliance on it in preference to ureteral catheterization in some cases, such as renal tuberculosis, in which he warns against catheterizing the noninvolved side. The functional tests that are applicable to surgical cases are few, according to the author, and are of value only when there is extensive renal destruction or marked toxicity, being of little use in intermediate cases. In the chapter on the use of the high frequency current it is of interest to note that one can judge a bladder papilloma to be benign or malignant only by its cystoscopic appearance and its clinical behavior; that is, its tendency to recurrence.

CHEMISTRY INORGANIC AND ORGANIC WITH EXPERIMENTS. By Charles Loudon Bloxam. Revised by Arthur G. Bloxam, F.I.C. and S. Judd Lewis, D.Sc., F.I.C. Eleventh edition. Cloth. Price, $9. Pp. 832, with 310 illustrations. Philadelphia: P. Blakiston's Son & Co., 1923.

It is fifty-six years since the first edition of Bloxam's Chemistry was published. The last previous edition appeared ten years ago. The book is a hand reference work for teachers, students and others who desire a broad but brief exposition of chemistry. Those who are familiar with the more recent editions will appreciate the added material required by the progress of the science in the last decade. The new matter includes a short account of the present views on the structure of the atom, the quantum theory and crystal structure, while some subjects, such as spectroscopy, have been rewritten and expanded. To keep the space within reasonable limits, the text has been condensed and the type reduced slightly in size. Because of the vast amount of information given, each subject is necessarily treated briefly. The chapter on radium and other radioactive substances should prove useful to physicians. Some of the newer synthetic drugs, such as acriflavine, are also mentioned. The physician who wants a treatise on general chemistry which is thoroughly up to date, which touches every phase of the subject and which will seldom fail when appealed to, will find this the most satisfactory of any single volume that can be found.

THE URETHRA AND THE URETHROSCOPE. A Manual of Practical Urethroscopy. By F. Carminow Doble, M.R.C.S., L.R.C.P., Officer in Charge Gonorrheal Division, Military Hospital, Rochester Row. With a foreword by Major A. T. Frost, O.B.E., R.A.M.C., Officer Commanding Military Hospital, Rochester Row. Cloth. Price, $3.40. Pp. 120, with illustrations. New York: Oxford University Press, 1923.

This excellent work has much to recommend it, especially to students and to beginners in venereal work. Too much space is probably given to the air-dilating instruments of English, French and German manufacture, and too little to the water-dilating types, so much in use in America. The arrangement of the subject matter into three chief divisions dealing with the anterior, the posterior and the female urethra is good. The anatomy of each part is accurately and concisely given. Then the instruments best adapted to each part are described. Finally, the pathology and treatment are covered in detail, particularly the use of various operative measures. Each subject is treated concisely, accurately and with a broad knowledge and wide experience. Too broad a field is covered perhaps, which necessarily makes the handling of many subjects somewhat too brief. Nevertheless, this little book should receive all the consideration it deserves.

Medicolegal

Classification of Loss from Amputation Below Knee

(Cone et al. v. Texas Employers' Ins. Ass'n (Texas), 251 S. W. R. 262)

The Court of Civil Appeals of Texas says that an employee sustained injuries that resulted in the amputation of one of his legs 6 inches below the knee joint, enough of the leg below the knee remaining to make it useful in wearing an artificial limb, as was found by the trial court, which held, as a matter of law, that the man's injuries did not come within the specific compensation provided by the workmen's compensation law of Texas for the loss of a leg at or above the knee, but fell within the provision for compensation for the loss of a foot. On this appeal from that decision it was argued that "at," as used in the provision for compensation for the loss of a leg "at or above the knee," should be construed as meaning "near to, approach, nearness, proximity"; that its primary meaning might be conceded to be "nearness." But the exact definition of a word must often be determined from its context. Many definitions and shades of meaning have been given to the word "at"; but, as used in the provision here referred to, it has only one meaning, as applied to the facts of this case, and that is that the loss of the leg must be "at" the knee, in the exact sense of the location of the knee, and not below the knee to any extent whatever. This is made plain by the description of the loss being "at or above the knee." The use of the word "above" in connection with "at" limits the meaning of that word to the exact location of the knee in relation to that part of the leg below the knee, and it cannot be construed as including any portion of the leg below the knee. The court of civil appeals concurs with the trial court in holding that the loss of the leg below the knee, when the stump is preserved which can be used by the injured party, does not entitle him to compensation under that section of the statute which provides for "the loss of a leg at or above the knee."

Refusal to Undergo Treatment by Immobilization

(Moran v. Oklahoma Engineering and Machine and Boiler Co. et al. (Okla.), 214 Pac. R. 913)

The Supreme Court of Oklahoma says that some time after the plaintiff had been severely injured while in the employ of the defendant company, the state industrial commission made an order requiring him to submit to a physical examination by two physicians for the purpose of determining whether or not his disability had ceased. The physicians discovered that he was still suffering from an ununited fracture of the sixth rib, and expressed the opinion that the injury was not necessarily permanent; that the patient's recovery depended on either securing union of the ununited fracture, or resection of the rib so as to break contact with the broken ends; that the simple operation of immobilization would probably effect a cure within three months, and, if it was not successful, then the more serious open operation should be performed. Thereupon the commission ordered the plaintiff to enter a hospital for treatment by immobilization for the period of three months at the expense of the insurance carrier, which agreed to furnish such medical treatment as was necessary, while the plaintiff agreed to accept the treatment of a named physician. However, after the plaintiff had been taken to the hospital and provision made for his care, he returned to his home and notified the commission that it was impossible for him to submit to the treatment of the physician. The commission then ordered that the compensation which the plaintiff was being allowed should be discontinued from the date he was ordered and taken to the hospital, which order of discontinuance of compensation is here reversed and directed to be set aside.

There is no specific provision of the workmen's compensation law of Oklahoma authorizing the industrial commission to discontinue compensation, during the continuance of disability, on any ground short of the statutory period. The statutory obligation of the employer to pay compensation during the continuance of the disability is, however, subject to the implied condition that the workman shall avail himself of such reasonable remedial measures as are within his power. Where the workman unreasonably refuses to undergo a minor operation, simple, safe and reasonably certain to effect a cure, the continuing disability results not from the injury but from his own wilful act. Whether or not the refusal to submit to an operation and treatment was unreasonable was a fact which the employer must have established and the commission must have found in order to have stopped the injured employee's allowance, and they must have found, further, that the treatment would have relieved the trouble and thus benefited the employer.

If it be conceded that the operation of immobilization involved little danger or suffering, still this court is unable to find any provision in the compensation law conferring authority on the industrial commission to discontinue compensation solely on the ground that the claimant refused to submit to an operation; and neither the evidence taken nor the findings of fact of the commission warranted the assumption that the continuing disability of the plaintiff was the result, not of his injury, but of his unreasonable refusal to submit to a simple operation. Obviously, the simple operation of immobilization recommended by the physicians was merely an experiment. There was no such assurance that this operation would work a cure as would justify the industrial commission in discontinuing the compensation from the date the order was made requiring the claimant to go to the hospital. At least, a reasonable time for recovery should have been allowed before compensation was discontinued. The physician who was to give the treatment expressed the opinion that, if the operation by immobilization was successful at all, it would take at least three months from the date of the examination to work a cure. Surely the compensation should not have been cut off until after this reasonable time for recovery had expired.

Weight of Physician's Testimony from Experience

(American Ry. Express Co. v. Lancaster (Ky.), 251 S. W. R. 670)

The Court of Appeals of Kentucky, in affirming a judgment in favor of plaintiff Lancaster for injuries says that his principal injury was to his knee. The attending physician found the knee swollen and very painful to the touch. In his opinion, one or more of the ligaments had been strained or turned. Speaking from experience, he testified that the knee joint, when once hurt, remains more or less weak. In doing straining work, it becomes painful and loses part of its mobility. According to his best judgment, the injury to the plaintiff's knee would be likely to last him through life. On the other hand, the physicians who testified for the defendant express company said that the plaintiff's knee had been completely cured. It was insisted that because the attending physician used the words, "I am speaking just from my experience," his evidence was of no greater value than that of a layman. It was evident, however, that the witness spoke from his experience as a physician. Clearly, such experience would add weight to, rather than detract from, the value of his testimony.

Society Proceedings

COMING MEETINGS

Porto Rico, Medical Association of, San Juan, Dec. 14-16. Dr. Augustin R. Laugier, Box 1117, San Juan, Secretary.

Radiological Society of North America, Rochester, Minn., Dec. 3-7. Dr. M. J. Sandborn, Appleton, Wis., Secretary.

Southern Medical Association, Washington, D. C., Nov. 12-15. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., Dec. 11-13. Dr. H. A. Royster, 423 Fayetteville Street, Raleigh, N. C.

Tri-State District Medical Society, Des Moines, Iowa, Oct. 29-Nov. 1. Dr. William B. Peck, 82 Stephenson Street, Freeport, Ill., Managing Director.

Western Surgical Association, Colorado Springs, Colo., Dec. 6-8. Dr. Warren A. Dennis, Hamm Bldg., St. Paul, Minn., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Syphilis, St. Louis

7: 417-616 (July) 1923

Practical Observations on Syphilis. VI. H. H. Hazen, Washington, D. C.—p. 417.

*Quantitative Studies in Syphilis from Clinical and Biological Point of View. V. Arsenic Content of Blood and Spinal Fluid After Neo-Arsphenamin in Swift-Ellis Method of Treatment. J. A. Fordyce, I. Rosen and C. N. Myers, New York.—p. 444.

Id. VI. Arsenic Content of Spinal Fluid After Arsphenamin in Swift-Ellis Method of Treatment. J. A. Fordyce, I. Rosen and C. N. Myers, New York.—p. 478.

Id. VII. Arsenic Content of Spinal Fluid After Arsphenamin and Drainage. J. A. Fordyce, I. Rosen and C. N. Myers, New York.—p. 513.

*Id. VIII. Arsenic Content of Blood After Intravenous Injection of Silver Arsphenamin. J. A. Fordyce, I. Rosen and C. N. Myers, New York.—p. 528.

*Chancre in Axilla. D. W. Montgomery and G. D. Culver, San Francisco.—p. 560.

Chancre of Lip. M. B. Parounagian and H. Goodman, New York.—p. 563.

*Syphilis as We See It Among the Natives of Bechuanaland Today. Study of 1,547 Cases. D. C. McArthur, London.—p. 569.

Use of Sodium Thiosulphate in Treatment of Postarsphenamin Dermatitis Exfoliativa: Report of Case. I. C. Sutton, Anaheim, Calif.—p. 608.

Comparative Value of Kolmer's New Antigen in Routine Wassermann Test. K. M. Lynch, Dallas, Texas.—p. 612.

Arsenic Content of Blood and Spinal Fluid After Neo-Arsphenamin Injection.—The serum, clot and cerebrospinal fluid of twenty-seven patients treated with neo-arsphenamin intravenously and autoserum intraspinally were analyzed by Fordyce, Rosen and Myers for arsenic content. It was found that 26 per cent. of the patients and 12.5 per cent. of the cerebrospinal fluids showed no arsenic at the time of at least one examination. Each patient showing these negative findings at some other time yielded fluid containing arsenic. Twenty-two per cent. of the patients, or 10.5 per cent. of the cerebrospinal fluids, showed a trace of arsenic at some time during the treatment. These analyses indicate that arsenic passes with comparative ease into the spinal fluid in probably every patient at some period during the course of treatment.

Arsenic Content of Spinal Fluid After Arsphenamin.—Of 257 cerebrospinal fluids analyzed by Fordyce et al., 12 per cent. showed no arsenic at some period during treatment. Classified according to the clinical diagnosis, they fall into the following groups: tabes, 6 per cent.; optic atrophy, 0.8 per cent.; general paralysis, 0.4 per cent.; cerebrospinal syphilis, 5.1 per cent.

Arsenic Content of Blood After Silver Arsphenamin Injection.—Analyses of the blood for its arsenic content after intravenous injections of silver arsphenamin were made of 299 specimens obtained from 214 patients. Analysis of blood taken immediately after the completion of the injection shows that 56.4 per cent. of the arsenic injected localizes outside the blood stream. The maximum quantity of arsenic in the blood stream, based on average values, is found immediately after injection. The value expressed in milligrams of metallic arsenic per hundred grams of dried specimen is 2.62.

Chancre in Axilla.—In Montgomery and Culver's case, wearing the wrapper of an infected woman and a pimple in the axilla caused the development of the chancre in the axilla.

Syphilis in Bechuanaland.—McArthur's contribution deals with a study of syphilis in the Bechuanaland natives. An abstract of the family histories of 1,009 cases is presented, and observations accruing from 538 cases which do not fall into family groups. The possible methods of transmission of syphilis are summarized, with special reference to conditions obtaining in Bechuanaland. The unique syphilization of families on a large scale is noted. The question of whether the disease is syphilis or frambesia tropica is dealt with. The evidence that it is syphilis is said to be conclusive. Evidence is had which suggests strongly the possibility of the transmission of syphilis to the third and subsequent generations. Variations in symptomatology between European syphilis and that seen in the Bechuanaland native are discussed. Most attention is given to (1) the absence of visceral lesions, (2) the apparent insusceptibility of the cerebrospinal axis to attack, (3) the high incidence of syphilis hereditaria tarda, (4) the marked chronicity and slow development of isolated lesions, and (5) the clinical characteristics of a prevalent favoid condition of the scalp locally known as "wit-kop." In this connection some account is given of a fungus described as a possible causative agent.

Annals of Surgery, Philadelphia

78: 129-304 (Aug.) 1923

Repair of Common Bile Duct. L. L. McArthur, Chicago.—p. 129.

Question of Size. W. J. Mayo, Rochester, Minn.—p. 139.

*Surgery of Thyroid and Its Mortality. C. H. Mayo and J. De J. Pemberton, Rochester, Minn.—p. 145.

*Many Stage Operation for Goiter. M. B. Tinker, Ithaca, N. Y.—p. 150.

*Eventration of Diaphragm. M. B. Clopton, St. Louis.—p. 154.

*Cardioplasty for Cardiospasm. S. H. Watts, Charlottesville, Va.—p. 164.

*Operation for Relief of Cardiospasm Associated with Dilatation and Tortuosity of Esophagus. L. Freeman, Denver.—p. 173.

*Pancreatic Asthenia as Postoperative Complication in Patients with Lesions of Pancreas. A. O. Whipple, New York.—p. 176.

*Splenectomy in Hemorrhagic Purpura. J. M. Hitzrot, New York.—p. 185.

Special Points in Gallbladder Surgery. G. W. Crile, Cleveland.—p. 191.

*Mortality Following Operations on Liver, Pancreas and Biliary Passages. E. S. Judd and J. H. Lyons, Rochester, Minn.—p. 194.

*Use of Cautery in Peptic Ulcer. D. C. Balfour, Rochester, Minn.—p. 205.

*Cancer of Colon. R. T. Miller, Baltimore.—p. 209.

Embryoma of Kidney: Report of Three Cases. H. Gage and D. S. Adams, Worcester, Mass.—p. 226.

Certain Features of Renal Calculus. Report of Fifteen Cases. E. Eliot, Jr., New York.—p. 231.

Ossification in Kidney Stones Attached to Renal Pelvis. Report of Two Cases. D. B. Phemister, Chicago.—p. 239.

*Operation of Choice in Surgery of Kidney. W. E. Lower, Cleveland.—p. 250.

Carcinoma of Bladder. Analysis of 131 Cases. J. B. Deaver and W. H. MacKinney, Philadelphia.—p. 254.

*Pathologic Changes Occurring in Spinal Cord Following Fracture-Dislocation of Vertebrae. J. E. Thompson, Galveston, Texas.—p. 260.

Actinomycosis. Report of Cases. H. A. Bruce, Toronto.—p. 294.

Hernia Through Conjoined Tendon or Hernia of Linea Semilunaris. F. S. Mathews, New York.—p. 300.

Mortality from Surgery of Thyroid.—The reduction of the mortality in surgery of exophthalmic goiter to 1 per cent. is attributed by Mayo and Pemberton to three factors: (*a*) Patients with exophthalmic goiter are coming to operation earlier in the course of the disease, before the development of visceral degenerative changes; (*b*) by the combined medical and surgical management, the development of postoperative, acute, hyperthyroidism has been reduced to a minimum, and (*c*) a clearer recognition of the dangers involved in the injury of the recurrent laryngeal nerve has led the surgeon to greater care in its avoidance. The combined medical and surgical management of patients with exophthalmic goiter is warranted from the economic standpoint, as it has reduced the necessity for ligations.

Many Stage Operation for Goiter.—Operation divided into many independent stages, in Tinker's opinion, not only makes it possible to save the lives of most of these desperately ill patients, but with the many stage operation, it is easier to enforce the rest and care indispensable to ultimate complete recovery, especially in those cases with dilated hearts and myocardial degeneration. The disadvantages of greater scarring, prolonged hospitalization and increased expense, seem trivial when safety and permanent recovery are considered. The advantages of preliminary ligation will be more fully realized when the pole of the gland is well exposed, so as to make certain the securing of all vessels, great and small, main and collateral. Many stage excision, with wound packing, is best reserved for the few cases in which it has proved impossible by careful preliminary study correctly to estimate the gravity of the patient's condition, and unexpected grave symptoms develop during operation. In such cases it saves life, and the disadvantages of slight risk of infection and additional scarring scarcely deserve consideration.

Eventration of Diaphragm.—Both Clopton's patients presented the same findings. There was a high lying diaphragm on the left side, with the stomach, spleen and large intestine occupying the space usually filled by the lung. The heart was

in the right chest. The stomach was large. The large intestine was also dilated and enlarged. The liver was vertical and right sided. The chest wall showed a slight bulging of the lower half of the left side.

Cardioplasty for Cardiospasm.—A cardioplasty, resembling the Finney pyloroplasty, was done in Watts' case. An old gastrostomy opening from a previous operation was closed and a new Frank gastrostomy made. Fourteen months later the patient was perfectly well and could swallow any kind of food without difficulty.

Operation for Relief of Cardiospasm.—In Freeman's case beginning just above the cricoid and extending further down behind the sternum than the finger could reach, the esophagus was uniformly dilated into a great, slack, thin-walled, saclike tube, around which the examining finger easily could be swept within the mediastinum. Freeman pulled upward on the dilated tube until a large fold, including the entire circumference protruded through the incision in the neck, and the portion below was rendered quite taut. There was no difficulty in accomplishing this, owing to the surprisingly loose manner in which the esophagus seemed to hang within the mediastinum. It was decided to invaginate the upper segment of the loop into the lower, without opening its lumen, thus restoring to the tube something of its proper length and longitudinal tension. This intussusception, maintained by means of a few stitches of chromic gut, formed such a bunch in the esophagus that, fearing its complete occlusion, a stomach tube was passed and left in place for a few days. Up to the present time, twenty years later, he has had no return of his trouble, except an occasional slight dysphagia.

Pancreatic Asthenia as Postoperative Complication.—In a series of 230 consecutive unselected cases of disease of the biliary tract and pancreas operated on by Whipple, forty showed definite pancreatic lesions. Eighteen of these cases presented the complication which, because of its most striking and constant symptom, asthenia, has been named pancreatic asthenia. It is characterized by extreme asthenia, anorexia—in some cases a very loathing for all food—apathy, nausea and vomiting, a marked drop in blood pressure and rapid loss of weight. In some cases there has been noted, in addition, a tendency to hemorrhage, with and without jaundice or biliary fistula, ptyalism, pain and tenderness over the pancreas, obstipation and diarrhea. Pancreatic asthenia has appeared at intervals after operation, varying from the second to the ninth day, and has lasted for periods varying from two to thirty days, the average period being twelve days. The symptoms appear, as a rule, after the patient has recovered from the shock of the operation, when he is apparently doing well. In the patients recovering from this condition the change for the better is often surprisingly abrupt, appearing with a sudden return of appetite and relish for food. It differs from the cholemic state seen in cases with long standing biliary obstruction and damaged liver. These patients with pancreatic asthenia are never comatose. They maintain a clear sensorium, and are never delirious. Languor and apathy are pronounced; weakness is the chief complaint. Of eighteen patients showing this syndrome, eight died while in the hospital; of five showing carcinoma, three died after leaving the hospital in from two to twenty-six months. All of the surviving seven patients show a symptomatic relief from all symptoms from twelve to fifty-six months after operation.

Splenectomy for Hemorrhagic Purpura.—In a case cited by Hitzrot removal of the spleen had a definite effect in the idiopathic type of hemorrhagic purpura and this effect seemed to be related in some way to the change in the bleeding time and in the number of the blood platelets.

Mortality Following Operation on Liver and Bile Passages.—This study by Judd and Lyons concerns the mortality following operations at the Mayo Clinic during 1922, for diseases of the gallbladder and associated viscera. Of the twenty-two cases in which an operation for primary disease of the liver was performed, one patient, who had carcinoma, died from pneumonia. Following thirteen operations for unusual conditions of the gallbladder and ducts, two patients died. Forty-five cholecystectomies were performed for acute cholecystitis with no deaths, and twenty-two cholecystostomies with one death. Of the four deaths in 150 operations on the common duct not one resulted from hemorrhage, in spite of the fact that many of the patients were deeply jaundiced at the time of operation. All of these jaundiced patients were given careful preparatory treatment. Following twelve hepaticoduodenostomies with reconstruction of the common duct, there were three deaths, one due to shock, one to hemorrhage, and one to hepatic insufficiency. A few cases of "liver-shock" have been observed. Possibly, because of the sudden release of pressure in the common duct, the reaction in the liver may result in shock. One of the deaths from this condition occurred a few hours after a not unusually difficult operation in which very little blood was lost, and not enough trauma produced to cause shock. There were twelve cases of obstructive jaundice. In nine of these, the gallbladder was anastomosed to the stomach or duodenum, or the common duct or gallbladder was drained, and nothing further attempted; two of the nine patients died. Of patients operated on for pancreatic diseases, two died. One of these was operated on for cancer of the pancreas producing deep jaundice. The gallbladder was anastomosed to the duodenum. Death resulted from pneumonia two weeks later.

Use of Cautery in Peptic Ulcer.—The cautery for the excision of certain types of peptic ulcer was employed by Balfour in 725 cases. The cautery is valuable in its applications to three groups of cases: (1) small gastric ulcers in any situation; (2) ulcers of any size in a situation of difficult accessibility, and (3) bleeding gastric or duodenal ulcers.

Cancer of Colon.—One hundred and twenty-nine cases of cancer of the colon, exclusive of the rectum, have been analyzed by Miller. Fifteen per cent. of the patients were less than 35 years of age. Only a little over one half presented a history of partial intestinal obstruction. Forty per cent. had shown no symptoms of obstruction; 40 per cent. had a definite history of chronic obstruction, and 20 per cent. were admitted with acute obstruction or had previously survived such an attack. The history of partial obstruction, when given, extended over the better part of a year before admission for treatment; those lacking this feature presented other symptoms, which had been recognized by the patient for a period of comparable length. Resection produced a five year cure in 10 per cent. of all the cases admitted and in 28 per cent. of those surviving resection. There is reason to believe that if a case is curable by surgical means this result will be achieved just as surely by local excision of the growth-bearing portion of the gut as by an operation of much greater extent; from the standpoint of cure, therefore, limited resection, which definitely clears the growth, appears to meet the situation, but the arrangement of the circulation of the colon is such that a much more extensive resection may be needed in order to be assured of the viability of the remaining tissues.

Operation of Choice in Surgery of Kidney.—In Lower's opinion no inclusive statement can be made regarding the operative management for any type of kidney lesion. All the factors in the individual case must be considered in making a decision as to the proper operative procedure. If the proper preoperative precautions be taken and a careful choice of operation be made, the mortality rate of operations on the kidney will not be high. In Lower's series the mortality rate has been 1.7 per cent.

Treatment of Fracture Dislocation of Vertebrae.—Thompson is strongly opposed to operation as a routine practice in these cases. It is often unsafe, rarely justifiable and usually futile. Except in the rare instances in which median incision of the cord is the objective, mere exposure of the injured segment is all the surgeon can hope to accomplish, because deformity is seldom persistent and massive hemorrhages do not occur. Thompson believes that the only positive indication for operation is the persistence of deformity of such degree as to justify the assumption that the cord is subjected to pressure. Even with such strict limitations, incomplete lesions alone would be benefited. If it were possible to distinguish with certainty complete from incomplete transverse lesions in the early period, the problem would be solved. At the present time, it is impossible to decide, consequently one must either wait days or weeks for unequivocal signs or operate early in

the hope of affording relief. Thompson firmly believes that waiting is the best and safest course.

Boston Medical and Surgical Journal

189: 335-362 (Sept. 6) 1923

*Heart Murmurs in Infancy and Childhood. J. L. Morse, Boston.—p. 335.
*Treatment of Whooping Cough in Private Practice. W. W. McKibben, Worcester.—p. 339.
*Factors Governing Gain in Weight in First Year. F. H. Allen and E. P. Bagg, Jr., Holyoke.—p. 349.

189: 363-392 (Sept. 13) 1923

General Management of Tuberculosis. G. E. Bushnell, Fort Bayard, N. M.—p. 363.
Sanatorium Treatment. E. B. Emerson, Rutland.—p. 369.
Home Treatment of Pulmonary Tuberculosis. E. T. Shields, New York.—p. 372.
Symptomatic Treatment of Tuberculosis. E. O. Otis, Boston.—p. 374.

Heart Murmurs in Children.—Morse directs attention to the fact that a precordial murmur in a child does not necessarily indicate that it has organic "heart disease." In fact, the chances are that it has not and that the murmur is due to some other cause and has no pathologic significance. It is also evident that no examination of the heart is complete and that no conclusions are justified, unless the size of the heart, the character of the heart sounds, the intensity of the second pulmonic sound, the condition of the other organs, and that of the child as a whole. as well as the location and character of the murmur and how it is affected by respiration and position are investigated. If all these points are taken into consideration, it is usually possible to determine whether a precordial murmur is organic or not, and, if it is, whether the lesion which causes it is serious or not.

Vaccine Treatment of Whooping Cough.—McKibben reports good results from the use of pertussis bacillus vaccine in whooping cough, not only to prevent the disease after exposure, but also, particularly, in treatment after the paroxysms have begun. Infants respond more quickly to the vaccine than do older children. Even if nontuberculous bronchopneumonia has already developed, the chances of success are by no means hopeless.

Factors Governing Gain in Weight of Infants.—Analysis of five hundred consecutive cases observed by Allen and Bagg during the past five years indicates that babies born overweight, in the main, do better than do those of normal birth weight, or those underweight. Normal weight babies of the second pregnancy, however, outran both of the other groups. Babies born under weight ran lowest in ability to gain in weight at the normal rate. Abnormalities tend definitely to subvert normal gain in weight, but not particularly in any one group. Hospital born babies enjoy a distinct advantage over those born at home in likelihood of normal gain. The prolonged use of breast milk, alone or supplemented, tends to increase the rate of gain in weight. Diarrhea is the most frequent of the complications, and ranks highest among the diseases tending to prevent the normal rate of gain in weight.

189: 393-424 (Sept. 20) 1923

History and Observation in Cardiac Disease. W. H. Robey, Boston.—p. 393.
Hospital Administration Under Eighteenth Amendment. G. G. Sears, Boston.—p. 397.
*Uremia. Syndrome of Nitrogen Retention. H. M. Feinblatt, Brooklyn, N. Y.—p. 399.
*Bacillus Acidophilus Milk and Its Therapeutic Effects. H. A. Cheplin, C. D. Post and J. R. Wiseman, Syracuse, N. Y.—p. 405.
Surgical Importance of Torsion Deformities. C. L. Lowman, Los Angeles.—p. 411.
Health for People of Boston. M. Beard, Boston.—p. 414.

Nitrogen Retention and Uremia.—Feinblatt presents a study of uremia on the basis of nitrogen retention. Instead of investigating the blood chemical findings in patients clinically considered uremic, the method pursued was to analyze the other evidences exhibited by patients with known nitrogen retention. Urea nitrogen retention was the criterion on which this study was based. The clinical records of patients whose urea nitrogen readings equalled or exceeded 50 mg. per hundred cubic centimeters of blood were analyzed. The urea nitrogen values appeared to furnish a reliable index to the progress of the case, much more so than the clinical picture. Increases to figures of 300 mg. per hundred cubic centimeters of blood invariably portended early death. Uric acid readings were quite variable and bore an uncertain relation to the severity of the case. Although there was always some degree of retention, this was often moderate, even in comatose, moribund patients, with maximal grades of urea and creatinin retention. Creatinin tended to rise in the same proportion with urea nitrogen. Retention of this substance was found to be of great prognostic value. The study of the etiologic factors would indicate that heredity, sex and occupation are not important predisposing causes. The most important underlying renal condition responsible for uremia was chronic glomerular nephritis, being present in thirty-four of forty-eight cases. Acute glomerular nephritis was accountable for only two cases. Tonsillitis and scarlatina were the most frequent antecedent infections. The symptomatology revealed a striking similarity to nephrectomized animals and to instances of total deprivation of renal function in man. Concurrent cardiac decompensation was undoubtedly responsible for the dyspnea and edema in many instances. Eclamptic evidences were infrequent. Convulsions were observed in only six patients, and then only within an hour of death. A moderate grade of secondary anemia was observed in the great majority of patients. The evidences revealed by ophthalmoscopy were papilledema, albuminuric retinitis, retinal hemorrhages and vascular degeneration. Cardiac hypertrophy was positively determined in twenty-seven cases. The average systolic blood pressure was 171; diastolic, 108; pulse pressure, 63. Myocardial insufficiency and lobar pneumonia were the most important complications. Forty-three of the patients died. Only one left the hospital improved.

Therapeutic Effects of Bacillus Acidophilus Milk.—Experiments were carried out by Cheplin, Post and Wiseman with the object of extending the observations on the therapeutic value of the oral administration of viable acidophilus milk cultures on a larger group of clinical cases. These facts emerge: The fundamental principles on which the acidophilus milk therapy is based should be strictly adhered to if favorable results are expected. The acidophilus milk therapy is not a cure for all kinds of ailments, nor will all cases of gastro-intestinal disturbances necessarily respond to this mode of treatment. It is not an elixir, nor a so-called "longevity bug" in the sense that *Bacillus bulgaricus* was hailed. The ingestion of relatively few acidophilus bacilli will not lead to implantation and bodily improvement. A minimum amount of the culture, containing, on the average, 50 billions of viable organisms, should be administered each day for at least six weeks or longer to effect clinical improvement. Acidophilus tablets can be of no use whatever in bringing about transformation of the flora and relief from trouble. The authors strongly advocate the adoption of the *Bacillus acidophilus* milk culture as the surest and most effective means of attaining the desired results.

California State Journal of Medicine, San Francisco

21: 277-318 (July) 1923

Medical Treatment of Peptic Ulcer. P. K. Brown, San Francisco.—p. 277.
*Adenosarcoma of Kidney in Young Child. A. J. Hood and H. Albert, Reno, Nev.—p. 281.
Histologic Study of Results Obtained Through Instrumental Treatment of Pyorrhea. F. V. Simonton, San Francisco.—p. 283.
Neurologic Aspects and Late Symptoms of Epidemic Encephalitis. T. G. Inman, San Francisco.—p. 285.
Surgery of Gallbladder. S. Bunnell, San Francisco.—p. 287.
*Cardiac Decompensation During Pregnancy and Labor. K. L. Schaupp, San Francisco.—p. 290.
*Physiologic Basis for Employment of Calcium in Treatment of Asthmatic Paroxysms. F. M. Pottenger, Monrovia, Calif.—p. 293.
Brain Injuries. E. Butler, San Francisco.—p. 295.
Treatment of Diabetes. A. F. Willier, San Diego.—p. 297.
Clinical Uses of Oxygen. L. A. Rethwilm.—p. 300.
Diagnosis and Cure of Gonorrhea. G. W. Hartman, San Francisco.—p. 303.

Adenosarcoma of Kidney in Child.—Hood and Albert report a case in a child, aged 2½ years. At operation several small metastases were seen in adjacent loops of intestine. A loop of the ileum was incorporated in the mass and required resection for its removal. The child died on the third day after the operation.

Cardiac Decompensation During Pregnancy.—In 1,395 pregnant patients seen in the Stanford Women's Clinic and the

Stanford Obstetric service at the San Francisco Hospital, cardiac disease, other than functional murmurs, was diagnosed thirty-eight times. Mitral insufficiency was most common, occurring eighteen times; mitral insufficiency, complicated with stenosis, was observed six times. Of the thirty-eight patients with decompensation twenty-three had albuminuria and four had casts, nineteen had dyspnea, seventeen palpitation, fourteen cough, fourteen edema, thirteen pain and four had irregularity of pulse. While dyspnea was the most common symptom, it was usually present in a moderate degree and with palpitation and slight edema was often the only sign of decompensation. In the more serious cases, however, cough and precordial pain were the most constant symptoms and were often very difficult to control. It was in the cases of coughing and pain that the gravest decompensation was found, and here intervention was more often necessary. Irregularity of the pulse, while not frequent, was almost always associated with a serious lesion. The time of appearance of symptoms varied, but in most of the twenty-four cases that occurred antepartum they began after the sixth month, and of these the majority appeared during the last six weeks. An important point brought out in this investigation was the relation of the blood pressure to decompensation, and it may be an important factor in prognosis. In nearly all cases on returning compensation the blood pressure showed a rise, even in cases in which it already was above normal.

Calcium and Asthma.—The extended concept of the patient's reaction during paroxysms of asthma, in Pottenger's opinion, implies that these reactions are an expression of a hyperactivity of the vagus-potassium system. Whether this is actually a hyperirritability of the sympathetics and a lessening of the cellular content in calcium or a hyperirritability on the part of the vagus and an increase in the potassium content of the cell, Pottenger does not know, but that there is a relative hyperacidity of the parasympathetics and of the potassium content of the cells is evident, not only from the symptomatology, but from the measures that are used to combat the paroxysms. Calcium is definitely identified with sympathetic, and potassium with parasympathetic action. Reasoning from this concept of the neurochemical control of activity in the bronchial tissues, Pottenger tried to relieve the paroxysms in a severe case of asthma by producing a relative increase in the calcium content of the body cells. The remedy was given in the form of calcium chlorid, in doses of 5 c.c. of a 5 per cent. solution, intravenously. After the second dose, which was given two days after the first, improvement was noted, and after three doses she was entirely relieved of paroxysms. In each of three other cases the paroxysms have been completely relieved.

21: 319-362 (Aug.) 1923

Some Responsibilities and Duties of Medical Organizations. T. C. Edwards, Salinas.—p. 319.
"Eugenics" from Physician's Standpoint. H. G. Brainerd, Los Angeles.—p. 321.
Reminiscences of Three Eminent San Francisco Physicians. W. F. Cheney.—p. 325.
*Heart Failure. R. K. Barry, San Diego.—p. 328.
Surgery of Gallbladder. S. Bunnell, San Francisco.—p. 330.
Precancerous Skin Lesions. M. Scholtz, Los Angeles.—p. 334.
Growing Emphasis on Rest in Treatment of Pulmonary Tuberculosis. P. K. Brown, San Francisco.—p. 336.
Open Treatment of Fractures of Femur. C. E. Phillips, Los Angeles.—p. 339.
Medical History and Trends of Psycho-Analysis. R. L. Richards.—p. 340.

Heart Failure.—The fact that more than half the number of persons hospitalized for heart disease are fibrillators, and considering the number of cases due to coronary disease, the number of cases of impairment of function due to the different types of heart block, myocardial degenerations, and toxic poisoning, Barry says, carries the conviction that chronic valvular diseases play a very unimportant part in the causation of heart failure, and that many patients die from disturbance of heart function who have a very good heart muscle.

Georgia Medical Association Journal, Atlanta

12: 221-262 (June) 1923

Some Tendencies in Modern Medicine. L. M. Warfield, Ann Arbor, Mich.—p. 224.
Ureteral Calculus in Six Year Old Child. Case Report. W. W. Anderson and W. R. Holmes, Atlanta.—p. 234.

12: 263-304 (July) 1923

Some Unreported Methods and Experiences. Pneumonia in Children. E. C. Thrash, Atlanta.—p. 263.
Recurrence of Prostate. W. L. Champion and A. F. Caldwell, Atlanta.—p. 265.

12: 347-388 (Sept.) 1923

Medical Ethics. J. B. Baird, Atlanta.—p. 347.
Consideration of Ovarian Tumors of All Types. T. P. Waring, Savannah.—p. 353.
Vital Capacity Readings. Their Value in Clinical Medicine. R. Lattimore, Savannah.—p. 359.
Study of Symptomatology in Neurosyphilis with Especial Reference to Early Subjective and Objective Manifestations. L. M. Gaines, Atlanta.—p. 363.
Insulin in Treatment of Diabetes Mellitus. J. E. Paulin and H. M. Bowcock, Atlanta.—p. 368.
*Atypical Facial Neuralgia Relieved by Introduction of Solution in External Auditory Canal: Preliminary Report. J. D. Thompson, Atlanta.—p. 377.

Cantharides-Magnesium Sulphate Solution in Treatment of Atypical Facial Neuralgia.—Thompson introduces into the external auditory canal a solution consisting of 4 drams of filtered 35 per cent. solution of tincture of cantharides, 1 ounce of magnesium sulphate and 2 ounces of glycerin. The canal is filled with the solution, which should be retained for twenty or thirty minutes. The treatment should be repeated two or more times daily until relief from the neuralgic pains is experienced. It is then discontinued, until the pain returns.

Journal of Experimental Medicine, Baltimore

38: 233-326 (Sept.) 1923

*Leishmania Donovani in Peripheral Blood. C. W. Young and H. M. Van Sant, Peking, China.—p. 233.
*Mesenchyme and Mesothelium. W. H. Lewis, Baltimore.—p. 257.
*Studies on Endothelial Reactions. VIII. Changes in Distribution of Tubercle Bacilli and Tubercles in Organs of Rabbits Following Splenectomy. N. C. Foot, Cincinnati.—p. 263.
*Effect of Peptone on Peripheral Circulation. J. P. Simonds and S. W. Ranson, Chicago.—p. 275.
*Protection Against Typhoid-Like Infections by Vaccination. H. J. Nichols and C. O. Stimmel, Washington, D. C.—p. 283.
Oxidase Reaction of Various Groups of Bacteria. L. D. Felton, New York.—p. 291.
*Studies on Roentgen-Ray Effects. XIII. Histologic Study of Fate of Cancer Grafts Inoculated into Roentgenized Area. W. Nakahara, New York.—p. 309.
Studies on Lymphoid Activity. VII. Suppression of Induced Immunity to Transplanted Cancer by Large Doses of Olive Oil. W. Nakahara, New York.—p. 315.

Leishmania Donovani in Peripheral Blood.—The effect of human red cells and serum on the growth of *Leishmania donovani* has been studied by Young and Van Sant and, based on these findings, a blood culture method was devised. The distribution of blood platelets and of the different varieties of leukocytes in the strata of centrifugalized diluted blood has been investigated, and also the distribution of Leishman-Donovan bodies, extracellular and intracellular, in these strata. The effect of treatment with antimony on the cultivability of *Leishmania donovani* has been studied. In the series of cultures made, the blood of patients treated intravenously with antimony salts became free from cultivable *Leishmania donovani* after they had received about 12 mg. of antimony per kilogram of body weight.

Mesenchyme and Mesothelium.—Lewis' observations indicate that in the healing of wounds of the mesothelium lining the peritoneal, pleural and serous cavities, new mesothelium may arise from the subjacent mesenchyme by the change in form of its cells, and that the repair after abrasions of the mesothelium is not necessarily brought about by a spreading of the adjacent mesothelium over the wound, such as occurs in repair of skin wounds.

Effect of Splenectomy on Tubercle Bacilli.—Splenectomy in rabbits, followed by the intravenous injection of tubercle bacilli, Foot asserts, produces a changed distribution of these bacilli and of the lesions they cause. The pulmonary lesions are fewer, more discrete, exhibit a larger number of polymorphonuclear leukocytes, and contain, as a rule, more tubercle bacilli than do those of controls. The lesions in the liver are far more numerous and destructive in the splenectomized, than in the control animals. The tubercles produced in the kidney do not show so marked a difference between the two groups as is noted in the lung and liver, but they are fewer and less well developed in the kidneys of the splenec-

tomized rabbits. The course of the disease is not affected materially by splenectomy; if anything, it is rendered slightly more rapid; although the lung is less affected, the liver is so extensively invaded as to offset all the advantage that may have been gained by the decreased pulmonary involvement.

Effect of Peptone on Peripheral Circulation.—Injection of a solution of peptone directly into the artery of the leg of a dog is followed by an abrupt increase in leg volume. This is of short duration and is quickly followed, usually in less than one-half minute, by a decrease in the volume of the limb below that previous to the injection. The phases of the leg volume curve bear a fairly definite relation to the changes in arterial pressure. These results, therefore, indicate that the long continued low arterial pressure in peptone shock, and probably in anaphylactic shock, may be hastened but is not maintained by peripheral dilatation, and suggest that there is an impounding of the blood in some other part of the body.

Vaccination Against Typhoid-Like Infections.—A natural infection of guinea-pigs with the "mutton" strain of *Bacillus aertrycke* was used by Nichols and Stimmel to test the protective power of vaccination against the typhoid group of infections. Complete protection was secured by vaccination with full strength fresh saline vaccine, while death occurred among 100 per cent. of the controls. Vaccine kept from ten to fourteen months gave less protection than vaccine eight months old and less. Saline vaccine was more effective than lipovaccine, sensitized vaccine, or supernatant fluid vaccine. Resuspended vaccine was as effective as the original vaccine.

Fate of Cancer Grafts in Roentgenized Area.—Cancer cells implanted in a skin region previously exposed to an erythma dose of roentgen-rays showed a series of degenerative changes in every way comparable to the frequently described stages of cancer cell degeneration following roentgen-ray treatment. The findings contrast strongly with the survival and growth of grafts implanted in unexposed regions in the same animal. Since the changes are the same whether the cancer cells have been directly exposed in situ or merely implanted in the previously exposed skin, it follows that it is impossible to establish microscopically a direct injury from the roentgen-ray irradiation as the principal factor in the therapeutic action of roentgen rays on cancer.

Journal of Immunology, Baltimore

8: 323-424 (Sept.) 1923

Studies in Endothelial Permeability. I. Effect of Epinephrin on Endothelial Permeability. W. F. Petersen, S. A. Levinson and T. P. Hughes, Chicago.—p. 323.
Id. II. Rôle of Endothelium in Canine Anaphylactic Shock. W. F. Petersen and S. A. Levinson, Chicago.—p. 349.
Id. III. Modification of Thoracic Lymph Following Portal Blockade. W. F. Petersen, R. H. Jaffe, S. A. Levinson and T. P. Hughes, Chicago.—p. 361.
Id. IV. Modification of Canine Anaphylactic Shock by Means of Endothelial Blockade, Chicago.—p. 367.
Id. V. Effect of Peptone on Permeability of Endothelium, Chicago.—p. 377.
Id. VI. Alterations of Thoracic Lymph Following the Injection of Old Tuberculin in Normal and Tuberculous Dogs. W. F. Petersen, R. H. Jaffe, S. A. Levinson and T. P. Hughes, Chicago.—p. 387.
*Failure of Peptone to Protect Against Anaphylactic Shock and Allergic Conditions. N. P. Larsen, A. V. R. Haigh, H. L. Alexander, and R. Paddock.—p. 409.

Failure of Peptone to Protect Against Anaphylactic Shock.—Guinea-pigs sensitized to egg white, receiving peptone intracardially thirty minutes before the shock dose of egg white, showed no protection against anaphylactic shock in comparison with sensitized guinea-pigs not treated with peptone. Guinea-pigs sensitized to egg white and receiving thereafter serial intracardial peptone injections were similarly found to be unprotected against anaphylactic shock. Clinically, the use of peptone intravenously in bronchial asthma according to the method of Auld, has been disappointing to Larsen et al. and is considered dangerous.

Journal of Infectious Diseases, Chicago

33: 193-268 (Sept.) 1923

Study of Coagulum or Pellicle and of Fibrinogen Nitrogen in Cerebrospinal Fluid. A. Levinson and D. Kirschenbaum, Chicago.—p. 193.
Influence of Surface Tension Depressants on Growth of Streptococci. VI. Studies of Streptococci. S. H. Ayers, P. Ruff and W. T. Johnson, Jr., Washington, D. C.—p. 202.
*Effect of Suprarenalectomy in Rabbits on Hemolysin Formation. N. M. Také and D. Marine, New York.—p. 217.
*Specific Erythroprecipitins (Hemoglobin Precipitins?). II. Hemoglobin Precipitins in Identification of blood. L. Hektoen and K. Schulhof, Chicago.—p. 224.
*Studies in Comparative Immunity. II. Relative Importance of Liver and Spleen in Destruction of Foreign Blood Cells in Rabbits. F. L. Pickof, Chicago.—p. 230.
*Effect of Spices on Growth of Clostridium Botulinum. F. M. Bachmann, Madison.—p. 236.
Serologic Agglutination of Bacillus Sporogenes. I. C. Hall, and N. Stark, Berkeley, Calif.—p. 240.
*Specificity of Streptococcus of Gastroduodenal Ulcer and Certain Factors Determining Its Localization. E. C. Rosenow, Rochester, Minn.—p. 248.

Effect of Suprarenalectomy on Hemolysin Formation.—Fourteen rabbits in which a high grade but sublethal suprarenal insufficiency was created by removal of both main suprarenal glands were immunized with sheep cells by Také and Marine. These rabbits showed hemolysin titers averaging more than twice as high as the controls. It is believed by the authors that the increased antibody formation is due to the loss of some regulatory and inhibitory influence which the interrenal gland normally exerts on the irritability and susceptibility of the body cells. This influence may involve physical and chemical alterations in their "lipoid" mechanism.

Hemoglobin Precipitins in Identification of Blood.—Hektoen and Schulhof record further observations on the specificity of the precipitin reaction connected with hemoglobin, particularly because this reaction may be of practical value in the identification of blood under certain conditions. The precipitinogen in extracts of red corpuscles and purified hemoglobin differs from the antigens in the stroma. The results presented in this article indicate that hemoglobin precipitins may be of value in the identification of blood. The precipitin test for hemoglobin is fully as specific and as sensitive as the precipitin test for serum, if not more so. The authors point out that the possible overlapping of the reaction in related species merits consideration and further study, and, naturally, careful control tests must be made in all cases. The advantage of the hemoglobin test should be that it is a direct test for blood only. The serum precipitin test is a test for species protein in general, and whether blood is present is determined by other and nonspecific tests. It is possible that a blood spot giving a precipitin reaction for human protein, and, therefore, apparently human blood, might be made or claimed to be made by animal blood falling on a place previously stained by human protein in sputum, albuminous urine or any kind of bloodless exudate. In problems of this kind, the precipitin test for hemoglobin may be of decisive value.

Relative Importance of Liver and Spleen in Destruction of Foreign Blood Cells.—Pickof's work gave evidence that in rabbits, chicken blood cells injected intravenously rapidly disappear from the general circulation. The great majority of the injected red cells accumulate within the capillaries of the liver, and the remainder in the capillaries of the spleen and bone marrow where they are destroyed. The destruction of the injected cells is definitely extracellular, but within the organ capillaries and not in the general circulation. Only a few Kupffer cells were found to contain remnants of ingested red cells. Splenectomy delays neither the disappearance of the injected red cells from the general circulation, nor their destruction in the organs.

Effect of Spices on Growth of Clostridium Botulinum.—Experiments were made by Bachmann with *Clostridium botulinum* in mince meat and also in meat containing ground cloves, cinnamon, allspice, nutmeg, black mustard, white mustard, cayenne pepper and ginger in amounts of 1, 2 and 2.5 per cent. to determine whether such spices, in these amounts, inhibit the growth of *Clostridium botulinum* or prevent the formation of its toxin. No inhibition of growth was found in 1 and 2 per cent. of spice, but there was some retardation with allspice and cloves when 2.5 per cent. was used. The organisms readily form toxin in the presence of this amount of spice. Therefore, spices used in flavoring foods do not help to make the food safe if there is contamination with *Clostridium botulinum*. For safety such foods as mince meat should be sterilized or else heated to the boiling point before they are tasted.

Specificity of Streptococcus for Gastroduodenal Ulcer.—The experimental studies reported by Rosenow corroborate and extend his earlier results with regard to the importance of the streptococcus as a causative factor in ulcer. The maintenance of specific infecting and localizing power under relatively anaerobic conditions in latent life for as long as eight and one-half years, he believes, has important bearing on the question of the chronicity of ulcer and on recurring exacerbations after intervals of quiescence. The streptococcus of ulcer produces a poison within its substance and free in broth cultures which injuries selectively the mucous membrane of the stomach, producing hemorrhages, leukocytic infiltration and ulcer. Hence, localization and growth of the living organism in the mucous membrane of the stomach may be favored by this specific poison. The presence of the streptococcus in the ulcers in dogs, produced by the method of Mann and Williamson, its elective localizing power on intravenous injection, its presence in foci of infection, and its ability to produce this poison in vitro, indicate that it is not a secondary invader, but that it plays an important part in the production of these ulcers. The results of the immunization experiments indicate that the streptococci from ulcer, even of different species, are closely related and probably specific of this disease; that a practical method for preserving specific antigenic power has been developed, and that active and passive immunization should prove helpful in the prevention and treatment of gastroduodenal ulcer in man.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

22: 1-57 (Aug.) 1923

*Influence of Vagus on Heart Rate. J. H. Crawford, Edinburgh.—p. 1.
Effect of Light on Behavior of Rats After Injections of Quinin and Quinidin Sulphate. D. I. Macht and E. J. Teagraden, Jr., Baltimore.—p. 21.
Pharmacodynamic Analysis of Cerebral Effects of Atropin, Homatropin, Scopolamin and Related Drugs. D. I. Macht, Baltimore.—p. 35.
Pharmacologic Comparison of Six Alcohols, Singly and in Admixture on Paramecium. C. E. Bills, Baltimore.—p. 49.

Influence of Vagus on Heart Rate.—The age incidence of maximum vagal activity in normal persons, according to Crawford, is from 10 to 40, being at its height from 20 to 30. After this it steadily begins to decline, there being a marked fall after 50. There is considerable individual variation, especially in young persons. There is no difference between the two sexes in their reaction to atropin as studied by the increase in heart rate. The increase in heart rate after atropin administration cannot be foretold from the heart rate before injection. There is a diminished reaction to atropin in all cases of chronic heart disease, in which the sino-auricular node is in control, especially in aortic disease. Auricular fibrillation shows an increased reaction to atropin but is not comparable to the other heart conditions as the normal pacemaker is not in control. Typhoid fever and pneumonia during convalescence show a diminished reaction and exophthalmic goiter shows the same to a less extent. In convalescence from rheumatic fever and chorea the reaction to atropin is increased. It is suggested that the varied results obtained are due to three factors: (*a*) alteration of the tonicity of the cardio-inhibitory center; (*b*) changes in the vagal terminations in the heart itself, and (*c*) changes in the cardiac muscle.

Journal of Radiology, Omaha

4: 295-342 (Sept.) 1923

Twentieth Century Advances in Cancer Research. E. F. Smith, Washington, D. C.—p. 295.
Relative Value of Unfiltered Radium Emanation Deep Therapy. D. Quick, New York.—p. 318.
Routine Roentgen-Ray Examination of Nasal Sinuses by Four Projections. E. S. Blaine, Chicago.—p. 323.
Roentgen Rays and Roentgen Ray Apparatus. Elementary Course. J. K. Robertson, Kingston, Can.—p. 326.

Michigan State Medical Society Journal, Grand Rapids

22: 383-402 (Sept.) 1923

*Insulin and Mental State of Depression. D. M. Cowie, J. P. Parsons and T. Raphael, Ann Arbor.—p. 383.
Surgical Treatment of Thyroid Diseases. H. K. Shawan, Detroit.—p. 383.
Efforts Toward Simplification of Obstetric Care. R. S. Siddall, Detroit.—p. 388.
Prevention and Treatment of Simple Goiter. O. P. Kimball, Cleveland.—p. 390.
Case of Gastric Syphilis. R. C. Mochlig, Detroit.—p. 393.

Insulin and Mental Depression.—The authors have determined the following points: The prolonged glucose utilization curve of manic-depressive depression is easily made to conform to the normal curve by the administration of a certain amount of insulin. This amount of insulin may be a measure of the dysfunction of the pancreas or of the activity of the opposing factors.

Military Surgeon, Washington, D. C.

53: 89-206 (Aug.) 1923

Army Medical Museum, Washington, D. C. D. S. Lamb.—p. 89.
Kipling on John Hunter. F. H. Garrison.—p. 141.
Chemical Warfare and Its Relation to Medical Department. H. L. Gilchrist.—p. 144.
Future of Citizens' Military Training Camp. E. L. Ruffner.—p. 155.
Carrel-Dakin Treatment. Improvement in Adjusting Tubes in Superficial Wounds. H. Lilienthal.—p. 162.
Tularemia in Washington (D. C.) Market. E. Francis.—p. 164.

Ohio State Medical Journal, Columbus

19: 533-632 (Aug.) 1923

Surgical Indications in Goiter. R. C. Austin, Dayton.—p. 557.
Tumors of Breast. F. E. Bunts, Cleveland.—p. 561.
Prevention and Control of Heart Disease. W. H. Bunn, Youngstown.—p. 567.
Quantitative Measurement of Vibration Sensation. H. D. Piercy, Cleveland.—p. 572.
Glaucoma. A. B. Bruner, Cleveland.—p. 578.
Conservation of Vision in Incipient Cataract. J. W. Wright, Columbus.—p. 582.
Symbiosis of Private Practitioners in Medicine and Public Health Officials. H. L. Rockwood, Cleveland.—p. 583.

19: 633-704 (Sept.) 1923

Management of Diabetes Mellitus. C. W. McGavran, Columbus.—p. 637.
Etiology and Diagnosis of Glaucoma. W. H. Snyder, Toledo.—p. 642.
Surgical Treatment of Glaucoma. Modified Elliot-LaGrange Technic. D. T. Vail, Cincinnati.—p. 645.
*Laboratory Findings in Dementia Praecox. C. W. Sawyer, Marion.—p. 649.
Value and Interpretation of Blood Chemical Analyses in Neuropsychiatry. H. D. McIntyre, Marion.—p. 651.
Malnutrition and Its Effect. G. E. Robbins, Chillicothe.—p. 655.
Epilepsy and Protein Sensitization. L. P. Howell, Columbus.—p. 660.

Laboratory Findings in Dementia Praecox.—The blood in 107 cases of dementia praecox was analyzed by Sawyer. The red cell count was below normal in 43.3 per cent.; above normal in 34.9 per cent.; normal in 21.6 per cent. The white cells were below normal in 29 per cent., above normal in 51.5 per cent., normal in 19 per cent. The hemoglobin range was from 50 to 105 per cent. Eighty-one per cent. of the cases were below normal; 19 per cent. normal; 50 per cent. showed less than 70 per cent. of hemoglobin. The systolic blood pressure ranged from 80 to 190 mm. Sixty-nine per cent. of the cases were below normal; 17 per cent. above normal and 12.5 per cent. were normal. A positive Wassermann reaction was present in 31 per cent. The gonorrheal complement fixation test gave a positive result in 41 per cent.; the tubercular complement fixation in 30 per cent. Eighty-three per cent. of the cases showed indican and 66 per cent. diacetic acid in the urine. This suggests an autotoxic basis for the disorder or an autotoxic complication of significance. It also suggests a line of treatment.

Rhode Island Medical Journal, Providence

6: 131-146 (Sept.) 1923

Obstetric Shock. A. H. Miller, Providence.—p. 131.
China's Contributions to Medicine. E. H. Hume, Peking.—p. 137.

West Virginia Medical Journal, Huntington

18: 57-112 (Aug.) 1923

Report of 1923 Annual Meeting.—p. 57.

Wisconsin Medical Journal, Milwaukee

22: 105-150 (Aug.) 1923

Major Infections. W. J. Mayo, Rochester, Minn.—p. 105.
Chronic Indigestion in Childhood. J. L. Morse, Boston.—p. 112.
Practical Nutrition in Children. H. C. Johnson, Madison.—p. 118.
Roentgen Ray Diagnosis of Bone Lesions. R. W. Lovett, Boston.—p. 123.
And to Teach Them This Art. V. A. Chapman, Milwaukee.—p. 124.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

28: 65-96 (Aug.) 1923

Roentgen-Ray Cancer. J. H. Dible and J. M. W. Morrison.—p. 65.
*Elevation of Diaphragm. Unilateral Phrenic Paralysis. Radiologic Differential Diagnosis. J. M. W. Morrison.—p. 72.
*Large Submaxillary Calculus. J. H. Mather.—p. 84.
What Causes the Healing Action of Roentgen Rays? G. Holzknecht.—p. 85.
In Explanation of Action of Roentgen Rays Is It Necessary to Assume Functional and Growth Stimulation? F. Pordes.—p. 89.

Causes of Eventration of Diaphragm.—From a study of his own cases of eventration and of unilateral phrenic paralysis, along with those recorded by others, Morrison suggests that eventration of the diaphragm may be due to two causes: (1) a developmental defect in the formation of the muscular tissue of the diaphragm; (2) a unilateral phrenic paralysis due to injury or disease.

Large Submaxillary Calculus.—The calculus mentioned by Mather was the size of a hazelnut, weighed 3.88 gm. and measured 1.9 cm. in its longest diameter.

British Medical Journal, London

2: 445-490 (Sept. 15) 1923

Diabetes and Insulin. T. J. Horder and F. G. Banting.—p. 445.
Prevention and Treatment of Chronic Gonococcal Prostatitis and Vesiculitis. A. Reid, K. M. Walker and D. Watson.—p. 451.
Ventricular Complex of Electrocardiogram as Physical Sign in Cardiac Prognosis. J. E. MacIlwaine and S. B. B. Campbell.—p. 456.
Conservative Gynecology. A. E. Giles.—p. 459.
After-Effects of Certain Industrial Injuries, and Their Treatment by Roentgen Rays. R. A. Morrell.—p. 460.
Fat-Free Diet in Treatment of Sprue. T. H. Jamieson.—p. 462.
Hypersensitiveness to Quinin. F. E. Bell.—p. 462.
A "Privy" Birth. Resuscitation of Child After Two Hours. W. H. Lewis.—p. 462.

Edinburgh Medical Journal

30: 313-384 (Aug.) 1923

*Incidence of Venereal Disease in Scotland. T. F. Dewar.—p. 313.
Case of Rhinosporidiosis. J. H. Ashworth and A. L. Turner.—p. 337.
Colloidal Benzoin and Colloidal Gold Tests of Cerebrospinal Fluid. H. D. Wright and W. O. Kermack.—p. 352.
Some Ancient Mineral Wells in Scotland. W. G. A. Robertson.—p. 368.
*Case of Congenital Scoliosis. K. P. Brown.—p. 374.

Incidence of Venereal Disease in Scotland.—Figures from various sources are cited by Dewar. They show that syphilis in Scotland has its maximum prevalence in Glasgow and the other large centers, and that the incidence diminishes with decreasing density of population, until in the remote highland and insular parts it falls to a very low, though never to a trivial rate. In the cities and large towns from 3 to 5 per cent. of the children are born with congenital syphilis. On a survey of all statistics and estimates, it may be assumed that in Scotland, with a population of about four and three-quarters millions, on the very lowest computation, 12,000 new cases of syphilis are annually acquired. Two thirds of these are in men. Each year, in Scotland, the new infections of gonorrhea are from 35,000 to 70,000. At any given time, at the lowest estimate, 2 or 3 per cent. of the total population are infected by one or other of the venereal diseases. In the populous areas, the minimum figure is 5 per cent. for men and 2 per cent. for women. The tendency is certainly if not markedly toward reduction of incidence of both diseases.

Congenital Scoliosis.—The lesions in Brown's case were: (1) a thoracic scoliosis with its convexity to the right due to a congenital abnormality in the ossification of the vertebrae; (2) an alteration in the levels of the shoulders and a prominence of the right scapula which is secondary to the scoliosis and must be distinguished from a congenital high scapula which at first sight it resembles; (3) an alteration in the size of the right scapula, which may be explained by the fact that it has been prevented, by the spinal curvature, from taking up its normal function with consequent arrest of development.

Glasgow Medical Journal

100: 65-111 (Aug.) 1923

Treatment of Traumatic Defects of Skull. D. Duff.—p. 65.
Career of Alexander Maxwell Adams, M.D. (Erlangen), Poor-Law Reformer and Agitator. Arranged from Material Left by Him. A. M. Adams.—p. 73.

18: 113-159 (Sept.) 1923

Problem of Pyogenic Disease in Bone. C. Bennett.—p. 113.
*Protein Therapy: Its Use in Chronic Infectious Arthritis. J. C. Middleton.—p. 124.

Protein Therapy of Chronic Infectious Arthritis.—In the treatment of his cases Middleton used vaccines as the foreign protein. Some cases were treated with *Bacillus coli* vaccine, some with *Bacillus typhosus* vaccine, and the remainder with mixed typhoid vaccine containing *B. typhosus, B. paratyphosus* A and B. In the cases treated with *B. coli* vaccine the dose was 50,000,000 bacilli; in the other cases the dose contained 100,000,000 typhoid bacilli, either alone or with paratyphoid bacilli. The selected amount of vaccine was diluted with physiologic solution of sodium chlorid to 10 c.c. and the injection, at body temperature, was made intravenously. In no case was there any untoward result. A certain number of patients refused further treatment after the first injection, and these cases are not recorded, Middleton says. It must be definitely recognized that in using this method of treatment there is considerable temporary disturbance and, not unnaturally, perhaps, some patients refuse to be made more uncomfortable, even temporarily. In addition to investigating the local changes, the only observations made were the effects produced on the temperature curve and on the pulse. Headache, sweating, sickness, or diarrhea were noted. The original intention was to try the method only in cases of rheumatoid arthritis, but this was departed from, and certain other conditions were also treated. The condition of the patients was improved by the treatment. In certain early cases the disease was apparently arrested. In late cases a definite amount of relief from pain was obtained.

Japan Medical World, Tokyo

3: 181-206 (Aug. 15) 1923

*Investigation of Pneumonic Plague. M. Tsurumi, T. Hara, M. Imai, T. Awoki and T. Sakamoto.—p. 181.
*Relation of Precipitinogen and Precipitin in Living Body. T. Oguchi.—p. 187.

Pneumonic Plague.—From the facts gathered by the authors in a recent epidemic of plague, the tarbagan seems to have more or less relation thereto. In other words, an outbreak among the tarbagans is considered to precede one among human beings. The outbreak appeared first in the bubonic form; then it passed into plague septicemia, and caused the greatest havoc in the form of the pneumonic plague. Infection is carried from one person to another directly through sputum spray in the air. By way of bacteriologic diagnosis in an early stage, a lung lancing should be tried in addition to the examination of the sputum. Among over 2,000 Chinese, who were subjected to a quarantine examination, not a germ carrier was found. The formation of the agglutinin has not been remarkable in the serum of the plague cases. In one instance, the patient's serum on the third day of the appearance of the symptoms prevented hemolysis completely in a 1:5 dilution, and remained of a positive nature up to 1:20. Generally speaking, in a number of the pneumonic types, plague bacilli could be detected in the lungs, heart blood, spleen, etc., although out of thirteen cases, two gave no sign of the presence of the bacilli in the heart blood. In these two cases, the plague bacillus was detected in no viscus other than the lungs. That is to say, the pneumonic plague does not always cause septicemia. Therefore, in a postmortem examination of a pneumonic plague corpse, the material for examination should not be obtained from the heart blood or spleen only. Material obtained from the lungs must be examined. This point is held to be of great importance in the prevention of epidemics.

Relation of Precipitinogen and Precipitin in Vivo.—Oguchi asserts that serum contains many (at least six) different protein bodies of different activity and specificity. Chemically separated albumin and globulin are not single units immunologically. When heterogenous serum is introduced into the living body, globulin is split first and albumin last. The precipitins and precipitinogens which have mutual affinity do not exist at the same time in the living body. The formation

of a precipitin indicates the complete splitting of the precipitinogen for which it has affinity. The precipitin which reacts with the precipitinogen in the living body only appears after the precipitinogen has disappeared. This phenomenon is seen whether a heterogeneous serum is introduced into the body in large or small amounts injected repeatedly or only once.

Journal of Neurology and Psychopathology, London

4: 103-204 (Aug.) 1923

Viscerocutaneous Anemic Zones and Their Significance. Th.B. Wernoe.—p. 103.
Nervous Child. R. G. Gordon.—p. 125.
Rôle of Trauma in Etiology of Organic and Functional Nervous Disease. S. A. K. Wilson.—p. 133.
Case of Unilateral Bulbar Lesion Probably Syringobulbia, with Special Reference to Sensory Pathways within Medulla. W. G. Willie.—p. 148.
*Etiology of Argyll-Robertson Pupil. F. J. Nattrass.—p. 162.

Etiology of Argyll Robertson Pupil.—A case is described by Nattrass of gunshot wound of the head in which a fragment of shrapnel traversed the upper part of the mesencephalon. The injury resulted in bilateral Argyll Robertson pupil and defect in conjugate upward movement of the eyes. In addition, it produced right hemitremor, involving the face, arm and leg. The Wassermann reaction of the blood was negative, and there was no further evidence of nervous syphilis.

Journal of Pathology and Bacteriology, Edinburgh

26: 305-432 (July) 1923

Cultivation of Anaerobes in Autodigest of Pancreas. F. P. G. de Smidt.—p. 305.
Catalase in Bacteria and Its Relation to Anaerobiosis. A. B. Callow.—p. 320.
Catalase Production and Sensitiveness to Hydrogen Peroxid Among Bacteria: with Scheme of Classification Based on These Properties. J. W. M'Leod and J. Gordon.—p. 326.
Problem of Intolerance of Oxygen by Anaerobic Bacteria. J. W. M'Leod and J. Gordon.—p. 332.
*Certain Granules of Nucleolar Origin Found in Cells of Malignant Neoplasms During Mitosis. H. A. Haig.—p. 344.
*Complement Fixation Test in Tuberculosis. H. L. Coulthard.—p. 350.
*Glands of Internal Secretion in Experimental Avian Beriberi. V. Korenchevsky.—p. 382.
*Influence of Mother's Diet During Pregnancy and Lactation on Growth, General Nourishment and Skeleton of Young Rats. V. Korenchevsky and M. Carr.—p. 389.
Heteromorphoses (Metaplasia) of Alimentary Tract. G. W. Nicholson.—p. 399.
Titration of Complement in Wassermann Reaction. F. C. Lewis.—p. 418.
Bordet's Extract in Wassermann Reaction. H. D. Wright.—p. 420.

Granules of Nucleolar Origin in Tumor Cells.—Tumors of various kinds removed at operation were studied by Haig. He discovered an abnormality in mitosis in cells of carcinoma and sarcoma, which, he believes, although not necessarily a constant feature, tends to show that the nucleoli are probably of little use in mitosis in such tumors. Nucleolar extrusions have been observed in certain protozoa and vegetable cells, but the significance of such extrusions is not at all clear. With regard to the histologic differentiation between benign and malignant tumors, it is possible that at times, especially when some doubt exists as to diagnosis, the occurrence of these nucleolar fragments in the cytoplasm of cells showing mitotic figures might be a cytologic feature of diagnostic value.

Complement Fixation Test in Tuberculosis.—A comparison is made by Coulthard of the value of various antigens employed with a view to demonstrating fixation of complement with the serums of persons infected with tuberculosis. The antigens tested include those which contain the whole bacilli and also "fractions" prepared by various methods. By testing the actual amount of complement which is fixed by mixtures of antigen and tuberculous serum, it has been found that suspensions of killed tubercle bacilli in saline solution are reliable, stable and sensitive antigens; in general, they give the most marked reactions. Next in value comes the alcoholic extract obtained from cultures of tubercle bacilli which have been previously treated with acetone. With this lipoid antigen often stronger complement fixation is obtained than with suspensions of bacilli in saline solution; but certain tuberculous serums, which show a reaction with the latter, fail to fix complement in the presence of the lipoid extract. The occurrence of the reaction with antigens prepared from human and bovine types of tubercle bacilli has been compared, and also the group reaction with other acid-fast organisms has been studied. The reaction with tuberculous serum and tubercle bacillus antigens has been found to be independent of the Wassermann reaction and of the presence in the serum of any heterophil antibody. Apparently it is a highly specific reaction.

Glands of Internal Secretion in Beriberi.—The most characteristic changes found by Korenchevsky in the glands of internal secretion of pigeons suffering from beriberi were: (*a*) hypertrophy of the suprarenals; (*b*) atrophy of the thymus; (*c*) atrophy of the spleen with persistence of the islets of the germ centers, often accompanied by an increase in their number and size and frequent hypertrophy and hyperplasia of the islet cells.

Influence of Mother's Diet on Offspring.—Korenchevsky and Carr found in rats that when the mother is fed during pregnancy or lactation on a diet deficient in fat soluble vitamin or calcium, there is a marked increase in the disorders of general nutrition with rachitic changes in the skeleton of the offspring that are kept after weaning on a diet deficient in similar factors. On the other hand, on a diet rich in fat soluble factor and calcium there is a marked decrease in the disorders of general nutrition and rachitic changes in the skeleton of the offspring kept on a minus vitamin A diet, even when the mother was also kept on the same insufficient diet during lactation. Feeding the mother during lactation on a diet rich in fat soluble factor and calcium hinders, for a considerable time, the disorganization of general nutrition and the development of obvious rickets in the offspring kept on a diet deficient in fat soluble vitamin. These experimental data point to the possibility of influencing the occurrence of rickets and general disorders of nutrition in the offspring through the diet of the mother.

Journal of Tropical Medicine and Hygiene, London

26: 261-272 (Aug. 15) 1923

Malaria of Middelvelt and Highvelt of Transvaal. H. A. Spencer.—p. 261.
*Possible Presence of Paragonimiasis Among Indians in Natal. F. G. Cawston.—p. 263.
Hot Weather and Some of Its Effects. J. Cantlie.—p. 265.

Paragonimiasis in Natal.—Cawston has been greatly impressed with the large number of Indians suffering from chronic coughs at the Natal Coast, and the vast number of fresh-water snails to be found in the water-cress beds of Durban. Nothing is done to prevent the breeding of these pests, which constitute a real danger to the health of the community in Durban as well as to those Indians who are continually wading among the water-cress and gathering it into bunches for human consumption. Styletted cercariae have been isolated from three distinct species of fresh-water snails obtained in these water-cress beds; some of them are encysting forms which shows that they are able to resist the effects of drying when collected for the market. The vast majority of the fresh-water snails in this locality are examples of *Melanoides tuberculata,* and a very large proportion are infested with styletted cercariae. This species has been shown to act as one intermediary host for *Paragonimus westermanni.*

Medical Journal of Australia, Sydney

2: 109-134 (Aug. 4) 1923

Treatment of Diabetes. A. E. Mills.—p. 113.
*Tetanus. G. Bell.—p. 120.

Serotherapy of Tetanus.—Two cases are reported by Bell to emphasize the value of early and intensive treatment by means of concentrated antitetanic serum, administered by the intrathecal and intravenous routes. In one case, the total amount of antitetanic serum given intravenously, intrathecally and intramuscularly was 250,000 units. In the second case, the total number of units of tetanus antitoxin injected was 298,500.

Annales de Médecine, Paris

14: 89-172 (Aug.) 1923

*Spinal Cord in Infantile Poliomyelitis. Bouttier and van Bogaert.—p. 89.
*Myocarditis with Endocarditis. E. Lenoble.—p. 108.
*Hemophilia. K. Hynek.—p. 122.
*Sarcoma of the Midbrain. Sakorrafos.—p. 155.
*Allergy in Tuberculosis and Syphilis. Dujardin and Duprez.—p. 161.
*Induced Diuresis in Orthostatic Albuminuria. Labbé and Violle.—p. 168.

Spinal Cord Cells in Relation to Muscle Function.—Bouttier has in press a study of seven normal spinal cords, and he now supplements this with a similar clinical and anatomic study of the cytoarchitectonics of the cord in a case of infantile poliomyelitis in a boy, aged 15. The acute phase began at the age of 10, and for two years the boy was unable to move arms or legs or to sit up. Then he began to improve somewhat, notwithstanding the uniformly distributed destruction of the motor cells in the anterior horns. The lateral column of sympathetic cells was intact throughout, and the muscles of the trunk were comparatively normal. Bouttier queries whether the spinal sympathetic system might not have been responsible for the partial resumption of motor function.

Rhythm Variations in Infectious Endocarditis.—Lenoble refers to protracted endocarditis, and calls attention to the importance of the share of the associated infectious myocarditis in the clinical picture. He compares the clinical, graphic and necropsy findings in five cases. The myocardium is almost invariably involved, and this myocarditis is responsible for the arrhythmias of all kinds observed, and for the suddenness of the death, which is the rule. The pericardium alone escapes.

Test for Hemophilia, and Effective Treatment.—Hynek explains hemophilia as the result of an excess of antithrombin in the blood. The production of antithrombin, he says, is controlled by the internal secretion of the sex glands. This explains its sex-linked transmission, and the benefit from treatment by extract of corpus luteum. He describes a method of estimating the firmness of the blood clot, saying that hemophilic blood displays the least and the blood of pregnant women the greatest degree of resistance—the two extremes of the scale. He remarks parenthetically that this offers another possible test for detecting pregnancy, the firmness of the clot being ten times and more that of normal blood. The seven cases of hemophilia described include three sets of two brothers; the hemophilia was clinically cured under corpus luteum extract treatment. The various theories as to the nature of hemophilia are analyzed, and their fallacies pointed out. The firmness of the clot is tested by drawing venous blood into the central part of a capillary tube, 10 cm. long, and placing thirty or forty such tubes horizontally in the moist chamber. The blood is then blown out from one tube at five minute intervals with compressed air, the pressure required to expel the clot being recorded with the tonometer by substituting the tube in the place of the cuff. With normal blood, the first sign of resistance of the clot becomes evident in ten or fifteen minutes, and it reaches its height in twenty or thirty minutes. In a typical case of hemophilia, the first signs appeared in two and a half hours, and the pressure was 10 mm. water by the third hour. The coagulating time was over sixteen hours; the bleeding time nearly six hours. Under corpus luteum extract treatment, the resistance of the clot became permanently very nearly normal. The maximum resistance of 33 mm. of water was attained in fifty-five minutes, and then dropped rapidly. By this resistance test, hemophilia can be differentiated by the blood in vitro. There are no characteristic morphologic findings; the number of blood platelets is rather above than below normal.

Sarcoma in Brain.—Sakorrafos observed the complete clinical picture of epidemic encephalitis in a man, aged 57: somnolence, ptosis and diplopia, with occasional fever. The man died within a month, and necropsy revealed a sarcoma in the midbrain. Even the findings in the cerebrospinal fluid had apparently confirmed the diagnosis of epidemic encephalitis. The only symptom that did not belong to the picture of this disease was the bradycardia of 60.

Nonspecific Allergy in Tuberculosis and Syphilis.—Dujardin and Duprez present evidence to demonstrate that a chronic injection, such as tuberculosis or syphilis, may induce hypersensitivity not only to the causal agent or its toxins, but also to certain other substances. Syphilitics may respond even more vigorously than the tuberculous to intradermal tuberculin tests, and both the syphilitic and the tuberculous may react equally vigorously to intradermal tests with diluted milk. This interdependence of allergies seems to open a new therapeutic horizon, they say. The milk test may induce reerudescence of syphilitic meningeal reactions, and this recalls the utilization of tuberculin in treatment of general paralysis, although based on other premises.

Induced Diuresis in Orthostatic Albuminuria.—Labbé and Violle applied the water freshet test to a youth, aged 15, with 0.45 gm. albumin but no casts or leukocytes in the urine when examined after long standing. There was no albumin in the night urine. He drank while fasting 200 c.c. of water every half hour for two hours, urinating every half hour for three hours. The output of urine was normal when he spent the day of the test in bed, but when he was up and about during the three hours of the test he voided only half the normal amount.

Archives des Maladies de l'App. Digestif, Paris

13: 409-520 (May) 1923

*Functional Achylia Gastrica. C. Bonorino Udaondo.—p. 409.
Secretory Activity of the Digestive Tract. T. I. Bennett and E. C. Dodds.—p. 422.
Anomalies in Shape and Position of Duodenum. Radiologic Studies. Delherm and Morel-Kahn.—p. 458.

Achylia Gastrica.—Bonorino Udaondo says that modern studies of achylia gastrica tend to modify belief in the organic character of the anomalies of secretion. Achylia has been found in different members of the same family, he says, and often in children under 10 years of age; also in children born of parents suffering from pernicious anemia. Functional achylia is frequently accompanied by congenital anomalies, such as dental deficiencies, geographic tongue, arterial hypotension, bradycardia and, on the part of the digestive apparatus, chronic constipation and hernia; urinary symptoms are oxaluria, phosphaturia and sometimes albuminuria. The differential diagnosis between organic and functional achylia is not always easy. The past history is of great importance as it permits the exclusion of many determining factors of gastritis, and the study of the evolution of the symptomatology. Another difficulty is the separation of constitutional from acquired forms in the inorganic type. The author places all cases in the constitutional category when the past history reveals either hereditary tendencies or early appearance of symptoms. Nineteen cases are discussed, eleven being constitutional and eight acquired. A glandular lesion was sought carefully in each case and all causes that produce gastritis were excluded; only when the examination was negative was the functional nature of the process admitted. Among the cases of tabes with gastric crises studied, in two the chemistry varied considerably during the transition from the period of calm to that of the visceral pain. During the painless intervals the secretion was normal, while during the pain crisis total achylia was established—temporarily however, the former acidity returning as soon as the attack passed.

Archives de Médecine des Enfants, Paris

26: 457-520 (Aug.) 1923

*Pneumatocele of Larynx. J. Guerra-Estapé and L. Suñé-Medán.—p. 457.
*Bronchopneumonia in Children. M. D'Oelsnitz and L. Colle.—p. 468.
*Open Fontanel as Aid in Diagnosis. M. Erlich.—p. 499.
Diabetes Insipidus and Pituitary Treatment. Secrétan.—p. 502.
Principles for Antitoxin Treatment of Diphtheria. J. Comby.—p. 506.

Pneumatocele of the Larynx.—The boy, aged 6, had a laryngocele on each side. They were first noted after severe whooping cough at the age of 4. Only thirty-six cases of pneumatocele of the larynx have been published in a century, according to these writers' compilation. One case in an infant, aged 16 days, demonstrates the congenital origin although the laryngocele may not become manifest till late in life.

Treatment of Pneumonia in Children.—Thirty cases of pneumonia are published, in detail, under treatment with vaccine and serotherapy. The results were decidedly more

favorable than with other treatment in previous years. All children over 2 years of age recovered. Serotherapy alone gave good results, but vaccine therapy alone did not. The serotherapy should be begun as early as possible and its intensity should be proportional to the gravity of the case. Vaccine therapy should be milder with the more extensive lesions, and when the leukocytic reaction is more pronounced. Vaccine therapy should be pushed, on the other hand, in torpid and protracted cases with poor leukocytic reaction.

Bulging of the Fontanel.—Erlich regards tenderness on pressure over the fontanel as a sign of meningeal irritation that is as instructive as tenderness of the mastoid process in otitis media. She has noticed that children born with a small fontanel showed average mental development. Small fontanels close earlier than large ones.

Paris Médical

13: 41-56 (July 14) 1923

Secondary Cataract. F. Terrien.—p. 41.
Heliotherapy in Bone and Joint Tuberculosis. C. Roederer.—p. 43.
Fugues, Epilepsy and Alcoholism. R. Targowla and B. Reverchon.—p. 46.
Acquired Chronic Trophic Edema. A. Henry.—p. 49.
*Complete Arrhythmia. E. Donzelot.—p. 53.

Paroxysmal Complete Arrhythmia.—Donzelot believes that the paroxysmal form of complete arrhythmia is by no means as rare as the profession is led to believe. Its diagnosis is relatively simple and it is easily influenced by proper treatment. Paralysis of the pneumogastric lengthens the refractory phase of the heart cycle, and atropin and belladonna may be indicated to combat the fibrillation, though quinidin is proving superior. When the auricular fibrillation tends to spontaneous arrest, quinidin is the medicament of choice. The satisfactory results obtained by its use have generally been realized, the author believes, in cases in which the paroxysmal character of the complete arrhythmia has not been recognized by reason of the long duration of the attack.

13: 93-116 (Aug. 4) 1923

Urology in 1923. R. Dossot.—p. 93.
*Influence of Bismuth on the Kidney. Rathery and Richard.—p. 101.
Hemorrhages of Nephrotomy. B. Fey.—p. 106.
Ureo-Secretory Constant. H. Chabanier et al.—p. 110.

Bismuth and the Kidney.—Facts concerning the effect of bismuth preparations on the kidney have been, according to Rathery and Richard, in process of collection since 1829, when Kerner reported the first case of death with anuria following the ingestion of 8 gm. of bismuth subnitrate. The authors give a detailed report of their experimental research on dogs. Injections of insoluble bismuth preparations did not appear to provoke acute nephritis in dogs, even when the injections were of large doses and when the kidney had been previously affected. In human subjects, no serious effects were noted in any case, in spite of the fact that several patients examined presented defective renal function before the administration of the drug. Their experiments established the fact that certain individuals have a peculiar susceptibility to bismuth, making its use in such cases inadvisable.

Presse Médicale, Paris

31: 705-716 (Aug. 15) 1923

*Radiotherapy in Gynecology. Recasens.—p. 705.
*Autohemotherapy. F. Moutier and J. Rachet.—p. 708.
*Factors Causing Cancer. L. Loeb.—p. 709.

The New Applications of Radiotherapy in Gynecology.—Recasens uses both roentgen and radium rays in treatment of uterine cancer, but is careful to give the complete dose in a short time, as it is impossible to estimate the sensitivity of tissues that have been irradiated weeks or months before. Nearly all roentgen burns occurred in tissues that had been exposed long before the exposure causing the injury. The interval between exposures should never be over twenty-six hours at most. He says that ordinary metrorrhagia and myoma can always be cured by radiotherapy, but the rays must be applied immediately after the close of the menstrual period, before hormones can form which otherwise would induce the menstrual hemorrhage. Metrorrhagia at the menopause also yields inevitably to roentgenotherapy, but cancer must be excluded as the dose that cures the metrorrhagia only speeds up malignant disease. Roentgen-ray treatment often cures tuberculous peritonitis after the effusion has been evacuated. The dose should be 65 per cent. of the skin dose; the intestines do not suffer with a dose less than 100 per cent., but temporary castration follows. This is an advantage under the circumstances. He says that it is a good plan to suspend menstruation temporarily by roentgen exposures in any form of tuberculosis, and also with inflammatory processes in the adnexa or heart which have not yet entailed destruction of tissue. He comments further on the advantages of temporary castration by this means when insanity or other disease renders the prospect of normal offspring unlikely. While waiting for recovery from syphilis, the wife might be temporarily sterilized by this means. Recasens adds that amenorrhea yielded to roentgen treatment in ten of his twenty-eight cases of the kind. No benefit was observed when the amenorrhea was of several years' standing. He gives only 15 per cent. of the skin dose when the purpose is to cure amenorrhea. Supplementary exposure of the pituitary is logical. In one of the ten cases in which menstruation returned after one or two exposures at a month's interval, a normal pregnancy followed, now in the fifth month. In a case of hypothyroidism with internal hemorrhages, puffiness of the face, edema and mental torpor, roentgen exposures of the front of the neck, at a month's interval, were followed by complete recovery.

Autohemotherapy.—Moutier and Rachet say that they have had no serious by-effects in 400 injections of the patient's own blood in seventy cases. This autohemotherapy seems to be a kind of desensitization, but it sometimes acts by inducing an attack of the anaphylaxis to combat which the radiotherapy is being applied. An emotional shock was observed in three cases, but it occurred before blood had been injected. In two other cases, symptoms of serum sickness developed three or four days after the injection. In three cases, the injection induced a new attack of the anaphylactic eczema, urticaria or migraine, or aggravated an existing attack. None of the above disturbances were severe enough to alarm the physician. From 2 to 20 c.c. of blood is drawn from the vein in the bend of the elbow and reinjected immediately into the gluteal muscle, not allowing time for it to clot. The amount varies with the pathologic condition being treated.

Interrelations of Factors Causing Cancer.—Loeb's research on the inheritance of cancer in mice and on the clinical incidence of cancer in man has confirmed the assumption of a quantitative and time relation between the factors that are responsible for cancer, and the rapidity and frequency of the malignant transformation.

31: 717-724 (Aug. 18) 1923

Fracture of Forearm Bones. C. Lenormant and J. Senèque.—p. 717.
Treatment of Eclampsia. L. Cheinisse.—p. 720.

31: 725-732 (Aug. 22) 1923

*The Pelvic Reflex. F. Jayle.—p. 725.

The Pelvic Reflex.—Jayle analyzes the characteristic reflex responses to irritation of the nerves in the posterior cervix and Douglas pouch, in the course of vaginal hysterectomy or coitus. The sensibility of the innervation in this region varies in different persons and at different times. When pronounced, it may affect reflexly any one or more of a number of organs. This is the explanation of the deep inspiratory groan during hysterectomy, the "uterus cough" and the aphonia or vomiting with flexion of the uterus and early in pregnancy. Albertin's *cri du Douglas* may be induced by pressure on the pouch of Douglas.

Pediatria, Naples

31: 633-688 (June 15) 1923

*Infantile Leishmaniasis. R. Jemma.—p. 633.
*The Blood in Nutritional Disorders. F. de Angelis.—p. 641.
*Vaccine Therapy in Acute Osteomyelitis. S. Grisanti.—p. 649.
Treatment of Pertussis. G. Matarese.—p. 672.

Diagnosis and Treatment of Kala-Azar in Children.—Jemma recalls that the Naples and Palermo pediatric clinics have aided materially in the solution of almost all the problems connected with this disease. He says that the specific

action of tartar emetic by the vein is now fully established. He begins with 0.3 or 0.4 gm. for children under 3, with 0.4 or 0.5 gm. for older children, repeating the intravenous injection twice a week for two or three months or longer. The children are treated as outpatients. He never observed malaria and Leishman parasites associated. The diagnosis may not be certain until the Leishman bodies are found on puncture of the bone marrow or spleen pulp. The disease affects infants predominantly, and is rare after the age of 4. The number of cases in the last two years is larger than the number in the preceding five years. The problem now pressing for solution is the mode of transmission of infantile leishmaniasis.

The Changes in the Blood in Nutritional Disorder in Infants.—De Angelis tabulates the differential blood count in 9 infants with chronic dyspepsia and dystrophy, 10 with acute dyspepsia, 8 with decomposition, 9 with dystrophy alone, and 14 with toxicosis. They show the remarkable promptness and intensity with which the blood reflects any upset in the nutritional balance.

Vaccine Therapy in Acute Osteomyelitis in Children.—Grisanti concludes from the twelve cases described that vaccine therapy not only hastens repair after operative treatment of the osteomyelitic focus, but also tones up the general health. The main thing is to begin the vaccine treatment early and continue with large doses over a sufficient length of time.

Rivista Critica di Clinica Medica, Florence

24: 193-208 (May 5) 1923

*Syphilitic Disease of Liver. F. D'Arbela.—p. 193. Conc'n.
Percussion in Diagnosis of Pneumothorax. E. Riccioli.—p. 202.

24: 209-224 (May 15) 1923

Senile Changes in the Blood Picture. L. Puccioni.—p. 209.

24: 225-240 (May 25) 1923

The Vegetative Nervous System in Epidemic Encephalitis. D. Campanacci.—p. 225.

24: 241-256 (June 5) 1923

Diagnostic Import of Regional Skin Reaction. De Battisti.—p. 241.
Hydrochloric Acid Test of Pancreas Function. F. D'Arbela.—p. 245.

Syphilitic Disease of the Liver.—D'Arbela's four cases illustrate the remarkable variety of the clinical pictures that may be presented by syphilis of the liver. In one woman, continuous fever with daily remissions and intense prostration, jaundice, ascites and signs of partial obstruction of the bile duct prevented a diagnosis at first, although the free effusion and the enlargement of the spleen and liver might have suggested cirrhosis of the liver. In this case headache, worse at night, had been noted for nearly two years. In the second case the symptoms were all digestive except that the abdomen enlarged until advanced pregnancy was assumed. Complete recovery followed tapping and forty mercurial inunctions. The diagnosis in the third case had been in turn Malta fever, malaria, tuberculosis and angiocholitis during the four years of symptoms, but a clinical cure was realized at last with mercury. In the fourth case, an eruption accompanied the digestive and liver disturbances, and they all yielded to prompt mercurial treatment.

Brazil-Medico, Rio de Janeiro

1: 313-324 (June 9) 1923

Bacillary Dysentery at Rio. Gomes de Faria and Genesio Pacheco.—p. 313.
Modern Treatment of Leprosy. Orozimbo Corrêa Netto.—p. 315.

1: 325-336 (June 16) 1923

*Production of Antiserums in Large Animals. R. Kraus.—p. 325.
*Serotherapy of Cobra Bites in Brazil. R. Kraus.—p. 326.
*Acute Anterior Poliomyelitis in Adult. W. Berardinelli.—p. 328.

Production of Antitoxins in Large Animals.—Kraus states that the antitoxin for diphtheria is found regularly in the blood serum of older horses, and the antiserum for tetanus regularly in the blood of the older beeves. By using these older animals, the antiserums are produced more rapidly and in larger amounts, with greater potency, than with other technics. Beef serum rarely entails serum sickness.

Snake Bites in Brazil.—Kraus tabulates the details of 1,959 cases of snake bites reported to the Instituto de Butantan since 1902. Eleven different varieties of snakes were incriminated. In 318 the snake species was unknown. The deaths totaled 9.8 per cent. of the 295 bites by crotalus, 1.4 per cent. of the 211 by *Lachesis alternata* and 3.1 per cent. of the 318 in which the species of the snake was unknown; the mortality was only 0.6 per cent. in the 738 *Lachesis jararaca* cases and 1.2 per cent. in the *Lachesis jararacussu* cases. There was no fatality with other species, the total being thus 2.5 per cent. in 1,959 cases. In the last two years the 236 human cases had a mortality between 4.1 and 4.3 per cent.; in the thirty-nine animals it ranged from 5 to 10 per cent. Of the 1,959 patients given the antivenin in twenty years, 2.5 per cent. died, and 11.3 per cent. of the 344 animals bitten.

Acute Anterior Poliomyelitis in Adult.—Among the other symptoms in the young man, there were flaccid paralysis of both hands and one leg, and cephaloplegia. Berardinelli ascribes the polyneuritis to acute poliomyelitis, the young man having had a febrile attack five months before.

Deutsche medizinische Wochenschrift, Berlin

49: 937-970 (July 20) 1923

*Insulin in Treatment of Diabetes. A. Biedl.—p. 937.
Anatomic Basis for Nervous and Mental Disease. H. Dürck.—p. 941. Cont'n.
Neurectomy in Pulmonary Tuberculosis. G. Sultan.—p. 944.
Operations on Heart Nerves in Angina Pectoris. F. Brüning.—p. 945.
Relations Between Skin and Immunity. H. Martenstein and B. Schapiro.—p. 947.
Hemoglobinometer. H. Hirschfeld and Apel.—p. 949.
Anaphylaxis from Eating Horse Meat. J. Carl.—p. 952.
Pessary for Contraception. Pust.—p. 952.
Boric Acid in Treatment of Pyocyaneus Infection. A. Passow.—p. 953.
*Hemoglobin Preparation as Tonic and Food. E. Grahe.—p. 954.
*Some Dermatologic Problems. O. Grütz.—p. 955.
The Discussion at the Readings of the Antivenereal Disease Bill. Roeschmann.—p. 956.
Arrangements for Administration of Social Insurance in the Netherlands. Prinzing.—p. 957.

The Theory of Pancreatic Diabetes.—Biedl remarks that the action of insulin throws light on the nature of the disturbances in diabetes. It also seems to confirm his previous assertions that the internal secretion of the pancreas is conveyed to the blood by way of the lymph. In dogs, by diverting the lymph through a fistula after ligating the thoracic duct, experimental diabetes is induced. The lymph from the thoracic duct behaves exactly like insulin in tests on animals, and in therapeutic experience. "It is evident that the duct lymph contains the internal secretion of the pancreas, the same as insulin, only in lesser amounts, but we get it thus fresh and still warm, directly from the pancreas' kitchen." Insulin seems to have also confirmed the theory that the hyperglycemia in diabetes is the result of overproduction of sugar. Insulin checks this pathologic unlimited production of sugar. At first sight, insulin seems to sustain rather the opposite assumption, that the hyperglycemia is due to reduction in the power to assimilate the sugar, rather than overproduction.

Hemoglobin Tonic.—Grahe mixes lactose with washed red corpuscles from horse blood. Dried and pulverized, this forms, he asserts, an agreeable, durable and effective tonic.

Some Dermatologic Problems.—Grütz discusses Friboes' revolutionary views on the embryonal origin of the epidermis, and Bloch's contention that the pigment in the skin is formed by an oxidizing ferment action. Bloch found that dioxyphenylalanin applied to the skin induces a peculiar melanin formation in the basal cells of the epidermis. Another topic now under discussion is Meirowsky's suggestion that pigmented nevi are a throwback to previous stages of evolution, when the pigmentation formed the markings of some animal.

Deutsche Zeitschrift für Chirurgie, Leipzig

180: 201-418 (July) 1923

*Pathogenesis of Arthritis Deformans. E. Wehner.—p. 201.
*The Mechanics of Gastroscopy. W. Sternberg.—p. 234
*Blocking Absorption of Toxins. Hilgenberg and Thomann.—p. 267.
*Live Wire Accidents. P. Balkhausen and H. A. Grueter.—p. 273.
Pathogenesis of Traumatic Epilepsy. W. Block.—p. 290.
Isolated Fracture of Spinous Processes. K. Koch.—p. 339.
Echinococcus Disease in Man. J. Palugyay.—p. 356.
Stenosis of Lower Duodenum. A. Beck.—p. 389.
Tearing Off Fracture of Spinous Processes. E. Goetzl.—p. 396.

Suppuration in Interstitial Hernial Sac. E. Eggers.—p. 401.
Granulation Tumor on Roentgen Burn. G. Brandt.—p. 405.
Gastric Myoma. W. Smital.—p. 410.

Pathogenesis of Arthritis Deformans.—Wehner presents an experimental and histologic study of abnormal mechanical wear and tear on the ends of the bones forming a joint.

Gastroscopy.—Sternberg's profusely illustrated article is entitled "New Points of View from Mechanics for Study of the Mechanics of the Stomach and the Mechanics of a New Gastroscope of a Special Type." A separate instrument is required for the pylorus antrum, the lesser curvature and the fundus, and those constructed on his principles can be introduced easily and harmlessly, he says.

Blocking Absorption of Toxins by Ring of Injected Blood.—Läwen has been successful by this means in treating carbuncles and malignant furuncles. He injects the patient's own blood all around the carbuncle, hoping thus to attenuate the virulence of the causal agents and block absorption of toxins. Hilgenberg and Thomann, assistants in his service, here describe experiments on rats and mice which have confirmed the effectual blocking of injected strychnin by this encircling wall of injected blood, human blood serum, acacia solution, Ringer's solution, distilled water, diphtheria antitoxin or a silver salt. Cocain could be thus walled in by some of these substances but not by all, and curare only by defibrinated human blood, blood serum and acacia. Ringer's solution and distilled water seemed to hasten the fatal action of the curare. The blocking is as certain in its action as an Esmarch band, or at least as a Bier constricting band. This effect was confirmed by clinical experiences. For example, extensive edema of the lids from a furuncle on the cheek subsided after the injection of the blood more promptly than would have been expected from the incision of the furuncle alone. The purely mechanical blocking is supplemented, they think, by a kind of protein therapy from the injected blood. This has been amply demonstrated in veterinary medicine in the last few years, with injections of own blood and mother's blood.

Electric Accidents.—Balkhausen and Grueter comment on the comparative mildness of the changes found in the organs after a fatal accident from a live wire. Examination of an arm that had to be amputated, on account of gangrene from an electric burn, showed that extreme contraction and paralysis are special features of the action of the current on muscles and muscle nerves, and on the vessels and their nerves.

Klinische Wochenschrift, Berlin

2: 1341-1388 (July 16) 1923

*Anatomy of the Capillaries. U. Ebbecke.—p. 1341.
*Hormones and Cations. H. Zondek and T. Reiter.—p. 1344.
*Roentgenography of Pancreas Disease. O. Gross.—p. 1346.
*Test for Colloidal Condition of Blood. W. Starlinger.—p. 1354.
*Serodiagnosis of Pancreas Disease. M. Marcus.—p. 1356.
*Needle Electrodes in Electrocardiography. P. G. Böttcher.—p. 1357.
Estimation of Potency of Rays in Phototherapy. F. Blumenthal and Finkenrath.—p. 1358.
*The Sippy Treatment of Ulcer. A. Orlianski.—p. 1359.
*Serum Treatment Before Grafts. K. Laqua.—p. 1360.
Electric Burns of the Skin. C. W. G. Mieremet.—p. 1362.
*Seroreaction in Cancer Cases. H. Kahn.—p. 1364.
"The Auricular Symptom in Meningitis." E. Goldberg.—p. 1365.
"Rachitis in Large Cities." Hilgers.—p. 1365. Reply. Engel.—p. 1366.
Carbohydrate and Creatin Metabolism in Experimental Scurvy. A. Palladin.—p. 1366.
Ninhydrin Reaction of Eosinophil Granula. Klewitz and Krieger.—p. 1366.
Changes in Mucosa under Action of Tar. Buschke and Langer.—p. 1367.
Case of Buhl's Disease. W. Vogel.—p. 1368.
Fat Content of Organs in the New-Born. Vogel.—p. 1368.
Present Status of Treatment of Psoriasis. K. Herxheimer.—p. 1369.
Detection, Treatment and Prevention of Tuberculosis in Children. H. Langer.—p. 1371.

Anatomy of the Capillaries.—Ebbecke ascribes the contractility of the capillaries to the ameboid and other properties of the endothelial and adventitial cells. He presents arguments to sustain this view, and shows that it explains the various phenomena observed.

Hormones and Cations.—Zondek and Reiter's illustrations of tadpoles treated with various hormones sustain their assertion that the hormones alone are inactive. They require certain electrolytes before their specific action can occur. They regard the vegetative nervous system as the system regulating the electrolytic factors, and thus maintaining the hormone balance. Disease may be due to the gland producing the hormone or to defective functioning of the regulating system alone. An entirely normal hormone may have a pathogenic action from some change in the electrolytes it encounters.

The Roentgen Rays in Diagnosis of Pancreas Disease.—Gross expatiates on the instructive findings, with or without pneumoperitoneum, in cases of a cyst in the pancreas. When casein in the stool (carmin beefsteak) shows no signs of digestion in seventy-two hours, organic disease of the pancreas is beyond question. Several cases are illustrated. The disturbances had long been from the stomach in one case until slight symptoms of diabetes attracted attention to the pancreas, and the casein test confirmed the pancreatic deficit. The roentgenogram showed two filling defects in the upper duodenum, both extremely tender. These he accepts as ulcer destructive lesions, and he assumes that the secondary irritation of the pancreas explains all the symptoms on the part of the pancreas. In one of the cases described, a traumatic pseudocyst was successfully removed.

Test of Colloidal Conditions in Blood Plasm.—Starlinger presents a simple clinical method for testing the stability of the three albumin fractions in the blood plasma. They are precipitated in turn by varying amounts of a saturated solution of ammonium sulphate. The physicochemical structure of the blood plasma albumin determines the speed of sedimentation of the erythrocytes, and may have differential import in various conditions.

Serodiagnosis of Acute Pancreas Disease.—Marcus reports a case in which the surface tension of the blood serum was materially modified in the way that is characteristic of pancreas disease. The symptoms had been interpreted as perforation of the gallbladder, but the operation disclosed only infarction of the pancreas, confirmed by necropsy soon after. Pancreas lipase is resistant to atoxyl which destroys the lipase in the blood in health, and also in disease elsewhere than in the pancreas. The serodiagnostic test was applied with 2 mg. of atoxyl and a tributyrin solution. In a normal man, the number of drops remained 126 and 127, tested at five ten minute intervals. In the case of pancreas apoplexy, the number fell progressively from 129 to 113.

Needle Electrodes in Electrocardiography.—Böttcher's tracings show the remarkable exaggeration of the peaks and valleys of the electrocardiogram when the needle electrode was introduced intracutaneously. Qualitatively, the tracings were always the same as with the ordinary technic, but the absence of the great resistance opposed by the skin allows more extensive excursions of the tracing needle.

Sippy Treatment of Gastric and Duodenal Ulcer.—Orliansky says that the Sippy treatment failed completely in five of his cases but was brilliantly successful in twenty-three others. He says that it may have to be kept up for several months or a year, but it should always be given a trial before referring the patient to the surgeon.

Preliminary Treatment Before Skin Grafting.—Laqua treated twelve rats with serum from a horse, rabbit, dog, sheep or guinea-pig or with human serum. Then he grafted a patch of skin from an untreated rat. No effect from the serum treatment was apparent.

Serodiagnostic Test for Cancer.—Kahn describes a flocculation and turbidity test with sodium oleate and glycerin that gave positive findings in the cancer cases tested, but in no other conditions except far advanced tuberculosis or other grave febrile disease. The test has the drawback of all hemolysis and stalagmometer tests, but it has all their advantages, and the further advantage that it is easy and simple and requires no special apparatus.

Medizinische Klinik, Berlin

19: 745-780 (June 3) 1923

*The Marriage Question in Venereal Disease. L. Waelsch.—p. 745.
*Differential Diagnosis of Osteomyelitis. G. Rosenburg.—p. 749.
*Resection of Condyle. Kehl.—p. 752.
Treatment of Uterine Cancer. J. Puga.—p. 753.
Postoperative Tetany. R. Rosenfeld.—p. 755.

Lesions in Mouth from Bismuth Treatment. Boelsen.—p. 757. Cont'd.
*Statistical Study of Heart Disease. B. Finkelstein.—p. 759.
Anesthesia for Tonsillectomy. Birkholz.—p. 761.
*Tubercle Bacilli in Sputum. K. Lemmens.—p. 764.
*Importance of Vital Staining in Research on the Protoplasm. A. Nagorny and B. Schazillo.—p. 764.
Indications for Pessaries. E. Runge.—p. 765.
Recent Works on Internal Medicine. F. Bruck.—p. 766.

The Marriage Question with Venereal Disease.—Waelsch says that all the physician can do is to make marriage as free from danger as possible. We are unable to guarantee that there is no danger, and this fact alone is enough to denounce any legislation requiring a compulsory health certificate before marriage. The question of *impotentia generandi* is easily settled by microscopic examination of fresh semen, and lurking gonococci can be forced out by stretching the urethra with a Kollmann dilator and instilling 2 c.c. of a 0.5 or 1 per cent. solution of silver nitrate, or rinsing with a 1:4,000 solution two or three times at intervals of six or seven days. Intravenous injection of a gonococcus vaccine may succeed when all other provocative measures fail, but negative findings are not decisive. He insists on at least ten microscopic examinations of the secretion at different times after various provocative measures. He declines to interfere when the man comes to him for consent to marry when the interval before the wedding is only a week or two. He requires two or three months when there are still traces of gonorrhea. In examining the prostatic secretion, he advises bacteriologic tests on suitable culture media. With a woman, energetic treatment and observation for several months must precede the permission to marry. With syphilis, he insists on a delay of three years after infection even when the abortive treatment was apparently promptly successful. In cases in which symptoms developed notwithstanding treatment, but the fourth year has been free from any signs of the disease, he consents to marriage in the fifth year, but prefers to wait till the sixth. If the lumbar puncture fluid shows no signs of neurosyphilis after five years, marriage can be allowed even although the Wassermann reaction is still positive in the blood. Patients with uneven pupils and attenuated skin and tendon reflexes, but no typical systemic affection, are hard to estimate. Such cases may never develop further. Lumbar puncture findings are the only guide. He has had four in this category under observation for eighteen to twenty-three years, and their condition has shown no appreciable change, as also a fifth patient with lost knee-jerk, occasional slight lancinating pains, and girdle sensation. This condition has been stationary for fourteen years. He refused his consent to two in this group because they refused to allow lumbar puncture; the findings were normal in another and he gave his permission to marry. The other two did not want to marry. Special attention should be paid to the heart and vessels in examining the candidate for matrimony. All agree that the requirements should be even stricter for syphilitic women than for men. The French postpone consent to marriage for women two years later than the two years they impose on men.

Differential Diagnosis of Osteomyelitis.—In Rosenburg's first case the sudden severe onset with general malaise, involvement of several joints in turn, pain and swelling in both ankles and pains in both knees, with continuous high fever imposed the diagnosis of severe acute articular rheumatism until pus from the foci of staphylomycosis in both legs cleared up the diagnosis. In a second case the diagnosis had been appendicitis with abscess but the abscess in the psoas was traced back to a focus of osteomyelitis in the fifth lumbar vertebra. In Volkmann's compilation of eighty-seven cases of osteomyelitis of vertebrae, the correct diagnosis had been made only in 34 per cent. With children, the local pain is not instructive but polynuclear leukocytosis is enlightening, as also the discovery of bacteria in the blood and the antistaphylolysin reaction, that is, the increased antibody production against the lysin of the staphylococci in the blood. This is not positive till about the eighth to the eleventh day. Negative findings do not exclude infection from some other micro-organisms.

Resection of Posterior Condyle of the Femur.—Läwen's method of horizontal resection is described by Kehl as applied in four cases. It arrests the progress of the disease when it has not encroached beyond the knee.

Endocarditis and Valvular Defects.—Finkelstein found that 2.3 per cent. of the 15,000 patients at the Berlin Charité had some valvular defect, and 66 per cent. in this group had febrile endocarditis. Only 36 per cent. of the fifteen cases of septic endocarditis were in women, but women formed 53 per cent. of the 207 with simple endocarditis. More men died than women from endocarditis (63:37 per cent.).

Enrichment of Tubercle Bacilli in Sputum.—Lemmens' tests failed to confirm any superiority of Korbsch's method over others.

Vital Staining.—Nagorny and Schazillo report that mice bore subcutaneous injection of from 0.05 to 0.083 gm. of dry trypan blue or trypan red per 100 gm. of weight without much influencing the gas interchanges or utilization of oxygen, or affecting the mice injuriously in any way. This method of vital staining is throwing much light not only on the morphologic but also on the dynamic properties of the cells.

Mitteil. a. d. Grenzgeb. d. Med. u. Chir., Jena

36: 151-440, 1923

Acute Pseudodysenteric Colitis. W. Goldschmidt.—p. 151.
Oidium in Relation to Chronic Gastric Ulcer. Kirch and Stahnke.—p. 174.
*Typhoid Cholecystitis. E. Fraenkel.—p. 201.
Influence of Resection of Enlarged Thyroid on Total Metabolism. E. Grafe and E. v. Redwitz.—p. 215.
Diffuse Hemangioma of Rectum. Hennig and Schütt.—p. 235.
Skeletal Changes as Cause of Calcification. F. Schulze.—p. 243.
*Research on the Thyroid. B. Breitner.—p. 265.
*Interrelations of Endocrine Glands. R. Demel et al.—p. 306.
*Physical and Chemical Research on the Thyroid. Starlinger.—p. 334.
Significance of Chvostek's Phenomenon in Postoperative Tetany. S. Jatrou.—p. 356.
Postoperative Temperature after Strumectomy. E. Just.—p. 381.
Iodin Content in Different Types of Goiter. H. Homma.—p. 389.
Research Preliminary to Constitutional-Somatic Characterization of Various Diseases, Especially Goiter. Orator and Pöch.—p. 393.
Shape and Structure of Goiter in Relation to Function. E. Gold and V. Orator.—p. 401.
Evaluation of Drug Functional Tests. V. Orator.—p. 420.

Typhoid Bacilli Carriers.—In discussing typhoid cholecystitis, Fraenkel remarks that cholecystectomy for persistence of typhoid bacilli in the stools is too serious an operation for this purpose alone, in the absence of other symptoms. Even at the best, it does not always answer the purpose, as the bacilli may be lurking in the intrahepatic biliary ducts.

Research on the Thyroid.—This article and those that follow are from Eiselsberg's clinic in Vienna, and are reviewed by Breitner to show that they do not conflict with his theory of goiter. He argues that the colloid of the thyroid is responsible for the functional disturbances, either by abnormal production or by abnormal mobilization and distribution throughout the circulation of blood or lymph. Demel, Jatrou and Wallner removed in turn the ovaries, suprarenals and thymus in white rats, or removed more than one of the glands in the endocrine chain, studying the effect on the thyroid. They found enough changes in the remaining endocrine glands, especially the thyroid, to justify apparently the assumption that the physiologic influence of an endocrine gland depends on a hormone given off into the blood stream or lymph stream, rather than on changes imposed on the blood itself as it passes through the gland.

Starlinger's physical and chemical research on the thyroid showed a higher fibrinogen content in the venous blood than in the arterial blood in cases of supposedly less functionally active thyroids (colloid goiters, adenomatous degenerated goiters, etc.). On the other hand, the fibrinogen content of the venous blood was abnormally low in the more active thyroids, as in exophthalmic goiter or diffuse parenchymatous goiter. He attributes the excess of fibrinogen to the metabolic processes of the thyroid itself (its own waste products). The deficit in fibrinogen he attributes to the functional action of the gland on the colloid albumin of the blood. But it is still a question whether this represents the functional activity of the gland, and therefore is limited to the gland itself, local, or whether it is merely the effect resulting from the action of a specific substance from the gland on its medium of transportation (the colloid albumin of the blood).

Monatsschrift für Geb. und Gynäkologie, Berlin

63: 1-60 (May) 1923

Cyclic Processes in Genital Organs of Female Mammals. E. Hieronymi. —p. 1.
Irradiation of Sex Glands and Its Effect on the Progeny. L. Nürnberger.—p. 7.
*Quinin in Treatment of Febrile Abortion. E. Henrard.—p. 19.
*Interstitial Hematoma in the Ovary. H. Heidler.—p. 25.
Thoracopagus with Infundibulocolic Ligament. T. Gilfrich.—p. 37.

Quinin in Treatment of Febrile Abortion.—Henrard relates that in 92 cases, intensive quinin treatment was followed by spontaneous evacuation of the uterus in 80 per cent. of the cases in which the abortion had already started, and in 50 per cent. of all cases of retention of the placenta. The quinin was administered in three different ways at once (intravenous injection of 2 c.c. of a 25 per cent. solution, and at the same time a similar amount intramuscularly, and two tablets of quinin hydrochlorid, 0.25 gm. each, by the mouth). The quinin failed to induce spontaneous expulsion of placental rests, but it did dilate the os and loosen up the placental fragments, which facilitated their manual removal. If an ergot preparation fails to control the resulting hemorrhage, he advises active intervention before more than 800 or 1,000 c.c. of blood has been lost.

Interstitial Hematoma in the Ovary.—Heidler's case differs from others in the literature in that necropsy revealed a pint of blood in the peritoneal cavity without any evidence as to the source of the extravasation (diapedesis). Removal of the ovary might have lengthened the patient's life if the diagnosis had been possible.

Zeitschrift für Geburtshülfe und Gynäk., Stuttgart

86: 221-458 (July 28) 1923

*Vertical Fixation of Fetal Head. E. Weinzierl.—p. 211.
*Organotherapy. B. Zondek.—p. 238.
*Decidual Reaction in Tubes. M. Tranku-Rainer—p. 278.
*The Vaginal Flora. R. Salomon.—p. 295.
*Radiotherapy of Cancer of the Cervix. W. Schmitt.—p. 316.
Acidosis and Normal Pregnancy. O. Bokelmann and J. Rother.—p. 329.
*Narcohypnosis. Hallauer.—p. 359.
*Operative Treatment of Prolapsed Uterus. Mackenrodt.—p. 399.
*Cancer in Area Exposed to Roentgen Rays. Bumm.—p. 445.

Pathologic Vertical Fixation of Fetal Head.—Weinzierl concludes from twenty cases personally observed that this abnormal position of the head is the result of several factors. The Kjelland forceps usually answer the purpose, but cesarean section was necessary after all in some of his cases. A peculiar intensity of the labor pains was noted in several. In some the contractions were weak at first but suddenly became tempestuous.

Experimental Research on Organ Therapy.—Zondek's extensive research on the isolated heart of frogs and on other organs in rabbits, and tests in clinical cases has demonstrated, he says, that effective organotherapy is possible only by feeding desiccated organ tissues or implantation of organ tissue. Organ extracts lose completely the specific endocrine substance during the process of manufacture, especially the process of removing the albumin. The pituitary is an exception. Pituitary extract does not lose its specific action on smooth muscle, but there is no proof to date that this represents an actual specific secretion of the pituitary. By removal and transplantation of endocrine glands and by feeding dried gland tissue, not chemically altered, we will make progress in organotherapy, abandoning the false route we have been traveling, following the ignis fatuus of injection of chemically altered organ extracts. He gives ten tables of metabolic and other findings in his experiments and twenty-nine other illustrations or tracings showing the action on the heart, uterus, small intestine, vessels, blood, coagulation and metabolism in general.

Tubal Pregnancy.—Rainer discusses the decidual reaction in the tubes with unilateral or bilateral tubal pregnancy during the first three months.

The Vaginal Flora.—Salomon found the vagina sterile in new-born infants. In treatment of leukorrhea, he advocates refraining from measures to destroy the saprophytes in the vagina. The aim should be to induce proliferation of certain strains of saprophytes so that they can conquer the harmful bacteria. Bacteriophagy may explain the self-cleansing power of the vagina, and point the way to effectual treatment of leukorrhea with bacteriophagic strains.

Radiotherapy of Carcinoma of Uterine Cervix.—Schmitt relates that of the 61 operative cases and 53 inoperable cases in which radium or roentgen rays were applied, between 1913 and 1916 (Würzburg), 22.2 per cent. have been permanently cured to date (22 in the operative group and 6 in the others).

Narcohypnosis.—Hallauer is fully convinced of the advantages of combining hypnosis with a very little chloroform as a systematic method of general anesthesia. He has applied it in more than 2,000 cases in the last fifteen years, and describes its technic and the results. This communication is published in "Society Proceedings" and is followed by the discussion which it elicited. Keller, Bumm and others told of using hypnosis for parturients. Hallauer ascribes a special action to the chloroform. It seems to induce a certain dissociation of the cortical functions which paves the way for the hypnosis.

Operative Treatment of Prolapsed Uterus.—Mackenrodt's illustrations show his method of extramucous cuneiform resection and interposition in treatment of the bleeding or myomatous prolapsed uterus.

Cancer After Roentgen Exposure.—Bumm reports six cases in which cancer developed in the uterus one to four years after roentgen exposures for myomas. The cancer may be a casual coincidence, or it may have been already installed at the time of the exposures, or the exposures may have induced an irritation that entailed cancerous degeneration. The extreme infiltration of the cells deep in the musculature, which was found in all the cases, speaks for this third assumption. In another case a carcinoma developed after a roentgen burn on the genitals in 1920. Both roentgen and radium rays had been applied in treatment of chronic pruritus dating from 1909. In 1921 the entire cancerous area was excised, from the pubis to beyond the anus. The cancer recurred and was resected twice, and there is now an inoperable recurrence. The case teaches the need for caution in exposing the external genitals, and for early excision of the injured area of skin in case a roentgen burn develops. In the discussion, Mackenrodt told of even more numerous similar experiences with women returning with cancer after roentgen or radium exposures for uterine myomas, many of them symptomless. In other cases he has witnessed the blood picture so modified by the roentgenotherapy that the women have never regained their former health. Bröse reported an instance of cancer of the ovary two years after a large bleeding myoma had subsided under roentgen and radium treatment. Endler reported three cases of a tumor of the pleura from six to twenty-four months after roentgen exposures following extirpation of a mammary cancer. The tumors partially subsided under his autoserum therapy, and he declares his success with this is throwing light on the etiology of cancer. It is not such a strictly localized affection as we have been assuming. He incriminates the blood serum.

Zeitschrift für Tuberkulose, Leipzig

38: 161-240 (May) 1923

*Tuberculous Abscess of the Liver. W. Gerlach.—p. 161.
The Primary Lung Focus in Children. M. Lange.—p. 167.
*Human and Bovine Tuberculin in Diagnosis. E. Nehring.—p. 182.
Nature of Human Tuberculosis. R. Arima.—p. 187.
*Origin of Chronic Lung Tuberculosis. K. Aoyama.—p. 189.
*Wildbolz' Method in Active Tuberculosis. W. von Friedrich and J. Laszlo.—p. 194.

Tuberculous Abscess of the Liver.—Gerlach found an abscess, 12 cm. in diameter, in the right lobe of the liver, at necropsy on a woman, aged 37. He thinks tuberculous abscess should have a fourth place in tuberculosis of the liver, beside miliary tuberculosis, biliary tract tuberculosis, and the tuberculosis with conglomerate of large nodules.

Human and Bovine Serum in Differentiation.—Nehring says that neither the cutaneous nor the intracutaneous use of human, or bovine, tuberculin shows definitely the type of the tuberculous infection. The difference in the degree of reaction to human and bovine tuberculin shown in the first inoculation may be reversed in the second. In all investigations of this kind it is important to work with tuberculin of definite toxic

content, the degree of toxicity being determined by biologic titration for each inoculation.

Experimental Studies on the Mode of Origin and Development of Chronic Tuberculosis of the Lungs.—Aoyama produced chronic tuberculosis resembling human phthisis in rabbits by inoculating their tonsils or soft palate with human tubercle bacilli, and found cavities in 31 per cent. of the nineteen animals, with lime deposits in 37 per cent., mostly in the adult animals. He found only few and unimportant changes at the point of inoculation in young animals, indicating difference in resistance of the young and the fullgrown.

The Value of Wildbolz' Method of Diagnosis of Active Tuberculosis.—Friedrich and Laszlo found Wildbolz' method of no practical value. They used it in thirty-two cases, and were unable to determine active tuberculosis from the reaction to the own urine.

Zeitschrift für urologische Chirurgie, Berlin

13: 93-196 (July 6) 1923

*Trauma and Hydronephrosis. M. Reisinger and G. B. Gruber.—p. 93.
*Bilharziasis of the Bladder. G. B. Gruber.—p. 99.
Incrusted Ulcer of the Bladder. P. Frank and G. B. Gruber.—p. 103.
*Intrarenal Hematoma. G. B. Gruber and P. Frank.—p. 107.
Cancer of Kidney Pelvis with Renal Malignant Lymphangiosis. P. Frank and G. B. Gruber.—p. 116.
*Trauma and Sarcoma of the Prostate. Gruber and Maier.—p. 120.
Asymmetrical Horse-Shoe Kidney. Gruber and Kratzeisen.—p. 124.
*Operative Enlargement of Bladder. W. v. Gaza.—p. 129.
Experimental Research on Kidney Innervation. Koennecke.—p. 157.
*Mechanism of Secretion of Urine. F. Lehr.—p. 164.

Trauma and Hydronephrosis.—Workmen's compensation was allowed in the case described, hematuria following a contusion of the man's right side. The right kidney increased in size and no urine could be drawn with the ureteral catheter. This kidney was removed, and the trauma and bleeding were incriminated for the rapid and serious aggravation of the previously existing slight hydronephrosis.

Bilharziasis of the Bladder.—Gruber gives photomicrographs of fragments of the bladder mucosa suspected of tuberculosis or cancer, but the lesions were found to be those of bilharziasis. The fundus of the bladder was opened, and two tumors and several nodules were resected. The entire area involved was removed piecemeal, and as each piece was excised, a piece of the musculature and mucosa was sutured with catgut to cover the defect. Thus the whole area was reconstructed step by step. The incision in the bladder was sutured with catgut in the inner tiers and silk in the outer. Complete recovery followed. Any ova left in the bladder must have died and become calcified.

Varicose Veins in the Kidney.—In the case described by Gruber and Frank there was an intrarenal hematoma from the renal artery. The kidney when removed showed conditions like those of a cerebral hemorrhage. In another case, both kidneys presented varicose veins. The woman had succumbed to multiple sclerosis. The walls of the renal veins indicated that the varicose changes were of long standing.

Trauma and Sarcoma of the Prostate.—Gruber and Maier know of only one case on record in which a sarcoma developed after a severe contusion of the bladder-prostate region. They describe a second case of the kind, but refuse to accept the trauma as a causal factor in either of the two cases. The trauma may have speeded up the malignant disease, but they do not consider it responsible for the sarcoma.

Enlarging Contracted Bladder.—Gaza's review of attempts to date to piece out the bladder with a segment of intestine to enlarge its capacity has shown that it is technically feasible. The intestinal tissue was retained intact, or it was crowded out by bladder epithelium, or there was necrosis of both bladder and bowel tissue. Mayer, Birnbaum and Scheele have each reported a successful case in which the capacity of the bladder, contracted by an inflammatory process, was thus successfully enlarged. Gaza here reports extensive experimental research in this line with illustrations of the outcome in nine dogs. The loop of bowel can be sutured to the bladder as easily as in entero-anastomosis. The bowel mucosa seemed to tolerate fairly well the contact with urine; particles of feces seemed to be responsible for cystitis when it developed. Either small intestine or large intestine can be utilized, but the small intestine has a tendency to become invaginated when implanted end-to-end. Although conditions are more favorable in dogs than in man, yet the experimental experiences are encouraging for a good anatomic and functional outcome in a bladder thus enlarged with a segment of bowel.

Mechanism of Urine Secretion.—Lehr compares the various theories and accepts Cushny's views as to the secretion of urine. He defines the share of the glomeruli and the tubules in the process, saying that the latter are able at need to do the work of the glomeruli, that is, to filter the salts and urea.

Zeitschrift für Urologie, Leipzig

17: 449-512, 1923

Pathologic Anatomy of Hypertrophied Prostate. M. Jacoby.—p. 450.
*Total Extirpation of Bladder. E. Joseph.—p. 458.
Calculi and Tuberculosis of the Kidney. Bitschai.—p. 463.
Pyelotomy Anterior or Posterior? M. Zondek.—p. 467.
Calculus Low in Ureter. Idem.—p. 467.
*Outcome of Traumatic Kidney Disease. A. Szenes.—p. 470.
Sodium Chlorid and Urine without Regard to Osmosis. G. Armbruster.—p. 494.

Total Extirpation of Bladder.—The extremely debilitated man, aged 51, lived for three months after removal of the bladder, filled with cancer tissue. The wound had healed and the drain introduced beforehand in each kidney was working well, but fatal metastasis developed. The colic pains in the bladder region ceased entirely after its removal. The bleeding from the bladder had stopped as soon as the urine was diverted. The bladder was removed under intraspinal anesthesia.

Traumatic Injury of the Kidney.—Szenes has reexamined 14 persons who had had a contusion of the kidney region between 1911 and 1922, and one with a gunshot wound of the kidney. Nearly all were free from disturbances of any kind, and only 4 showed any trace of albuminuria. One case shows that contusion of the kidney is liable to entail chronic nephritis if the kidneys are already suffering from some toxic action, lead poisoning in this case. The injury of one kidney threw too much work on the other, and the latter developed severe chronic nephritis with hypertension, retinitis, etc. The mortality of the total 28 cases of contusion of the kidney and 2 gunshot wounds was 37.5 per cent. Chromocystoscopy showed no difference between the two kidneys in 8 of the 10 recently reexamined; in 2 cases there was a delay of two minutes on the affected side. There was no instance of traumatic hydronephrosis, but there was a stricture in the ureter in one case.

Zentralblatt für Chirurgie, Leipzig

50: 1153-1200 (July 28) 1923

Treatment of Suppurative Processes without Tampons. Reimer.—p. 1154.
*Injection of Ether in Diffuse Peritonitis. C. Weber.—p. 1157.
Operative Treatment of Very Large Hernia. Pototschnig.—p. 1158.
*Operative Cure of Quadriceps Paralysis. M. Katzenstein.—p. 1161.
Formation of Nearthrosis of Hip Joint. S. Kofmann.—p. 1162.
Bandaging for Basal Skull Fracture. A. Schanz.—p. 1166.
Better Results in Orthopedic Osteotomies. A. Schanz.—p. 1167.
"Cuff Method of Anastomosis After Stomach Resection." R. Goepel.—p. 1170.
"Management of Stump After Cholecystectomy." Enderlen.—p. 1172.

Fatal Outcome from Injection of Ether in Diffuse Peritonitis.—Weber reports that, after using injections of ether with favorable results in about 100 cases of diffuse peritonitis, he has recently experienced a fatality in the death of a young woman, aged 21, with appendicitic peritonitis. He thinks it safe to assume an ether intoxication with paralysis of the respiratory center in the medulla oblongata, superinduced by a heart weakened by a previous attack of influenza. A healthy organism might have been more resistant. He has lost confidence in the absolute harmlessness of such injections of ether, and henceforth he expects to proceed more cautiously in dealing with weakly individuals and children. Weber holds, nevertheless, that ether exerts often an astonishingly favorable effect in almost hopeless cases. He injects ordinarily from 80 to 100 gm.

Abdominal Muscles Used to Supply Force to Paralyzed Quadriceps.—Katzenstein's patient was a girl, aged 12, with complete paralysis of the left leg. He made two tendons out of skin, and connected the rectus and the obliquus muscles with the quadriceps.

Zentralblatt für Gynäkologie, Leipzig

47: 1121-1152 (July 14) 1923

Fibromyoma of the Urethra. R. Michaelis.—p. 1121.
*Dilatation of the Urethra in Gonorrhea. E. Vey.—p. 1124.
*Management of a Resected Ureter. E. Löwy.—p. 1128.
Gangrenous Cystitis Dissecans Due to Retroflexion of an Incarcerated Gravid Uterus. B. Schweitzer.—p. 1140.

Dilatation of the Urethra in Urethral Gonorrhea in Women.—Vey dilates the urethra until the walls are perfectly smooth, which makes it accessible in all its parts to the remedy to be applied. As a rule, two or three applications of the remedy at from eight to ten day intervals are then sufficient to effect a cure; sometimes one application suffices. In stubborn cases, in addition to local treatment, simultaneous general treatment should be employed. What disinfectant shall be used is of secondary importance.

Management of a Resected Ureter.—Löwy refers to operations on large tumors or malignant new growths of the uterus, in which it is impossible to dissect the ureter free from the surrounding tissues but after resection it is found that implantation in the bladder cannot be carried out. He discusses the three usual methods of procedure: the Stoeckel, the Stoeckel-Kawasoye and the Poten methods. Löwy obtained good results in four out of ten cases in which he used these methods. He found the knotting of the ureter by the Stoeckel-Kawasoye method the least reliable, since it does not prevent the ureter from becoming fistulous. He secured the best results (in two cases a good lasting effect) with the Poten method which consists in torsion of ureter, the tied-off end being twisted three times and fastened to the pelvic connective tissue by two sutures which also grasp the covering peritoneum, whereby a perfect closure of the lumen of the ureter is brought about. As one is not sure, for several weeks, whether the closure of the ureter is going to hold, it is necessary to keep the parametric wound toward the vagina open for weeks.

Finska Läkaresällskapets Handlingar, Helsingfors

65: 399-490 (July-August) 1923

*Torsion of the Testicle. H. Bardy.—p. 399.
*Organic Basis for Epilepsy. F. Geitlin.—p. 411.
*Periarterial Sympathectomy. H. Elving.—p. 422.
Origin of Tar Blood Cysts in the Ovaries. B. Nyström.——p. 433.
*Intra-Uterine Tampon for Postpartum Hemorrhage. O. A. Boije.—p. 451.
*Shoulder Pains in Rupture of the Tube Wall. O. E. Cederberg.—p. 462.
Vagitus Uterinus. B. Nyström.—p. 469.

Torsion of the Testis.—In Bardy's two patients the testis on the side of the pains was tender but seemed normal, as also the spermatic cord, but the epididymis was swollen, tender and contained palpable hard nodules. Operation in both cases showed the reddish brown testis suspended free in the serous sac, the epididymis purplish. The twist was 360 degrees to the right in one case and to the left in the other. If the blood supply is not restored within twenty-four hours, a hemorrhagic infarct will lead to either aseptic necrosis or inflammation. The torsion in the man had occurred while he was pushing a car, and in the youth while skating. As a rule torsion can occur only in the presence of a congenital anomaly and, given the anatomic condition, may take place even during sleep. For this reason he believes that in case of accident insurance, indemnity is not recoverable for torsion of the testis unless accident can be proved as cause.

The Origin and Mechanism of Epileptic Convulsions.—Geitlin agrees with those who accept a more or less incomplete form of tuberous sclerosis as the lesion in the cortex responsible for epilepsy. The foci of sclerosis are always circumscribed, and may be visible, or only perceptible to the touch, or revealed only by the microscope. The foci resemble the lesions of multiple sclerosis of the brain and, like them, are of embryonal origin. In one brain he has been studying, the cortex was scattered irregularly with numerous foci of this kind, and he theorizes that the resulting impairment of cortical function prevented the cortex from exerting its normal inhibiting function on the play of the subcortical centers. When a motor subcortical center became irritated by some toxin, as the restraining influence of the cortex was in abeyance, tonic or clonic convulsions ensued. These convulsions may range in intensity from slight local muscular spasms to the genuine epileptic seizure, according to the extent and intensity of the cortical lesion and of the toxic action. The reason why epilepsy does not occur in all idiots and imbeciles, he suggests, may be because the subcortical centers are too pathologic to respond.

Periarterial Sympathectomy.—Elving studied the capillary circulation in connection with periarterial sympathectomy in twelve cases. An improved capillary circulation followed the operation in four; in two the capillary contraction declined, and in the others no results were found microscopically. It is not sufficient to separate the adventitia from the vessel; it must be removed to insure a complete and permanent break in the innervation. Improvement in the capillary circulation followed the operation in one case of severe arteriosclerosis but was absent in two. It brought temporary improvement in ischemic paralysis of the musculature of the leg in a girl, and in a diabetic man with ulceration of the foot. He recommends the operation in neurotrophic and angiospastic conditions when other methods of treatment have proved ineffective. In his one case of neurotrophic ulcer, the deep, offensive ulcer on the instep had resisted all treatment for months but healed completely in three weeks after the sympathectomy.

Packing the Uterus with Gauze in Postpartum Hemorrhages.—Boije has found that intra-uterine tamponage, contrary to general belief, decreases the danger of infection, and he recommends extension of indications for tamponage to avoid unnecessary loss of blood. He describes the method with Stille's instrument for aseptic introduction of the gauze, and his favorable experiences with it in 114 cases, with no mortality nothwithstanding the extremely complicated cases.

Pain in the Shoulder in Connection with Rupture of Fallopian Tube.—Cederberg found radiating shoulder pains in six of seventeen patients with rupture of the tube. These remote phrenic pains—so-called phrenic neuralgia—occur paroxysmally, intensified during deep respiration. He found bilateral pains in one case of rupture of the left tube, and in one of rupture of a left pyosalpinx. They may result from direct irritation of the sympathetic, without the intervention of the diaphragm.

Hospitalstidende, Copenhagen

66: 505-520 (July 18) 1923

*Diverticulum of the Bladder. A. Sennels.—p. 505.
Ammonia in Urine. G. E. Sehrøder.—p. 512. Conc'n, p. 521.

66: 521-540 (July 25) 1923

Dreyer's Vaccine Against Tuberculosis. O. Thomsen.—p. 536.

Diverticulum of the Bladder.—Sennels recommends injecting 100-150 c.c. of a 10 per cent. potassium bromid solution into the bladder and directing the roentgen rays so that the shadow of the diverticulum is projected free of that of the bladder. This gives the best information of the diverticulum's size and relation to its surroundings, and explains the symptoms, from slight dysuria to those from uroplania or pyonephrosis. Operation becomes more dangerous when delayed. He shows by collected statistics a mortality of 80 per cent. as late as 1912, but now it is scarcely 10 per cent. He thinks the suprapubic extravesical method ideal in cases in which it can be used. He prefers the suprapubic combined intravesical and extravesical method to the purely intravesical. Instead of removing the diverticulum, he draws it into the bladder, where it is held in place while the bladder wall is sutured. When released, it smooths out and feels to the touch like a soft mucous membrane. In his operation the diverticulum was not very large, but as the epithelium of the mucous membrane of the bladder is divided from the muscular coat by areolar tissue, he believes that larger diverticulums would also flatten out. Fistulas may thus be avoided.

CORRECTION

Facial Paralysis in Acute Poliomyelitis.—In the abstract in The Journal, September 29, p. 1152, the number of cases of facial paralysis in children with acute poliomyelitis was eleven in 1922 and three in 1923 to date, a total of fourteen, not fifty-four as stated.

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DIAGNOSTIC IMPORTANCE OF TUBERCULOUS LESIONS OF THE ORAL CAVITY *

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Tuberculosis of the oral mucous membrane occurs in two principal forms—lupus and tuberculous ulceration proper. In lupus, the mouth involvement is nearly always an extension of the disease from the skin of the face. The lesions are superficial and slowly progressive, and have little tendency to ulceration and extensive tissue destruction, tending rather to the formation of scar tissue. Of 964 cases of lupus seen by Sequeira,[1] ninety-five, or about 10 per cent., presented oral lesions.

Tuberculous ulceration proper is characterized by the breaking down of miliary tubercles, with the formation of one or more points of ulceration of the mucous membrane. Almost any part of the mouth may be involved, but especially the tongue, the gums, and the hard and soft palate. The ulcer is irregular in shape, not as a rule deep, with slightly undermined but not elevated margins, and with little or no induration. The surface presents a characteristic granular appearance, being covered with reddish and yellowish elevated points, with occasional yellowish streaks. Pain is a fairly constant feature, especially early in the disease, before cicatrization has set in. The tendency is to grow progressively worse, the deeper tissues and eventually the underlying bone being frequently involved.

HISTOLOGY

The microscopic appearance of the tissue removed from tuberculous ulcers of the mouth has been extensively studied by Clark,[2] Hansemann,[3] Coolidge,[4] Auché and Carrière,[5] Morestin,[6] Strandberg,[7] Roussy and Bertrand,[8] and Handfield-Jones.[9] All report the presence of typical tubercles, consisting of giant cells, epithelioid cells and round cell infiltration. In many cases it was possible to demonstrate tubercle bacilli, few in number, usually within the giant cells. Caseation was rarely recorded. Roussy and Bertrand call attention to descending processes of epithelium penetrating between the papillae of the corium more deeply than normal—evidence of an inflammatory reaction.

ORIGIN OF THE LESIONS

Tuberculous ulceration of the mouth is very rarely primary, although the possibility of its occurrence through carious teeth and abrasions and lacerations of the oral mucous membrane should not be overlooked. The ulceration in the mouth undoubtedly is usually secondary to pulmonary tuberculosis, the infection being conveyed by the sputum. It is not likely to occur in an otherwise healthy mouth. The tubercle bacilli are implanted in a region that has previously been the seat of a local inflammatory dental lesion, such as gingivitis or dento-alveolar disease.

DIAGNOSIS

Tuberculous ulceration of the oral mucous membrane is occasionally of diagnostic importance in relation to pulmonary tuberculosis. We have seen at least three cases in which the finding of the ulceration in the mouth was the first intimation to the patient that he was suffering from pulmonary disease. Any chronic or progressive ulceration in this region should therefore be investigated from the standpoint of pulmonary tuberculosis. Handfield-Jones found that one of his four patients with secondary tuberculous ulceration of the tongue was unaware of the lung involvement until the oral lesion was recognized.

Tuberculous ulceration of the oral mucous membrane must be differentiated from simple or traumatic ulcer, syphilitic ulcer and epithelioma. The points to be observed in differentiation are depth, general appearance, the edges, induration, pain, chronicity, general physical findings, sputum examination, serologic reactions, examination of excised tissue, and animal inoculation.

The tuberculous ulcer is usually shallow, presents a granular surface, being covered with small red and yellow elevations, has irregular, sometimes undermined, but not elevated or indurated margins, is generally very painful and tender, and tends to progress gradually.

Traumatic ulcer nearly always has an obvious local cause, such as a rough tooth or the sharp edge of a

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* From the Thomas W. Evans Museum and Dental Institute School of Dentistry, University of Pennsylvania.

* Chairman's address, read before the Section on Stomatology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

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plate, varies in depth and shape, is covered with yellowish or grayish slough, with bright red surrounding area, is slightly indurated and very painful, and tends to improve on removal of the local irritation.

The syphilitic ulcer is deep and punched out, with ragged undermined edges, and with little or no pain and no induration.

Epitheliomatous ulceration is deep, with very irregular raised everted edges and marked induration, and is painful.

The presence of physical signs of pulmonary tuberculosis and tubercle bacilli in the sputum is helpful in the diagnosis, although this would not exclude the coexistence of syphilis or carcinoma. The final diagnosis should rest on the finding of tubercles in tissue excised from the lesion, and the recovery of tubercle bacilli from lesions in guinea-pigs injected with emulsion of the excised tissue.

REPORT OF CASES

Case 1.—W. C., a man, aged 52, white, single, an ironworker, seen Jan. 14, 1914, on account of ulceration in the mouth, had always enjoyed good health. He stated that he had no venereal infection. He had a slight cough and brought up mucus in the morning. He did not think he had lost much weight lately. The present trouble began about six months before as a small sore on the inner side of the right cheek. This gradually spread to the lower lip. Soon afterward, ulceration began on the left side in the region of the upper molar and premolar teeth, which had also been slowly getting larger. He had had very little pain.

Examination showed an extensive and fairly deep ulceration of the inner side of the right cheek, extending on the lower lip. There was also an ulceration on the outer side of the alveolar ridge in the upper left molar and premolar region. The edges of the ulcers were irregular and undermined, but not indurated, and the surface presented a granular appearance, being red, with numerous yellowish dots scattered over it, somewhat like a strawberry. The cervical lymph nodes were not enlarged.

The patient was a pale, rather emaciated man. Chest expansion was poor, with evidence of a quiescent tuberculous lesion at the apex of the right lung. Sputum examination showed tubercle bacilli. The Wassermann reaction was negative.

Under procain anesthesia, a small piece of tissue from the ulcer was excised. It showed many typical tubercles, consisting largely of epithelioid cells, a few giant cells, and round cell infiltration. No tubercle bacilli were found in the sections.

The diagnosis was tuberculous ulceration of the oral mucous membrane, secondary to pulmonary tuberculosis.

Case 2.—W. F., a man, aged 30, white, married, a butler, seen, Oct. 20, 1922, complained of soreness of the mouth. There was nothing of significance in the previous history. He was in good health, as far as he knew. There was no cough, and he was unaware of any loss of weight. Two months before, he noticed that a bridge connected with the upper right teeth was gradually becoming loose, and finally two teeth to which it was attached fell out. The gum in this region became very sore, and bled easily.

Examination showed that the upper right teeth back of the canine were missing. There was a large area of ulceration of the gum in the region of the absent premolar and molar teeth, involving the outer side of the alveolus and passing well over on to the palate, gradually shading off into the normal mucosa toward the median line and back to the soft palate. The ulcerated area had irregular margins, which were not raised or indurated, and had a granular yellow and red surface.

Chest examination by the Henry Phipps Institute showed signs of infiltration without râles in the right upper lobe. The Wassermann test was negative.

Under procain anesthesia, a small piece of tissue from the mouth lesion was excised and studied as follows:

(*a*) Part of the tissue was fixed and hardened in paraffin, and sections were made. Some of the sections were stained to demonstrate acid-fast micro-organisms, but search for these was unsuccessful. Sections stained with hematoxylin and eosin were most suggestive of tuberculosis, showing many giant cells, epithelioid cells and lymphocyte infiltration. No caseation was found. In places there appeared to be proliferation downward of the surface epithelium, in conformity with the observation of Roussy and Bertrand, previously mentioned.

(*b*) Small pieces of tissue were crushed between slides, and the resulting films stained by the Ziehl-Neelson carbolfuchsin method, but prolonged search failed to reveal acid-fast bacteria.

(*c*) A small piece was placed with aseptic precautions in a test tube which had a little sterile sand in the bottom moistened with bouillon. This was thoroughly ground up and a suspension prepared by the addition of about 1.5 c.c. of sterile physiologic sodium chlorid solution. The suspension was injected into the liver of a guinea-pig, as recommended by H. R. Miller.[10] The animal died twenty-six days later, the weight curve of the intervening period showing a characteristic drop. Necropsy was performed immediately after death. The liver and spleen showed typical gross appearances of tuberculous infection. The peritoneum over the liver showed fifteen or twenty small nodules, from 1 to 2 mm. in diameter. Sections from the liver, spleen and peritoneal nodules showed definite miliary tubercles, and, when stained appropriately, many tubercle bacilli were to be seen in these areas.

The patient was given directions concerning proper hygiene, diet and rest. Local treatment has consisted of keeping the parts clean, and application of dichloramin-T about three times a week. Feb. 28, 1923, it became necessary to curet the floor of the maxillary sinus, the bone having become exposed, and extract the three remaining teeth on the right side. The local treatment has been continued up to the present time. The patient has shown progressive gain in weight and improvement in the local condition. There is now very little evidence of trouble on the palatal surface, and the entire local lesion is markedly reduced in size. Complete cure is confidently expected.

Case 3.—C. S., a man, aged 49, white, a doorkeeper, seen Nov. 11, 1922, was referred by his dentist owing to persistent soreness of the mouth in the lower left premolar region after the extraction of teeth. Examination of this region showed an area of ulceration with ragged, nonraised edges and typical granular appearance. The patient stated that he had no cough and enjoyed good health. The only reason for consultation was that his mouth would not heal up and he could not wear artificial teeth. He was emaciated, and other physical findings were practically the same as in the previous cases.

A piece of tissue from the mouth lesion was removed and subjected to the same examinations as in Case 2, with identical results, both histologically and by guinea-pig inoculation. Under hygienic regimen and curetting of the mouth lesion, the latter healed up entirely in two months.

COMMENT

The point we wish particularly to stress in each of these cases is that the patient was quite unaware of the pulmonary condition until recognition of the mouth lesions led to examination of the chest. Though we have several times seen tuberculous ulceration of the oral mucous membrane in cases under treatment for advanced pulmonary tuberculosis, at the same time, lesions of diagnostic importance may appear in the mouth before the pulmonary condition has become of sufficient concern to the patient to lead him to seek advice.

In regard to treatment, we consider the general antituberculosis regimen of primary importance, the particular form of local treatment being a secondary consideration.

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ABSTRACT OF DISCUSSION

DR. THOMAS E. CARMODY, Denver: Lupus is an attenuated form of tuberculosis. I have seen only two patients; both had skin lesions as well as lesions in the mouth. Dr. Ivy speaks of primary tuberculosis. It is a question in my mind whether these cases are ever primary. Dr. Ivy makes quite a point of the cough. The cough is not characteristic. The majority of these patients have no cough. The local lesion of the mouth is latent, and is seen usually when the patient is nearly dead from the pulmonary disease. Dr. Ivy brings out an important point, the possibility of a mixed lesion. I have seen two cases in which it was a question between syphilis and tuberculosis. Both cases proved to be mixed lesions. One point mentioned frequently is that in syphilis there is no pain. That is not true. Many syphilitic patients have a great deal of pain, excruciating pain. Dr. Ivy speaks of these lesions, showing on extraction of the teeth. I have seen that in a number of cases, mostly when the sputum is loaded with tubercle bacilli. These lesions are characteristically "mouse eaten." I have seen two or three cases in which there was a small lesion on the tongue that looked like a blister. Later this breaks down, becoming ulcerated and "mouse eaten" on the edges. When these cases are not too far advanced, the electrocautery is better than anything else. It destroys all of the tissues around the lesion and goes deeply enough so that healing takes place, provided the condition of the tissues is such they will heal. Many of these cases are so far advanced that ordinary care does not avail.

DR. HERBERT A. POTTS, Chicago: I have recently encountered one of the tuberculous infiltrating types. There seem to be two types of tuberculosis. The one of which I speak was perplexing on account of the differential diagnosis between tuberculosis and carcinoma and syphilis. This was a lesion of the tongue extending rather over the under surface and up beyond the border in the anterior half. It presented quite characteristic surfaces but the whole tongue was a solid mass—it felt just exactly like a carcinoma. Speech was interfered with, and after a great deal of study we finally arrived at the diagnosis of tuberculosis. The Wassermann reaction and other examination proving negative, we scraped the surface lightly and washed it off, getting some of the scraping from beneath the surface in order to avoid the presence of tubercle bacilli within the mouth and lying on the surface. Then we made a smear in this substratum, and there tubercle bacilli were found. We did that twice with the same result. Then this finding was confirmed microscopically. I see no reason why these tuberculous lesions of the mucous membrane of the mouth may not be primary—of hematogenous origin. Of course, they probably would be very rare, but it has been shown that bacilli taken into the stomach or intestines are taken into the lacteals, poured into the receptaculum chyli, and out the subclavian vein. The vast majority are due to the presence of open pulmonary tuberculosis. I have not seen tuberculosis of the gums nearly as frequently as of the mucous membrane of the cheek or the tongue. The importance of guinea-pig injection from these lesions should be emphasized.

DR. GORDON B. NEW, Rochester, Minn.: We must guard against depending on microscopic evidence alone for the diagnosis of tuberculosis about the mouth. Syphilis presents microscopically a picture so similar that it is sometimes difficult to make an absolute diagnosis from the microscopic findings. The use of guinea-pig inoculations is the only absolute method of diagnosis.

DR. E. W. HAYES, Monrovia, Calif.: I should like to ask Dr. Ivy what he uses locally in treatment. We can do a good deal by healing the lesion with a view to relieving the patient's mind.

DR. ROBERT H. IVY, Philadelphia: It is almost like carrying coal to Newcastle to speak of tuberculosis in the presence of Dr. Carmody and Dr. Hayes, but I am glad they found something worthy of discussion. I did not mean to lay any particular stress on the question of pain in these cases from the diagnostic standpoint because I know there is pain in syphilis and no pain in tuberculosis, in many cases. Occasionally, however, the question of pain or no pain does have a little weight, and I believe that in the majority of syphilitic ulcerations there is likely to be less pain than in tuberculosis. I did not say much about treatment. I hoped the discussion would bring it out, as it has. In answer to Dr. New's question, I have used local applications of dichloramin-T, at the suggestion of Dr. Hermann Prinz. We keep the parts clean locally and then apply something to satisfy the mind of the patient. At any rate, the application of dichloramin-T seems to have been of benefit. This, with the curetting and the patient's faithful compliance with general antituberculosis measures, seems to bring about the best results.

THE CONTRIBUTION OF ORAL LESIONS TO THE CAUSE OF CANCER*

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In considering cancer of the oral cavity we find presented an opportunity for the observation of lesions in the early stages of malignancy, and during the so-called premalignant stage which is not given when they occur in other parts of the body. The history of the lesion is subject to the observation and notice of the patient long before it is brought to the attention of the surgeon, and the patient can give the history of his case more clearly than usual. Exciting causes of the initial lesion are usually apparent. As in no other part of the body we find here evidence of a chronic irritation stimulation for tissue overgrowth, whether it is a mechanical, chemical or bacteriologic irritation. Most hyperplasias in the oral cavity can be directly observed as coming from a known source of irritation. The leukoplasias, especially the papillary type, and the various excrescences, which persist for a considerable length of time, can be traced to a definite exciting cause. The infective granulomas, which are frequently so malignant in their termination, though not on the surface, are known to have a bacteriologic ancestry.

In the malignancy of the gallbladder, stones are found in about 85 per cent. of the cases; cancer of the cervix seldom appears where there have been no previous lacerations. MacCarty has found, in studying gastric ulcers 2 cm. or more in width, that more than half show carcinomatous areas somewhere in the margin. In this connection, 40 per cent. of the cases of cancer of the stomach give a definite history of ulcer existing for a time prior to the development of the carcinoma. In view of these facts, it is possible that cancers that apparently develop spontaneously may have such a brief transitory period between the initial trauma and the actual malignant growth as to pass unobserved. MacCarty gives the biologic definition of malignancy as occurring only when the communistic organization of cells is destroyed, and the fundamental biologic reaction as (1) hypertrophy, (2) hyperplasia and (3) migration. Trauma brings about a physiologic cell growth commensurate with a repair of the damage done. Continued trauma produces a continued and excessive stimulation that produces central destruction and marginal overgrowth. This extra demand for cell growth and cell division may sooner or later exhaust its controlling agent, and the unphysiologic and unanatomic hypertrophy may develop into the malignant overgrowth. The cancer cell viewed individually resembles the normal tissue cell from which it springs; but, viewed collectively, the communistic organization does not exist, and we have the abnormal, unphysio-

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logic and unanatomic hypertrophy. The loss of the controlling agent for the division of the nuclei may be so complete that this type of growth rapidly continues to grow and to migrate. If this idea is correct, there is a period when the sterilizing influence of one of the radioactive elements might successfully check the progress, by inhibiting the division of the nuclei until a state of benignancy could be reestablished, or by producing a more permanent sterilization of the nuclei. Continued irritation, partial destruction and environment stimulate a continued karyokinesis of the cellular elements of the hypertrophied tissue. The process of normal physiologic repair is interrupted by this condition. MacCarty refers to the biologic condition of exhausted epithelial areas induced by age, chronic traumatism and irritation, and the activating conditions, as environment of acid areas, especially butyric acid. We have long recognized that acid areas, especially certain types, favor unphysiologic cell division and overgrowth, while the alkalinity of the small intestines, especially the upper portion, does not.

From the standpoint of environment, we find that cancer of the duodenum is rare; yet ulcer in the first part of the duodenum occurs probably four times as frequently as ulcer in the stomach. The majority of the gastro-intestinal cancers occur in the stomach. Of those which do occur in the intestinal tract, about 98 per cent. are in the colon. In a series of gastro-enterostomies at the Mayo Clinic, the following figures are available: In 500 cases of gastro-enterostomy for gastric ulcer, 17 per cent. of the patients died within a period of three and one-half years, which is three times greater than the normal death rate; in ninety-nine cases of combined gastric and duodenal ulcer, about the same ultimate mortality occurred; in 1,600 cases of gastro-enterostomy performed for duodenal ulcer observed for three and one-half years following operation, the death rate was no greater than the normal death rate. While the cause of death was not ascertained in the majority of these cases, because the patients were at their homes, nevertheless, the conclusion may be drawn that the development of a subsequent carcinoma was a factor in increasing the mortality of gastric ulcer cases, whereas the duodenal ulcer cases showed no greater death rate than the normal death rate during this period of time.

Referring again to the percentage of gastric cancer giving a definite ulcer history: In 40 per cent. of the cases in this deep seated area, which is not subject to observation and inspection, we can add the evidence that in cancer of the oral cavity a definite history of chronic irritation can be obtained in almost every case. Cancer of the lip will usually give a history of a preexisting fissure, herpes, or the irritation of the chronic smoker. Cancer of the tongue and cheek so frequently give a history of preexisting irritation from teeth or a leukoplakia as to be almost convincing. The prevalence of cancer in the betel-nut users of the Orient is conspicuous. Figures from the District of Columbia show that in deaths from cancer of the lip in women more than 70 years of age, the colored women, many of whom are accustomed to smoking the clay pipe, show a proportion of 1 : 4 over white women who are not subject to this type of chronic irritation. This larger proportion of cancer of the lip in the colored women is conspicuous in face of the fact that cancer is less frequent in the colored race. Couch, in this connection, advances the theory that the irritation comes first from the local anemia of the pressure of the pipe stem, and secondly from the chemical and thermal actions. Brewer has compiled a series of 3,889 cases of cancer of the lips and cheeks. In analyzing these figures, he finds that cancer of the lower lip occurs twelve times as frequently as cancer of the upper lip, and that 95 per cent. of cancer of the lip occur in men who have, heretofore, been smokers.

The chronic inflammatory reaction of the syphilitic leukoplakias and the gumma scars frequently are found to precede cancer proliferation. In a series of 148 cases analyzed by Quick, 35 per cent. of the patients gave a history of syphilis or a positive Wassermann reaction. He assumes that a double lesion can exist and the cancer be overlooked on account of the other evidence. We wonder whether the actual fact would not be that the chronic inflammatory irritation really produces the unphysiologic cellular overgrowth, resulting in the carcinoma. Credence should be given to this belief rather than to the conclusions of Quick, in view of the other evidence of the development of sarcoma from the infective granuloma, and of the development of the epulis from a chronic inflammatory area around the socket of an extracted diseased tooth, as well as the evidence of the cancer proliferation in the margin of gastric ulcers. Continued bacterial irritation and the continued proliferation of the contiguous cellular elements in an effort successfully to heal the irritated area may go beyond the stage of physiologic repair and anatomic reconstruction, and, in the resulting destructive process and loss of a physiologic controlling element, we may have cancer developed directly from bacterial as well as from mechanical irritation.

There is another feature regarding malignant tumors of the oral cavity and the face differing from most of the other areas of the body, the fact that metastasis beyond the lymphatic barrier of the cervical region is not common. This fact has been especially emphasized by Crile. Whether this is due entirely to the effectiveness of the lymphatic barrier or to certain characteristics of malignant tumors of this area cannot be definitely stated. We find that the majority of malignancies of this area have an unusually long premalignant course. We also find in this area not only the ordinary types of slow-growing malignancies, that is, those types which are limited in their growth by fibrous tissue barriers, but also some types of local malignancies not found elsewhere. The so-called rodent ulcer of the epiblastic tissue and the epulis of mesoblastic origin are characteristic of this region of the body. The malignancy of these two processes has been questioned by some of the early pathologists, who class the epulis as a benign tumor. The two types of epulides are especially interesting in the study of the malignancy of tumors. One type arises from the myeloid substance of the bone, and the other from the fibrous elements of the periosteum. They appear following the extraction of a diseased tooth, and are undoubtedly the product of the chronic irritation of this diseased process. Clinically, they are malignant, first, because they persist, and, secondly, because the ordinary removal of such a growth is characterized by its immediate return to a greater extent than the initial lesion. Each superficial removal or cauterization brings about a return with greater rapidity and greater size. The epulis which in its early stage contained microscopically but little of the structures of malignancy will gradually, on each return, become first a large round cell sarcoma, and ultimately a small round cell sarcoma. During these repeated exacerbations, the character of the growth is to spread by continuity of tissue, and it does not metastasize to neighboring glands

until late, if it does at all. On the other hand, if it is removed thoroughly in its early stage, and especially if the base is cauterized, it does not appear again locally or elsewhere.

An analogy exists between the chronic inflammatory reaction of the tissues and the neoplastic reaction. This analogy consists in the proliferation of fibrous tissue and the limitation of a neoplastic invasion, which is measured by the same measure that limits the progress of the chronic inflammatory invasion; namely, the amount of fibrous tissue proliferation. We find in and about the oral cavity an unusual degree of resistance for infection, and it is possible that some similar influences not yet recognized may inhibit the rapid growth of the neoplastic processes.

In a general way we may class all diseases under four headings: (1) infections, (2) traumas, (3) neoplasms, and (4) degeneration. If further investigation and observation will place the exciting cause of neoplastic diseases as an end-result of irritation, either traumatic or bacterial, then we can cut down the number to three instead of four general classes. By many it is accepted now that the essential leukemias are really malignancies of the cells of the blood stream, classing thereby the blood as a tissue in which the cells float freely in the body serum instead of being held together by a fibrous network, thereby placing such diseases in the neoplastic grouping.

SUMMARY

Few cases of malignancies of the oral cavity appear without a history of some preexisting oral lesion of either an inflammatory or a traumatic type. These facts and observations should give some credence to the theory that malignancies of other parts of the body may have some type of traumatic or bacterial irritation to cause an unphysiologic end unanatomic overgrowth of otherwise normal cells, disrupting the communistic organization existing in the local area to such an extent that a malignant tumor supersedes normal processes.

THE TREATMENT OF CANCER OF THE JAW WITH THE ACTUAL CAUTERY *

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During a period of nearly forty years I have had an opportunity of observing and treating a very large number of cases of cancer of the jaw, first as chief assistant of Prof. Charles T. Parkes for three years, and later for four years in the same position with Prof. Nicholas Senn in the enormous surgical clinic these men conducted from 1888 to 1895 at Rush Medical College and the Presbyterian Hospital in this city. Since 1888, I have acted as surgeon-in-chief of Augustana Hospital, and since 1895, of St. Mary's Hospital, and in each of these services many of these cases have come under my observation and treatment—126 operative cases during the period of twenty years from 1901 to 1921.

In 1888, I became greatly interested in the treatment of cancer of the uterus by means of the actual cautery, introduced by Dr. John Byrne of Brooklyn, which Professor Parkes employed regularly in hopeless cases of uterine cancer. To our amazement, a number of these patients, in whom the growth was so far advanced that it seemed they could live but a short time, certainly less than two years, remained well for years without recurrence, some being well at the present time. This fact convinced me that the action of the cautery destroys cancer tissue, or cancer infection, far beyond the tissue actually removed. It seems as though possibly the severe heat applied to the malignant tissue may have produced antibodies, which in turn affected the infectious material which had already been carried beyond the reach of the direct destruction caused by the heat. At any rate, our observations confirmed all of the well known claims of Dr. Byrne. As a result of these observations, I came to use the actual cautery in the treatment of cancer whenever this was possible.

At that time, cancer of the upper jaw was looked on as practically hopeless, and cancer of the lower jaw, though treated by means of a very mutilating operation with extensive excision, resulted in permanent cure in only a very small percentage of cases. One of my earliest patients, whose case had been declared hopeless by some of the most experienced surgeons and by the professor of pathology in one of our best universities, who made the microscopic examination, is alive and well today after a period of nearly thirty-five years, while the professor and all of the surgical colleagues who expressed an opinion have long gone to their reward. In this case, I first applied a plan which I have practiced ever since and which has been followed with success by many surgeons who have visited my clinic.

We burn away tissue until we are certain that we have destroyed all of the diseased portion, and then we burn away as much more as we feel we should have to destroy after the first recurrence, without regard to the deformity or to the plan that we have to employ later on in our reconstruction, or to the trouble our dentist friends will have in providing a proper artificial substitute for what we have destroyed. It is quite remarkable how cleverly they improvise useful and esthetic substitutes for our ruthless destruction of tissue.

By far the most useful instrument which we have employed for carrying out this operation is a small copper soldering iron about 1 cm. square and 2 cm. long, which we heat to red heat in a gas flame such as tinsmiths employ. The heat carried by this metal when red hot is enormous, and reaches some distance beyond the tissue actually destroyed. It seems wise to hold the iron in one place for a minute or longer in order to cook thoroughly the tissues rather than simply to pass it over the surface back and forth, because although the latter process will destroy the cancer tissue on the surface quite as perfectly, the heat cannot penetrate to the same depth. Consequently, if the cautery is not held in one place long enough to cook the tissues thoroughly, there may be small projections of cancer tissue, or slight invasions of cancer infection, which may escape destruction and may serve as foci from which recurrence may have its beginning.

In order to prevent the setting free of cancer infection, we avoid the use of the knife or chisel, even when the growth is extensive or when it invades the bones to a marked extent. In these cases, we first cook the tissues, including the bone, and then cut away the tissue that has been rendered harmless by the application of this tremendous heat. After cutting away all

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of the apparently diseased tissue that had previously been cooked, we invariably apply the red hot soldering iron again in order to make sure that no particle of infected tissue may remain. Every slightest portion of surface is gone over. One cannot be too careful or too thorough. One must especially guard against the very common error at the primary operation of going only a slight distance beyond the growth. Whenever possible, one should burn away the entire growth and 2 cm. of tissue beyond in every direction. In my own experience, several lives have been lost from recurrence in cancer of the upper jaw because I was unwilling to sacrifice the eye in the primary operation; while patients with a similar condition are still alive and free from recurrence after many years, because I avoided this blunder. By employing the methods of reconstruction illustrated by Blair and Galli and others, one can obtain results later on much less repulsive than one would expect after these mutilating operations.

It seems worth while to mention the subject of removal of a portion of the tumor for microscopic examination. I have met a large number of patients who later lost their lives as a result of metastases caused by the removal of a small portion of a malignant growth for microscopic examination previous to the operation. We all know what frightful consequences result from cutting into a melanotic nevus.

In many cases of cancer, the excision of a small portion of the growth for microscopic examination has precisely the same effect. It removes the natural barrier that seems to protect the patient against liberating the cancer infection and permitting the formation of metastases. Unfortunately, in my experience, this form of metastatic infection due to removing a portion for microscopic examination has usually occurred in patients in whom the growth at the time of operation was not at all advanced and in whom the free removal would most certainly have resulted in a permanent cure.

There is, however, a safe method of obtaining a portion for microscopic examination in case the surgeon is too stupid or too inexperienced to recognize a malignant growth in any individual case under consideration. A portion sufficient for microscopic examination may be removed from the tumor with the electric cautery, and the raw surface thoroughly cooked with the soldering iron without fear of dissemination. Before thorough microscopic instruction was universal in medical schools, it was a practice of those who were familiar with the use of the microscope to lay great stress on the importance of microscopic examination before operation, because this gave them a kind of exclusive position, a kind of monopoly on being thoroughly scientific and quite above the common herd of surgeons.

Being intensely interested in microscopic study of tissues, which I taught and practiced daily from 1882 to 1891, I made a practice of comparing the gross and the microscopic diagnosis of malignant growths in my own practice and in the clinics of my chiefs, Professor Parkes and Professor Senn, and for two semesters of Professor Billroth while I was in daily attendance at his clinic. In only one case during the two semesters did the microscope fail to confirm the diagnosis Professor Billroth had made from the gross appearance of the specimen removed, and that was in a case of blastomycosis or granuloma, which had not been described before 1887, when my observations in Billroth's clinic were made. During the years 1888 to 1895, I, myself, prepared and studied microscopic sections from every tumor removed by Professor Parkes and Professor Senn, and here again I found that their diagnosis from the gross appearance was practically always confirmed by the microscope.

Since that time I have, personally, with my staff of assistants, studied microscopic sections of every tumor I have removed, and have frequently compared the diagnosis made by these assistants with the microscopic findings, and have found that the older assistants, who had been in our service a year or longer, almost invariably made the correct diagnosis from the gross appearance of the tissue removed, together with the history of the case. I am convinced that, in case of doubt, the growth should always be removed with the cautery, never with the knife, and the diagnosis confirmed by microscopic examination afterward.

It is quite possible that the same results can be obtained by the use of diathermy, because the tremendous heat developed by this method should theoretically be quite as effective as the heat produced by the soldering iron. Judging from the extensive reports of Clark and others, this seems to have been established in practice, but my personal experience with this method is too limited and too recent to warrant an expression of an opinion.

Our plan of conducting the anesthesia seems to be of sufficient importance to deserve mention, because we have had no cases of postoperative pneumonia since introducing this method. The operation has been very smooth and uninterrupted by mishap or disturbance due to the anesthesia.

The patient is given ¼ grain of morphin and $\frac{1}{150}$ grain of atropin from one hour to one and one-half hours before the anesthesia is begun, and one half of this amount is given half an hour before anesthesia is begun. Then the patient is anesthetized very thoroughly, but very slowly, with ether by the drop method, the patient being in the horizontal position. When the anesthesia is complete, the head of the table is elevated to 45 degrees, and the anesthesia will then be perfect for from one-half to one hour without the use of any further ether, because of the anemia of the brain caused by the elevated position of the head.

This time will suffice to complete the operation. In the meantime, the patient has exhaled a large portion of the ether previously inhaled, and when the head is lowered, the patient awakens almost at once. The total amount of ether required is greatly reduced and by elevating the head of the bed or permitting the patient to sit up in bed with a head rest, all danger from hypostatic pulmonary congestion and pneumonia is eliminated. There is, of course, considerable danger from postoperative hemorrhage in extensive cases, but as all of these cases are absolutely hopeless without operation, or with a more limited operation, it is well worth while to take the additional risk.

The use of the cautery treatment as described above does not preclude the use of radium or the roentgen ray. In fact, for several years we have systematically given these patients intensive roentgen-ray and radium treatment either before or after the operation, and in certain cases both before and after the operation.

In other cases, when it has seemed advisable, we have placed a row of radium needles entirely round the growth before removing the growth with the cautery.

The treatment with radium and the roentgen ray has been under the direction of Dr. Henry Schmidt, who has made a special study of this subject, enabling him to determine the amount and time best suited for the individual case.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. PETTIT AND OCHSNER

DR. HARRY P. RITCHIE, St. Paul: Dr. Ochsner's paper brings up a subject of ever increasing interest to me, fitting in as it does with other work in this location. We have a number of patients that came down to the Community Hospital with enormous neglected malignant growths in this locality, and the question arises whether it is worth while doing anything for them. They often look worse than they really are. The gross appearance is due in many instances to a superimposed inflammatory process. I have established two or three things. The first is, the principle of starvation of this growth, indicating the routine initial ligature of the external carotid artery. Many years ago I think this was discussed, and the starvation of the growth was presented as the primary principle in the treatment. Of course, this was inefficient, because it left the growth in situ. It is easy to tie the external carotid, and the reasons are: (1) It starves the growth; (2) it facilitates the immediate operation, and (3) it minimizes the danger of secondary hemorrhage. The old operation with the keen knife and bone forceps went very well, but we recognize that that is not the proper thing on account of the possibility of grafting malignant tissue on a new surface. I believe that the cautery in some form is necessary. I have a cautery of sufficient current to carry a white hot heat and not cool in the tissue. With this I am often able to excise this tissue with a white hot knife. I think the practice of cooking the growth all right and the only means possible when the growth arises in the antrum, and I do not want to present this as a substitute; but it seems to me that if we can make a surgical excision and minimize the danger of grafting, it is a reasonable proposition. I am not always able to differentiate tumors originating in the antrum from those arising from the process and its tissues. Every effort should be made to do so, but if it should rise in the process then surgical excision is quite possible. I am never quite sure whether the first operation is complete, so I establish this rule, that these cases be gone over again with the cautery knife and iron within two or three weeks. I thought that I would never again use scopolamin or chloroform, but the combination in these gross cases warrants their use. Scopolamin and morphin can be given about two and a half hours before and secure a sufficient inhibition of the sensibilities. The operation can then be carried on for two or three hours by obstetric chloroform anesthesia with a minimum danger. I also believe that these patients should be operated on with the head down and thus lessen the chance of inspiration pneumonia. My present attitude toward radium and the roentgen ray is that these cases are primarily surgical and that all other agents are accessory measures. I do not advocate the use of the white hot knife, but I believe that many cases are amenable to surgical excision by bone forceps and white hot knife, and that such procedure goes wider than any heat penetration.

DR. GEORGE V. I. BROWN, Milwaukee: During the course of a visit to Rochester with Dr. New, it appeared that many cases were coming there just as I have had them come to me that we knew could have been saved if the surgeons who had treated them in the beginning had been imbued with the idea that they could be and should be cured, and with this in view had gone about their work in a definite and thorough manner to obliterate completely all traces of the growth at a sufficiently early time to permit such treatment. Approximately sixteen years ago I first observed the result of Dr. Ochsner's treatment of cancer in the region of the maxillary sinus. This patient had been operated on before he came to me, and I again operated, performing, as I thought, quite an extensive and thorough operation as we looked on such operations at that time; but he returned a few months later with a rapidly progressing growth in the same region. All I seemed to have accomplished was to increase the rapidity of the growth. I then referred the patient to Dr. Ochsner. He burned out the growth with hot soldering irons, as he described in his paper. The growth required burning out a second time a little while later. Fifteen years afterward this man came to my office to consult me about something else, and I believe that he had forgotten that he ever had cancer, that he was near death or that he had undergone what appeared to be one of the most brutal operations I ever saw, but which in reality was the most humane treatment he could have been given for such a growth. I know that Dr. Ochsner has been curing them steadily by this method ever since, but it should be remembered that sixteen years ago not many men would have had the courage to do such an operation as Dr. Ochsner then performed. I have since then had my share of success also, and many of my patients are still living. Dr. New at the Mayo Clinic has had a very large number of these cases, all with about the same history. Some of these patients he could not save, just as I have lost some that could have been saved if they had had proper treatment earlier. It therefore seems as though we might be able to accomplish a useful purpose by spreading the gospel of the idea that these cases can be cured as Dr. Ochsner has described; in many cases, permanently and thoroughly.

DR. J. F. PERCY, Los Angeles: It is significant that the medical literature of the world in the last year and a half has contained a gradually increasing number of references to the cautery heat treatment of cancer. Heat cauterization was the first successful treatment of cancer used by man, and no other method has ever successfully taken its place. It always comes back; it is coming back now for the reason that cancer abhors heat. Dr. Brown spoke of the brutality of Dr. Ochsner's technic, but Dr. Ochsner will tell you that the patient did not suffer from the treatment. Cooked flesh tells no tales. The cautery knife puts an aseptic leather cap on the end of every nerve that it severs, and there is nothing left with which to have pain; consequently no morphin is required. More than this, there is no shock, unless too much blood has been lost, and cautery knife excisions of tissues are usually bloodless. Under spinal anesthesia, I recently did an excision of the hip joint with the cautery knife. The patient was a badly devitalized man, suffering from a suppurating and neglected sarcoma of the femur. I removed all of the muscular structures from that side of the pelvis, except the skin for flaps. The sciatic nerve was severed with the hot knife; indeed, the whole operation was a complete cautery procedure. I saw this man two hours after he had left the surgery, and he was comfortably reclining in his bed, reading a morning paper and smoking a cigaret. He has gone on to an uninterrupted operative recovery. Dr. Ochsner mentioned Dr. John Byrne of Brooklyn. Byrne was the first surgeon to use the cautery knife scientifically. Indeed, he was one of the first, if not the first, who made a successful electric cautery knife. He excised the lesion, usually a cancerous cervix, in a most dexterous manner with his cautery. Then he did what is not done today by those who are triyng to use the cautery—he applied a dome shaped electric heating head to all the structures that remained until they were made like "horn" or of the consistency of leather. In this way he obtained heat penetration, and it is this low degree of heat that has the greatest penetrating power, and therefore is the most effective in the destruction of the abnormal cell. This is the essential thing in the Byrne technic, which is missed by many surgeons. This effective penetration of the heat accounts for his 60 per cent. of uterine carcinomas in which he reported the patients as living over the five year period. That he actually obtained these results in his cases of uterine cancer has never been questioned.

DR. HENRY SCHMITZ, Chicago: Radium and roentgen-ray treatment in cancer of the jaws should never constitute the sole treatment but be regarded an aid to surgery. Radium has a local intensive effect and therefore should be evenly distributed throughout the tumor mass and its periphery by the use of steel needles or emanation seeds. Roentgen rays are rather extremely diffused and therefore may be applied to large areas; for instance, the glands of the neck and submaxillary regions. The modern 200 kilovolt roentgen ray, heavily filtered, should not be used in jaw cancers, but preferably the 120 to 140 kilovolt roentgen ray filtered with 0.25 or 0.5 mm. of copper. The latter method insures greater absorption of the rays which, of course, is essential for success. We also should avoid the destruction by rays of important secretory glands, such as the parotid and the sub-

maxillary. We should save at least one of each pair. If we do not do so, the patient will evince a wasting away leading to death, though the carcinoma may have been destroyed.

DR. CARL BECK, Chicago: We know that leukoplakia, and all mouth infections especially, are leading to the development of carcinoma; they must be looked after as early as possible. One of the most important things is the education of the public along these lines. Much interest is being awakened by the Society for the Prevention of Carcinoma in going abroad and teaching the people how they should take care of the mouth cavity. I am much interested in Dr. Ochsner's theories of carcinoma. There is great possibility that within the near future somebody will find the cause of carcinoma. Work is being done all over the United States and Europe. Something will come out sooner or later. I hope we shall have the great glory that it will be an American, and we ought to further in every way and encourage the study of these scientific workers.

DR. THOMAS E. CARMODY, Denver: One point that means a lot is the lightning swiftness of carcinoma action. I had a case some years ago in which I know I implanted carcinoma from the teeth into the jaw. That happens frequently without the cautery. In these cases of the maxillary sinus we have something different than in other places, because of the opportunity of increasing it in the nose. The complete cooking Dr. Percy spoke of necessarily destroys some tissue that we should like to save, sometimes destroying the eye on the infected side, as happened in one of my cases. Dr. New reports that this happens only when the orbital plate is involved, although in this case the orbital plate was not involved. The method I use is similar to that of Dr. New, except that he does not use the Percy cautery, but uses the soldering iron. I fill it with radium in the case in which there is any other complication, and especially when the palate is involved. Dr. Percy made another point that I think is important, and that is holding the iron in one place so as completely to cook and drive off all the moisture because, if we do not do that we do not destroy it. There is one point, though, that troubled me a great deal, and that is that possibly I do not use the technic correctly in cases of cancer of the lower jaw.

DR. H. M. GREENE, Portland, Ore.: These discussions have laid stress on taking care of cancer in an effectual way after it has arrived. While this is extremely important and essential, I think we, as physicians, owe it to our patients to try to discover chronic irritants and infections, syphilis being a frequent one, and endeavor to remove them or treat them before the cancer begins, since they appear to be etiologic factors in its production.

DR. A. C. SELLERY, Long Beach, Calif.: I was glad to hear Dr. Schmitz say that radium and the roentgen ray should not be used primarily in these cases. I have seen two cases in which necrosis of the jaw was produced with entire destruction of the jaw bone in the neighborhood where the radium was used. I believe that it is unwise and unsafe to use radium in the neighborhood of bone. I believe that the use of the cautery in attacking cancer is leading to the only satisfactory work that ever has been done, and I believe that Dr. Percy's technic is not sufficiently or satisfactorily appreciated. His work has been a revelation to me.

DR. GORDON B. NEW, Rochester, Minn.: I have been particularly interested in the treatment of malignancies of the upper jaw and antrum, and have been using a cautery and radium with very satisfactory results. I use a water cooled retractor to protect the lips and tongue. The growth is attacked either above the alveolar process or through the palate, and soldering irons are used at slow heat to remove the growth. In THE JOURNAL, May 8, 1920, I reported the treatment of eighteen cases of malignant tumors of the antrum by this method. About 50 per cent. of those patients are still well. In the sarcoma group, radium alone is about all that is necessary, while in the epithelioma group thorough cauterization is the important thing. I believe that radium has done more to increase the mortality in cancer about the nose, throat and mouth, owing to the fact that it is being used in conditions in which it is not indicated, and radium is being used by persons without special training. Thickened leukoplakias and so-called precancerous conditions about the mouth are being treated with radium, which sometimes heals over the surface, and then the growth recurs as an active squamous cell epithelioma. Radium is a very important adjunct in the treatment of malignancies, but the selection of cases for its use alone and its use along with surgery is very important.

DR. JOSEPH A. PETTIT, Portland, Ore.: Unquestionably we all agree that heat in some form or other is a logical means of inhibiting malignant growth. In fact, heat is the first therapeutic agent mentioned in early literature; it is mentioned in the Old Testament for the cure of certain morbid conditions. The question may well be asked, what is heat? Is it not true that heat, radium and the roentgen ray present modified forms of radioactivity? Heat unquestionably destroys malignancy. It penetrates into the normal tissue, but it has been proved that normal tissue cells stand more heat than malignant cells; that is, the normal tissue cells will recuperate or recover. What does heat do, and what is heat? These are the things we still have to consider from the point of view of the practical results obtained by their use. To my mind it has always appeared that heat, the roentgen ray and radium come in a general way in the same classification. It is stated that the roentgen ray acts on the whole cell, while radium has a selective action for the nucleus and not so much on the protoplasm. We realize that the nucleus is the basis of cell division and growth. The perfection of roentgen-ray technic so that bigger doses and volume of the ray can be given with safety should materially aid in the follow-up treatment of malignancy. The work of Byrnes went unrecognized and unappreciated for many years. Dr. Percy, I think, has done a great work for humanity in the way he has put the cautery on the surgical map, and we find as we look back over the years that Dr. Ochsner and others have been making practical but undemonstrative use of the same principle, that Dr. Percy's claims are logical. Dr. Ochsner follows up the cautery excision by radium and by the roentgen ray, and I think that Dr. Schmitz' comment regarding the action of the two is quite correct.

DR. ALBERT J. OCHSNER, Chicago: There is a difference between the heat that normal tissue and that carcinoma will stand. If a piece of cancer tissue is heated up to 160 F., it will not grow if transplanted. A piece not so treated will result in a cancer transplant. Dr. Brown's statement that the incomplete operation increases the growth is very true. I have seen a malignant growth in the jaw that did not amount to much grow like wild fire after partial removal. Therefore, the operation must be done thoroughly in order not to do harm to the patient. Dr. Percy's insistence that penetration must be deep is of the greatest importance. That is the reason why he applies the heat as he does. The tissues must be heated long enough so that either the cancer or the infection, whichever may be the cause of the growth, is killed. I believe that Dr. Schmitz' insistence on the fact that the roentgen ray or radium must be used as an aid and not as a primary treatment should be borne in mind and emphasized thoroughly because as an aid it certainly has tremendous value. I believe that every one who has had much experience with cancer of the mouth will confirm the fact that the mucous patch is potential cancer. In fact, in my own experience in smokers who had leukoplakia and have continued to smoke I have seen almost invariably that cancer has developed. Concerning the cause of cancer, Dr. John Nuzum has been working for seven years with a filtrable micrococcus, which he finds in human cancer, which he can inoculate and which will produce cancer in mice and dogs in a certain number of cases. He is still at work, and will probably have to take a number of years before he can get all of the elements worked out so that the proof will be satisfactory; but I think he is on the right track. Dr. Carmody's reference to the pain in the lower jaw can be explained by an incomplete destruction with the cautery of the inferior dental nerve. I have many times removed an entire upper jaw with the cautery and the patient was perfectly happy and wanted something to eat within a few hours afterward. The cautery stops the pain. There is no other method of doing the opera-

tion with so little pain. Prophylaxis is of the greatest importance. That is where the dentists do their greatest work. I have not seen a single case of cancer in the mouth in which there has not been irritation from causes that could have been relieved had they received early attention, and in every case there has been infection in connection with this irritation. The idea of infection, I believe, is illustrated more clearly in cancer of the mouth than in cancer in any other part of the body. There is an open and an unclean surface. Dr. Nuzum's coccus is found frequently in unclean things, and as a result of this these open surfaces are constantly infected. There is one observation he has made which seems especially significant. He has to reinfect tissues with the same micrococcus over and over again to produce cancer in animals, and I believe that in the mouth we have first irritation and then infection and, as a result of continued repetition of these conditions, cancer develops.

VALUE OF SELECTIVE VOLUNTARY EXERCISE

IN RESTORING CERTAIN DISEASED OR TRAUMATIC JOINTS *

HALBERT W. CHAPPEL, A.M., M.D.
LOS ANGELES

The partial or complete loss of function following infectious arthritis is due to changes in the structure of the synovial membrane, the cartilage and the bones; to periarticular changes, or to changes in the muscles that control the movements of the joints; to any two, and not infrequently to all three.

The synovial membrane is usually thickened, and it is not uncommon to find large fringes and villi. The cartilage which is softened during the acute stage is thinned and occasionally entirely absorbed. In the long standing cases, the ends of the bones have become smooth and very hard, with an accompanying atrophy of their shaft. At the margins of the joints, bone proliferation forms irregular nodules, varying in size from that of a pin head to a triangular mass nearly an inch in length.

The periarticular tissues show infiltration and swelling, so that the enlargement about the joint is more often due to that than to bony changes. Sometimes an acute bursitis, or one that has become chronic with the deposition of lime salts, is the only obstruction to function subsequent to an infectious arthritis.

Of the extensive secondary changes, those of the muscles and nerves are the only ones that will be considered at this time. Muscular atrophy is common and may appear with great rapidity. Contractures may follow, and not infrequently the joint becomes fixed in a position of flexion. Neuritis and trophic disturbances may be a troublesome sequel.

A joint near an area of chronic osteomyelitis has partial or complete loss of function, because of an accompanying inflammation, acute or chronic, in the articular and periarticular tissues, and the frequent necessity for prolonged complete immobilization. Adhesions thus formed becoming thoroughly organized before mobilization is permitted, and marked muscular atrophy, although there are no apparent changes in the joint structure, frequently present a troublesome problem.

Following sprains, strains, simple and compound fractures near or into the joint, dislocation, or rupture of periarticular tissues, there are varying degrees of stiffness. This limitation of motion is due to an inflammatory reaction about the joint, with apparently no injury to the bones or cartilage. Strong bands of fibrous tissue were allowed to form in the lacerated tissue as the result of the effusion of blood and serum, or by prolonging rest until the obstructive bands matured, or by adding injury, by too early passive movement, to the existing active state of repair.

Passive motion is contraindicated in restoring function to the foregoing types of inflammatory stiffened joints. Either disease or injury destroyed the joint motion, and no effort should be made to restore this motion until the disease or mechanical obstruction has been completely overcome.

Gillette once said that "Nature's 'first aid' to the injured or inflamed joint is neuromuscular spasm." It is not only the joint's first aid, but its constant protection until a complete painless range of motion has been restored; and its presence is the chief contraindication to passive motion. Normal muscle is contracted or relaxed by volition, and these are two opposite physiologic states, so that no muscle can be in a state of physiologic contraction at the same time that it is physiologically relaxed, as the voluntary stimulus which causes contraction of one group of muscles also causes relaxation of its opponent. The action of the latter should be thoroughly understood before the former is treated. Then the antagonist can be taught not only to relax but to limit its action, thus leaving the weakened muscle free to act as soon as it has power to do so; and this power cannot be regained as long as the muscle is subjected to a strain or is in any way deprived of its full opportunity for movement.

Therefore, it is by a proper combination of rest and muscle action that a joint recovers its normal range of motion. Rest for the elongated muscle means stretching for its contracted opponent. As definite structural changes have taken place in both muscles, the lengthening of the contracted muscle should be simultaneous with the shortening of its stretched opponent, so that there will be a restoration of normal tone of the opposing groups, when the affected muscles have completely recovered.

As the joint exists for the muscle, the only way in which its motion should be obtained is through a neuromuscular mechanism which controls voluntary movements, so that the one thing essential to recovery is voluntary effort on the part of the patient. It is of utmost importance to impress on him clearly the fact that his recovery depends entirely on his own persistent and accurate effort. As purely voluntary movements rarely allow a range sufficient to cause pain, the patient may repeat the attempted movements immediately and at frequent intervals during the day.

It is not a greater range of motion attempted passively that causes pain and a more limited movement, but the neuromuscular spasm that results from any effort to handle the joint beyond a very limited range. The patient apparently has no control over this spasm. I have repeatedly, gently and slowly as possible, attempted to increase slightly the range of motion of different joints. Each time, after meeting strong resistance at several degrees less than the patient had just voluntarily moved the joint, I discontinued my

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efforts, and the patient at once continued the movement easily and painlessly to its limit. Much damage could have been done had the effort continued even to the range of voluntary movement.

Actively flexing and extending up to the point of pain not only allows the inflammation of the joint to subside but gradually restores complete function, while passive motion combats Nature's healing and proportionally lessens activity.

It is well known that variations in temperature affect both the extent and the variation of muscular contraction. As the temperature of a muscle is raised, a given stimulus causes proportionally greater contractions, so that maximum activity may finally be obtained without increasing the effort. There is also an increase in the amount of blood in the heated muscles and a corresponding change in the rate of blood flow. Therefore the application of heat, followed by massage, which greatly accelerates the flow of blood through an extremity, should precede the voluntary use of the muscles.

As there is in many cases practically an entire forgetfulness of the coordinating path and muscle and joint sense, it becomes necessary to begin with the slightest voluntary movement, and reeducate all muscles controlling the disabled joint. Should there be a tendency to spasm or deformity, splinting must be continued at night and for many hours during the day.

Encouragement is the greatest stimulant to maximum effort in restoring function to a diseased or traumatic joint. This may best be obtained by appliances that accurately record every movement, which is then graphically charted and kept under constant observation by the patient. No other stimulus causes so powerful a reaction as that of persuading the patient that he could at least make as great an improvement as he did the preceding day. Failure to record progress a number of times in succession is strong evidence that a change in treatment is necessary.

Care should be taken to select competitive and graduated exercises for each case, as no two joints require the same movements. Frequently two, rarely three joints, of the same extremity have been damaged, presenting a more troublesome problem. An elbow or a shoulder is very dependent on the normal use of the hand and wrist. Strong flexion and extension of the fingers, together with pronation and supination of the hand, are very necessary to manipulate apparatus for exercising the elbow or shoulder.

A soft rubber ball, about the size of a baseball, allows freedom of motion and moderate resistance to the weakened flexors, and through its elasticity an aid to the extensors. This may be used frequently during the day; and, alternated with a piece of apparatus, not only gives opportunity for exercise, but also measures the length of movement so that any improvement may be accurately noted by the patient. This apparatus has steps for the fingers to climb when extension is desired and to descend when flexion is limited. The palm of the hand remains on the base of the apparatus near the first step. It also contains six pegs in a straight line a short distance below the steps and one peg by the side of the steps, which contains six small rings. When flexion has progressed sufficiently, each ring is grasped and placed over one of the pegs, and then all are returned to the one peg. The thumb, with each finger, is finally used for this exercise.

The hand dynamometer has proved very useful in determining the increase in the power of flexion.

As a variety of exercises is necessary not only to continue muscular development but also to keep up the interest, hammering tacks, then nails and finally putting screws into and out of soft wood accurately registers both the increase in speed and the returning power to the disabled muscles.

A correct record of the return of extension and flexion of the wrist, also of radial and ulnar flexion of the hand, may be obtained by the following apparatus: A board supporting the forearm and extending to just below the tip of the fingers, broadened at the lower end to include a normal range of flexion and extension, contains a cuff holding the forearm securely to it and allowing freedom at the wrist joint. An indicator fastened to a finger will record any improvement on the dynamograph at the lower end of the apparatus. This is arranged so that gravity may be eliminated, if desired.

When the elbow has partially or completely lost its function, the patient rapidly learns to substitute shoulder movements, which compensate largely for the disability. It then becomes exceedingly difficult for him to concentrate on purely elbow movements, especially those of flexion. When the power of contraction of the fingers and pronation and supination of the forearm alone has been regained, the saw is a very valuable aid to flexion and extension. Holding the elbows tight against the side of the body, hands in supination, the wand with the aid of the normal elbow affords an excellent means for flexing and extending, and later light dumb-bells, the two kept as closely together during the movement as is possible, have proved of great value, especially as each movement may be accurately recorded and greater efforts for improvement stimulated.

Two semicircular pieces of metal, 9 inches long, broader and deeper as they approach the elbow, riveted together so as to allow easy movement and to one side of which is attached a dynamograph on which every degree of motion from 0 to 180 degrees is registered, may be used so that the patient can observe the record of each movement, thus stimulating the desire to improve at least one degree each day.

Such occupational work as sewing on object cards, weaving baskets, and rope splicing with the elbow held tightly to the side are excellent means of obtaining a return of all the desired movements at the elbow joint.

A finger ladder with spacings 1 cm. apart, and progressive numbers on each space, affords an excellent opportunity for abduction and flexion of the shoulder. Although working against gravity, the fingers are a great aid to the weakened shoulder muscles. When the hand can be raised above the level of the shoulder, the use of the stall bar affords an excellent opportunity for stretching, and also of recording progress. The horizontal ladder, horizontal bar and the rings afford a very good opportunity for stretching adhesions not only around the shoulder, but any that are preventing extension at the elbow.

Of the usual exercises employed for strengthening a mechanically weak foot, the use of marbles, a soft rubber ball, and a double incline, made at an angle of about 45 degrees, usually produces rapid results. Because of the excellent use of the hip joint, it is

frequently difficult to obtain flexion and extension of a partially or completely disabled knee joint.

The following apparatus has given most pleasing results in a number of stubborn cases: A pendulum about 3 feet long with adjustable weights, to which is attached a foot piece, with a joint to be used if desired, providing a tread motion, may be adjusted to aid flexion and extension at first, and later to resist the movements as the muscles regain their power. This also provides a flexion and extension exercise for the ankle and hip. A similar result may be obtained by a stationary or movable bicycle or tricycle. The stall bars with the feet one or two rungs below the hands provide another means of obtaining similar motions. A rubber sling, suspended from the shoulders and fastened to the shoe, gives a nonweight bearing extremity a chance to increase not only the power, but also the range of any joints of the lower extremity, and is especially good for that of the knee. Stepping over the rungs of the horizontal ladder a few inches from the floor, but the height of which can be increased with improvement, compels flexion and extension frequently when other means have failed to give further improvement.

Competitive games, the punching bag, chest weights, and medicine ball provide new and interesting ways of continuing the desired movements, when interest is beginning to be lost in the more formal exercises.

There are many other types of apparatus and kinds of exercises not mentioned here that would accomplish the same results. Those enumerated have been chosen because a duplicate of the apparatus may be easily obtained by the patient, allowing an exact reproduction of the exercises at home which have been so carefully given in the gymnasium of the physiotherapy department.

Selective voluntary exercise, when chosen as the method for restoring certain diseased or traumatic joints, not only gives the improvement that could not otherwise be obtained, but also prevents the disastrous results that so frequently follow any forcible attempt to regain function.

ABSTRACT OF DISCUSSION

DR. ARTHUR L. FISHER, San Francisco: I want to emphasize most of the points brought out, and particularly the retardation that can be done by the indiscriminate use of passive motion. If one is trying to increase range of motion in a posttraumatic or inflammatory joint, one cannot do it with passive motion. The use of voluntary exercise is a valuable adjunct in the treatment of all of these joints. I am not an advocate of physiotherapy as it is at present carried out. It is quack medicine. I say it advisedly, after a good deal of thought, because there is little or no experimental and scientific basis for it. We don't know what an electric current will do in the animal or human tissue, what heat rays do, or whether massage increases the amount of blood in a part. It does increase the amount of blood superficially in the skin, but is there a reciprocal relation between the muscle and the skin, much as there is between the splanchnic area and the skin. Weir Mitchell, in some of his original contributions, cites cases or types of cases in which he states that the blood count is increased following massage; but if his counts are examined before and after massage, it will be seen that there is practically no difference between them. The whole subject of physiotherapy as carried out is on an empiric basis. It is something that is being used while the patient gets well, but we don't know whether the patient recovers any more quickly or more slowly on account of it. My own impression is that many will recover a great deal more slowly. They like the treatments, and they take to them readily, but I think many things—particularly passive motion, as Dr. Chappel has pointed out—retard rather than aid.

DR. CHARLES LEROY LOWMAN, Los Angeles: I was glad that Dr. Chappel gave the sequence of events in the handling of the joint, in that he gave the heat followed by massage, and then active exercise. It is an unfortunate circumstance that various therapeutic lights and other kinds of heating apparatus are recommended to the general practitioner, with statements that the orthopedic men and others use them for treating painful joints of various kinds. The general practitioner ordinarily does not know much about the physiology of the injured joint. The danger lies in the fact that the patient feels better from the application of heat to the joint, because he gets a neural reaction from it. But the application of heat dilates the blood vessels, brings the blood into the part, and results in the congestion and swelling of the linings. It is just as bad to produce a physiologic congestion as a pathologic one. We are doing the same thing as congestion of trauma does. Heat should not be applied to a joint unless it is followed by massage or by a splint and then active exercise. The active exercise should not come immediately after the heat.

DR. EDGAR L. GILCHRIST, San Francisco: I agree with many things that Dr. Fisher said; however, I believe he is swinging the pendulum too far to the other side. Doubtless physiotherapy has been overdone. There is probably nothing in this world that we take up anew or revive that, in the first wave of enthusiasm, is not overdone. This, though regrettable, is only human. Physiotherapy has been sadly neglected for many years. The war revived it, and many enthusiasts have expected to accomplish too much with it and have frequently used it when it was not indicated. That physiotherapy is valuable when intelligently directed there can be no doubt. I think that often we give our treatments too frequently; that is, daily, when it would perhaps be better to give them every other day. In the treatment of joints we should be on the alert to observe any rebellious reaction that may be produced and immediately stop all physiotherapy until the reaction has subsided, which will usually require about four or five days.

DR. H. W. CHAPPEL, Los Angeles: Dr. Landnecker of San Francisco uses the photographic method for checking the progress of all his cases. When we are dealing with an extremely difficult joint, if we take a photograph before we begin, others at various times during the treatment, and finish up with a photograph, there will be an accurate record of any improvement that has been made.

The Teaching of Mountebankery. — At Davenport, Iowa, there is a school which has become the most gigantic institution in the world for the teaching of mountebankery and which commands attention as one of the most pretentious pieces of fakery we have ever witnessed. It gives men with no education a pseudo-medical veneer which enables them to plunder the sick; it teaches them to despise the serious works of our greatest masters, to rely upon the appalling ignorance of our masses, to use every means of salesmanship in order to reach them; to spread a venomous propaganda against the medical profession; this school boasts of the "prettiest printery in America," of a powerful radiophone which broadcasts lectures on chiropractic "education" every afternoon, and of an organization utilizing every political means to gain legal recognition of their sect in the various states of the country. . . . Day and night under the very eyes of the medical profession, laws are being enacted which allow these charlatans to practice medicine on a level with physicians, to treat all kinds of diseases, including contagious ones, to sign death certificates, and there are laws which permit licensing boards to examine the applicants. There are now 5,000 chiropractors in the field and Palmer says, "I look to see the time when this institution will graduate 25,000 students a year."—Thewlis, M. W., *J. Indiana M. A.* **16**:282 (Sept.) 1923.

THE MORE PRACTICAL FUNCTIONAL TESTS OF THE LIVER*

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The liver is an organ of the greatest importance in the body economy. This is readily seen from its considerable size (being the largest gland in the organism) and also from the fact that the entire amount of blood leaving the digestive apparatus has first to go through this organ (portal vein). It supervises all the material entering the blood stream through the digestive tract, and regulates the amounts of the various substances necessary for the maintenance of well being. Too great quantities are not permitted to enter the circulation at once. Thus, for instance, sugar is held back in the liver and stored up as glycogen. Fats, if taken in liberal amounts, are kept back in the liver until such a time as there is a demand for this substance in the blood. Proteins, likewise, are partly retained and partly worked up into amino-acids and urea. The liver also has the faculty of rendering harmless a great many poisonous substances. Another function of the liver is to take care of the red blood corpuscles which have become unfit for service and to work up the material contained in them for the service of the body.

The bile, which contains all the secretions and excretions of the liver, consists principally of biliary acids, bile pigment (bilirubin, originally derived from the hemoglobin pigment of the red blood corpuscles, the iron being separated from the pigment and deposited in the liver), cholesterin and some other substances.

The functions of an organ are frequently studied from the products of its work, usually its secretions; in pathologic conditions of the stomach, the gastric juice is minutely examined; in diseases of the kidney, the urine is subjected to analysis. Up to within recent years, the bile was not accessible for study in a direct way; only remnants of this important excretion could be investigated in the feces. The bile, as such, does not appear in the stool, for it undergoes reabsorption in the intestinal tract, and only a small portion of the biliary pigments and urobilin appear in the feces. Since, however, the duodenal tube has come into practical use, pure bile can be easily obtained and examined in its natural state.

The functions of the liver being so manifold, it is quite natural that a great many tests will have to be employed in order thoroughly to examine the work of this organ. The general activity of the liver can be demonstrated by the color reaction which is produced by the liver in the bile after the entrance of various substances into its circulation. For this purpose, peptone, glucose and olive oil (representatives of the three main food groups), and magnesium sulphate, as the representative of salt, can be employed. These may be given through the duodenum, which is the most direct route, or through other channels. After the lapse of a few minutes, all produce a darker colored bile in normal persons. If this reaction is absent, it indicates some disturbance in the efficiency of the liver with regard to the special substances employed. Thus, in gallbladder disturbances and also in severe diseases of the liver—in cancer or advanced cirrhosis—the color reaction is frequently absent after most of the foregoing substances.

The permeability of the liver can be studied by the method devised by Abel and Rowntree[1] and later on improved by Aaron, Beck and Schneider,[2] by injecting tetrachlorphenolphthalein. This substance has the disadvantage that it has to be given intravenously, a method of procedure not so easily employed in general practice. The administration of indigocarmin, which can be given intramuscularly, is by far the better method. Hatiéganu[3] has written an extensive article on the value of indigocarmin for testing the permeability of the liver. Laporte and I have made a number of investigations with this substance, and agree with Hatiéganu in most points. We gave 10 c.c. of a 1 per cent. solution of indigocarmin intramuscularly. It is understood that the solution must be sterile and administered under the most rigid aseptic precautions. While in normal persons the indigocarmin appears in the bile within from twenty-five to thirty minutes after injection, in cases of jaundice (catarrhal jaundice or obstructive jaundice due to stone) the indigocarmin fails to be excreted by the liver; it is then absent from the bile and is found only in the urine. In jaundice due to malignant disease (cancer of the liver) the indigocarmin may appear in the bile, although at a later period. In one case of diabetes we have observed a delayed appearance of the indigocarmin, it then being eliminated in a very concentrated state.

The faculty of the liver of utilizing the biliary pigment, when the latter in returning from the intestine by the portal system, has reached the former organ, is best ascertained by testing the urine for urobilinogen. In normal persons the liver intercepts the pigments, and no urobilinogen or urobilin appears in the urine. When it is present it indicates that the liver does not fulfil its duty completely. In reality, this substance, urobilinogen, is frequently discovered in the urine in many disturbances of the liver. The best test for urobilinogen is performed by Ehrlich's dimethylamidobenzaldehyd reaction. This reagent consists of 2 gm. of *p*-dimethylamidobenzaldehyd, 5 gm. of concentrated hydrochloric acid, and 50 gm. of distilled water. These substances are thoroughly triturated, mixed and filtered. To carry out the reaction, a few drops of the reagent, say about half a dram, is added to a small quantity of urine in a test tube. The presence of urobilinogen is indicated by a bright red. If no trace of red appears, it means that there is no urobilinogen present. Urobilin, however, may still exist, for it has no influence on the color with this reagent.

To prove the presence of urobilin, which likewise is a product derived from the biliary pigment, from 2 to 5 drops of a 10 per cent. zinc chlorid solution is added to a few cubic centimeters of urine; then just enough ammonia to dissolve the precipitated zinc oxid is added. The mixture is filtered and the filtrate examined, being held against a dark backkground, in the light. The presence of urobilin provokes a greenish fluorescence.

The albumose-storing power of the liver has recently been examined by Widal's[4] "crise hémoclasique." Widal's test is based on the well known fact that after

* Read before the Section on Gastro-Enterology and Proetology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Abel and Rowntree: Pharmacol. & Exper. Therap., 1910, p. 231.
2. Aaron, A. H.; Beck, E. C., and Schneider, H. C.: The Phenoltetrachlorphthalein Test for Liver Function, J. A. M. A. **77**: 1631 (Nov. 19) 1921.
3. Hatiéganu: Ann. de méd., November, 1921.
4. Widal, F.; Abrami, P., and Iancovesco, N.: L'épreuve de l'hémoclasie digestive dans l'étude de l'insuffisance hépatique, Presse méd. **28**: 893 (Dec. 11) 1920.

the ingestion of food there is usually an increase of leukocytes present in the blood. Widal found that after milk has been given to patients affected with liver trouble, the usual leukocytosis does not occur, a decrease in the number of leukocytes usually being found in these instances. He explained this phenomenon by an overflooding of the circulation by albumose, which the liver was not able to store up and which in this way produces an anaphylactic shock.

Practically, the test is done in the following way: A blood count is done in the fasting condition of the patient; then he is given 200 c.c. of milk and the blood is examined every twenty or thirty minutes, for a period of an hour and a half. According to Widal, in diseases of the liver a decrease in the number of the white blood corpuscles is noticed within the first half hour to an hour of the ingestion of the milk. This test has been widely utilized by many clinicians, with varying results, some agreeing with Widal and others disagreeing entirely. Dr. Laporte and I have made a number of examinations with this test in severe diseases of the liver, and have not been satisfied with the results in helping to discover an insufficient action of the liver. In most of the cases of severe lesions of the liver there was a distinct digestive leukocytosis present, as in normal persons. While Widal's test should be further investigated, it does not at present appear to us that it will prove of much assistance.

The storing faculty of the liver for sugars and fats is best investigated by the sugar tolerance tests and by the lipase content of the blood. The sugar tolerance test can be performed, according to H. Strauss, by giving 100 gm. of levulose in 500 c.c. of water in the fasting condition. The urine is collected for four hours, and examined for the appearance of levulose by Seliwanoff's reaction, which is done as follows: To 10 c.c. of urine, a few resorcin crystals and 2 c.c. of dilute hydrochloric acid are added. Then it is heated gently over a flame. The presence of levulose produces a red color. Normally, no levulose should appear in the urine under these conditions, but in disturbances of the liver it is frequently present. The sugar tolerance test is still better performed by the administration of 40 gm. of galactose, according to the suggestion of Bauer. Galactose is a chemical substance obtained from lactose and glucose—lactoglucose. The chemical formula of lactose is $C_{12}H_{22}O_{11} + H_2O$; galactose, lactoglucose, $C_6H_{12}O_6$. Bauer gives 40 gm. of galactose in water in the fasting condition of the patient, and collects the urine for four hours. Normally, about 4 gm. of galactose appears in the urine, while in liver disturbances a much larger quantity of the galactose is discovered.

The presence of galactose can be elicited by Nylander's test, or by the usual Fehling or Benedict test for sugar. In patients who are under duodenal feeding or in whom the duodenal tube has been introduced for other purposes, I have found that the sugar tolerance may be tested sufficiently by giving 40 c.c. of a 25 per cent. galactose solution introduced through the duodenum, and the urine collected for two hours. Normally, only a trace of sugar appears within one half to one hour after the instillation of the solution, while, in disturbances of the liver, larger quantities are eliminated.

The fat-storing ability of the liver may be tested, according to Whipple,[5] by examining the blood for its lipase content. Whipple found that in impaired livers the lipase is gradually increased to almost eight times as much as normal.

While all these functional tests give us hints as to the workings of the liver or its failure to work, it is self-understood that these alone will never enable us to make a diagnosis of any special disease of this organ. This, however, does not apply to the liver alone but to all functional tests of any organ. In health and disease it is always important to look into the finer workings of the machinery, and with the aid of other symptoms this helps us to recognize a variety of diseases more easily and also to treat the individual more efficiently.

5. Whipple: Bull. Johns Hopkins Hosp., 1913, p. 357.

ABSTRACT OF DISCUSSION

Dr. W. F. Cheney, San Francisco: We all recognize the great desirability of practical tests in regard to the functions of the liver. Dr. Einhorn's tests have been known for some time, and yet they are not in general use. They must therefore have some difficulty about them. Of the difficulties that beset functional tests of the liver, the first has always been that the bile is not easily available for tests. The second difficulty is that the intricate methods described are difficult because other forms and other tissues participate in the functions involved, and we cannot be sure of our results in regard to their relation to the liver. Thirdly, there may be damage to the liver without any ascertainable loss in its function. Finally, there is the great uncertainty about the interpretation of these tests. Obtaining of bile by means of the duodenal tube entails great discomfort to the patient and loss of time to the physician. It has never been proved that it is justifiable, because of the uncertainty about the results. Chemical, biologic and bacteriologic tests consume much time, which, in my experience, is a loss. The second great function of the liver relates to excretion. Dr. Einhorn speaks of a test long in use, only to discard it—the phenoltetrachlorphthalein test. Dr. Einhorn seems to criticize the injection of this dye intravenously, which, to my mind, is a very simple procedure, involving much less discomfort than the tube. He calls attention to the fact that the old method of examination of the feces is now practically discarded. A valuable point about this phenoltetrachlorphthalein test is that it comes out by the liver, and not through the other excretions. In The Journal, March 17, 1923, Rosenfield and Schneiders offered a solution of our problems which seems much better than any other method, and that is the intravenous injection of this dye, and then tests of the blood at subsequent intervals to find whether there is retention of the dye.

Dr. John V. Barrow, Los Angeles: In connection with liver function tests, I desire to mention the Widal hemoclastic crisis as carried out by me in more than sixty cases of typhoid fever in my service at the Los Angeles General Hospital. Realizing that there must be a heavy liver load in such a bacteremic and toxic disease, I determined that the behavior of this test, if positive, would be both a valuable check on the test itself and a serviceable factor in the diagnosis of the disease. It has been found positive in more than 86 per cent. of the cases. It outranks in percentage all other tests or findings, except the enlarged spleen. One case in particular confirms the value of the test as to liver function. A girl was sent into the ward in a semicomatose condition, with a tentative diagnosis of typhoid. Her history was unobtainable. She had rose spots and a large spleen. The leukocyte count was 24,000, which, after feeding, fell to 19,000. The serum agglutination test was negative for typhoid, and the blood showed a pure culture of *Bacillus coli*. She died the following day, and the necropsy showed multiple miliary abscesses of the liver. In this case the positive liver function test was in harmony with the pathologic findings.

Dr. Max Einhorn, New York: I would answer Dr. Cheney by saying that the application of the duodenal tube for examination, if it is done in the correct way, does not require much effort, or too much time, either. We give the patient the tube at night before he goes to bed. He sleeps with it, and during the night it enters the duodenum. Then it is

ready for use. It is not mixed up with the food. Then we make the test. I spoke of liver functions. I did not mention the importance of these tests with regard to gallbladder lesions, which is very important, I think—more than anything else. I think we cannot do without it, and, even if some physicians do do without it now, they will find in a few years that they will have to use it. The duodenal tube cannot be dispensed with. We may dispense with it today, but we shall find that we shall need it before long. With regard to liver functions, it is quite natural that processes which are complicated cannot be applied in each case. But the hospitals and the clinic have the means to study and find out what is normal and what is pathologic, the fruits of which will come later on. With regard to the phenoltetrachlorphthalein test, what I said was that the other tests give just as much information, and perhaps I find them more convenient. The functional tests that I mentioned refer to the physical qualities of the bile simply by inspection. That is one of the easy functional tests, because we find normally that there is a darker colored bile coming. The dark colored bile does not come from the gallbladder; it is a continuous process of secretion and excretion by the liver. The main reason I say that it is not the opening up of the gallbladder is that the reaction taking place is very gradual, step by step. There is no sudden change of color from yellow to dark. If it were due to the emptying of the gallbladder, the change would be sudden. The Widal test did not prove very satisfactory in my cases. It is easy enough to give a few hundred centimeters of milk, but I have had a number of cases of cancer of the liver, and the patient died shortly afterward. If the liver is diseased to such an extent that the whole liver is cancerous, and the patient dies, and we still get a normal reaction, how can we say we shall get much information from such a test? That is the reason I do not think it will be of much value.

PANCREATITIS AS RELATED TO GASTRO-INTESTINAL AND GALLBLADDER INFECTIONS

WITH SPECIAL REFERENCE TO DIET IN THE PREVENTION AND TREATMENT OF DIABETES *

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The discovery of insulin has brought about a renaissance in the study of diabetes; and since the cardinal principle in the treatment of disease is to find the cause and remove it, the etiologic factors of hyperglycemia are now receiving consideration by a number of investigators. That a preceding pancreatitis from which results permanent damage to the islet glands that secrete the hormone now called insulin is usually the direct or predisposing cause of diabetes is now accepted by many clinicians who have had a large experience in treating diabetes. Allen speaks of diabetes as the "vestigium of a burnt out conflagration." He made investigations on animals in which he produced experimental pancreatitis and hyperglycemia, thus proving to his satisfaction that a damaged pancreas is an essential factor in the etiology of diabetes.

Those who believe that overeating is the sole cause of diabetes in many cases, and that the obese individual is potentially a diabetic, point to the fact that even in cases of severe diabetes sometimes no lesions of the islands of Langerhans can be demonstrated either macroscopically or microscopically. Allen meets this objection to the theory of a preceding pancreatitis as the essential underlying factor in the production of diabetes by stating the fact that he has produced pancreatitis in animals, and that after their recovery in some cases, necropsies have revealed no evidence whatever of the pancreatitis infection which he knew had existed.

Banting also believes that a pancreatitis is an important etiologic factor in diabetes, and in support of this opinion he cited instances in the Children's Hospital in Toronto in which the removal of infected tonsils had been followed by a return to the normal, or a marked reduction in the blood sugar of infants with diabetes.

DIABETES FOLLOWING TRAUMA

While I have made no experiments in producing pancreatitis and diabetes in animals, from clinical experience I am convinced that a damaged pancreas, either from infection or from trauma, may be the active or predisposing cause of diabetes. To prove this assertion I need mention only four cases:

Case 1.—A railway engineer, aged 51, who came to us in January, complaining of thirst, polyuria, loss of flesh, numbness of feet, with beginning gangrene of the right toe. Nine years before he had been in a collision in which he sustained serious internal injuries. He was in bed for months following the injury, his prominent symptoms having been pain and tenderness in the upper part of the abdomen, nausea and vomiting. A few months after his recovery, his physician found sugar in the urine. For several years he was able to keep the urine sugar free by dieting, though recently he was unable to control the sugar output, and the numbness and coldness of his feet had been quite annoying. He had been sleeping with an electric pad to his feet to keep them warm. One morning, he awakened to find a blister on one of his right toes, which resulted in the formation of a gangrenous spot. His blood sugar was found to be 320 mg. per hundred cubic centimeters. He was placed on a low maintenance diet, of 72 gm. protein, 120 gm. fats and 32 gm. carbohydrate, totaling 1,488 calories, which did not reduce his blood sugar to normal. He was given 30 units of insulin a day, and in a few days the blood sugar was reduced to the normal range, the urine became sugar free, the numbness and coldness of his feet passed off, and the gangrenous spot sloughed off and healed without operation. The urine has remained sugar free most of the time on this normal maintenance diet, and he left off the insulin. The rest which this patient's pancreas had from the use of insulin for a few weeks seemed to have increased his ability to secrete the hormone (insulin) controlling the blood sugar sufficiently to enable him to metabolize enough carbohydrates to keep him well and comfortably nourished.

Case 2.—A railway brakeman, aged 30, fell from a car, sustaining a fractured hip and internal injuries, the symptoms of which suggested a trauma of the pancreas. He had a slow recovery, lost flesh, and developed thirst, polyuria, weakness and anemia. A few weeks after the injury, the urine was found "loaded" with sugar. He was sent to us in March. His blood sugar was 320 mg. per hundred cubic centimeters. A low maintenance diet and a "nonnutrient" day did not reduce the blood sugar to normal, or render the urine sugar free. He was given 40 units of insulin a day and kept on his maintenance diet of 58 gm. protein, 130 gm. fats and 50 gm. carbohydrate, totaling 1,600 calories. We believe this patient to have been almost totally depancreatized, because, in spite of the large doses of insulin, we have never been able to reduce the blood sugar to normal or to make the urine sugar free. He has improved remarkably, however, having gained 15 pounds (7 kg.), and likewise his physical strength and mental well-being have been increased very markedly. This case of diabetes followed so closely a railway accident that the railroad company by which he was employed has assumed the physician's fees and the insulin expense, and proposes to provide for him the rest of his life by giving him a monetary compensation,

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position requiring light work, and an allowance for insulin. his patient will have to use insulin as long as he lives. With 30 units a day he can keep comfortable and be efficient; ut without it he would surely die in a few months.

DIABETES ASSOCIATED WITH PANCREATITIS

CASE 3.—Before the days of insulin, a merchant, aged 45, ad a chronic cholecystitis requiring an operation. He had ad glycosuria for several years. He was operated on by)r. Lewis Moores, who did a gallbladder drainage, and while perating found an enlarged, hard pancreas suggesting carinoma. Following the operation the patient's urine became ugar-free, and remained so for several years. He was eferred to me for dieting, following an operation for acute ppendicitis with a large abscess. I tried a high caloric and igh carbohydrate diet on this patient, and the urine remained ugar free during his long and difficult convalescence followng the drainage of a large appendical abscess. The gallbladder drainage apparently cured the pancreatitis, thus restoring the function of the insulin-forming glands.

CASE 4.—Before insulin was discovered, an insurance agent, aged 35, was referred to me for treatment for diarrhea. He gave a history of having been operated on for gallbladder infection by Dr. Joseph Colt Bloodgood. He was told after the operation that he had an enlarged, inflamed pancreas. I wrote Dr. Bloodgood for a report on his operative findings, and the reply confirmed the patient's statement. In the routine of our examination this patient was found to have a trace of sugar in the urine, and the blood sugar was very high, having been 700 mg. per hundred cubic centimeters of blood. Examination of the patient's stools showed azatorrhea and steatorrhea. Therefore the diarrhea was probably due to deficiency in the pancreatic digestive enzymes. Evidently, in this case both the insulin-forming and digestive enzyme-producing cells were involved in the inflammatory process of the pancreas. The urine became sugar free, and the blood sugar was reduced to 100 mg. by a modified Allen low caloric diet, and the diarrhea was improved by the use of extracts of the digestive enzymes of the pancreas. This patient passed from observation, but he probably has had recurrence of diarrhea and hyperglycemia.

SOURCES OF INFECTION IN PANCREATITIS

Infection of the pancreas may take place in a number of ways; but, on account of its anatomic relations, its blood supply and its lymphatic connections, it would seem that the most frequent sources of infection are from lesions in the gallbladder, stomach, duodenum and other portions of the small intestine and the colon. Indeed, when the anatomic relations and the collateral circulation of the pancreas are considered, it is difficult to understand how it escapes infection when there is an inflammatory lesion of any of the abdominal viscera.

The following are the most important avenues of infection in pancreatitis:

1. Infections of the gallbladder would seem to be and often are associated with a pancreatitis. The opening of the common bile duct in the duodenum is very close to the openings of the ducts of Wirsung and Santorini, when the latter does not empty into the main duct. The common bile duct is always in contact with the head of the pancreas and often is embedded in it. It would therefore seem that both by continuity and by contiguity of structure a cholangeitis or a cholecystitis would frequently be associated with an inflammation of the pancreatic duct (sialo-angitis and sialodochitis) and interacinar pancreatitis. The fact that surgeons in operating for gallbladder disease frequently find an enlarged and inflamed pancreas, which subsides with the removal of the gallbladder infection by drainage or a cholecystectomy, seems to favor the theory that pancreatitis is often secondary to gallbladder disease. The fact that in a number of reported cases glycosuria patients have become sugar free after drainage of the gallbladder would seem to make it advisable to suspect gallbladder infections in diabetes; and, if such exist, an early operation may cure the pancreatitis and at the same time remove the primary or associated lesion.

2. Since the pancreatic duct, or ducts, open in the descending portion of the duodenum, and the head of the pancreas is almost entirely surrounded by the coil of the duodenum, it would seem that a duodenitis, which we know to be a frequent condition, would be followed by pancreatic disease. Ulcers of the duodenum may result in adhesions of the duodenum with subsequent pancreatitis. The jejunum is also in relation to the inferior surface of the body of the pancreas.

3. The concavity of the lesser curvature of the stomach corresponds approximately to the convexity of the anterior surface of the pancreas, and ulcer and carcinoma of the stomach result in adhesions to, and secondary infection or metastasis of, the pancreas.

4. The anterior surface of the pancreas is separated from the transverse colon by the lesser peritoneal sac, and the colon itself may actually be in contact with the inferior surface of the pancreas. A colitis may be followed by pancreatitis; and, in my opinion, lesions of the colon are the most important sources of infection of the pancreas.

5. Since the spleen, the left kidney and the left suprarenal body are in contact with the tail of the pancreas, the primary infection in pancreatitis may be in one of those organs.

6. Pancreatitis undoubtedly may be of hematogenous origin, and the removal of focal infections from the tonsils and teeth should receive the same consideration as in the inflammatory diseases of other organs of the body. It would seem, however, that, since the blood supply of the pancreas comes from the superior and inferior pancreaticoduodenal branches of the hepatic and superior mesenteric arteries, and from the splenic artery, infections of the intestinal tract may be carried in the blood stream to the pancreas. McCarrison made sections of the intestine of pigeons in which he had produced an enteritis by feeding them exclusively pure carbohydrates. They showed an eroded villus, with blood tract therefrom to distended subperitoneal vessels, constituting a direct passage for intestinal organisms to the blood stream. The intestines harbor the various streptococci, the colon bacillus and other pathogenic organisms, and there then can be no question that enteritis and colitis in human beings are the foci of infection for the pancreas and even the remote organs of the body.

7. Infections may be carried to the pancreas through the lymphatics.

GASTRO-INTESTINAL INFECTIONS

We know that infections of the gastro-intestinal tract are among the most frequent diseases of both infant and adult life. I have not seen any statistics on the incidence of gastro-intestinal diseases in the United States, but in England recent reports from various clinics show that 25 per cent. of all patients have gastro-intestinal lesions. When we consider the large number of abdominal operations for appendicitis, gastric and duodenal ulcer, and gallbladder infections, as well as the frequency of the medical diseases of the gastro-intestinal tract, such as acute and chronic gastritis, the diarrheas and the colitis associated with

constipation, it surely seems that gastro-intestinal diseases are among the most frequent of modern life. I am one of those who believe that diseases of the digestive organs, including the pancreas, are increasing, though I have no statistics to prove it.

The causes for the increase in diseases of the digestive organs, including the pancreas, have been ascribed by McCarrison [1] to faulty food. McCarrison's experiments on animals, and his observations among the natives of the Himalaya Mountains, seem to prove that infections of the intestinal tract, particularly colitis, result largely from the present-day diet of an excess of pure carbohydrates, fats and meat proteins, with a deficiency of the antineuritic and the antiscorbutic vitamins, in addition to the lack of other requisite constituents of human food, particularly iodin, calcium and phosphorus. He fed healthy monkeys on pure carbohydrates, fats and proteins, a diet similar to that of white bread, polished rice, potatoes, sugars and sweets of all kinds, lean meats, animal and vegetable fats, on which most civilized peoples live, with a constant resulting enterocolitis. He fed control monkeys on a diet containing the same amount of carbohydrates, fats and proteins, but with the proper vitamins and mineral substances, and the control animals remained normal. He fed pigeons on autoclaved polished rice, with the result that they not only developed enteritis and colitis, but also a polyneuritis.

McCarrison thinks that our present-day diet of an excess of carbohydrates, fats and lean meats, by lowering resistance of the tissues of the gastro-intestinal tract, deprives them of their protective power to prevent invasion by pathogenic organisms. He found that properly nourished monkeys, when given quantities of *Endameba hystolitica,* did not develop dysentery, while those fed on a deficiency diet promptly developed diarrhea and the characteristic lesions of amebic dysentery.

McCarrison also called attention to the fact that, in his nine years' practice among the inhabitants of a remote part of the Himalayas, during which time he performed an average of 400 major operations a year, he did not see a case of asthenic dyspepsia, gastric or duodenal ulcer, appendicitis, mucous colitis, or other digestive diseases, in spite of the fact that the general hygienic conditions were bad. He thought that this freedom from the abdominal infections so prevalent among civilized people was due to the fact that all infants were fed on mother's milk, or they died; and that the adults among these remote tribes of the Himalayas lived on natural foods, i. e., milk, eggs, fresh fruits and leafy vegetables. They had no sugar or alcohol. McCarrison came to the same conclusion as Hinhide, that "the two chief causes of death among civilized people are food and drink."

Applying to human beings the deductions drawn from animal experiments, McCarrison called attention to the similarity of the conditions observed in the intestines of animals fed on a pure carbohydrate diet, and the anatomic factors seen in chronic intestinal stasis. This condition, in my opinion, exists in a large majority of adult Americans. Roentgen-ray studies of the gastro-intestinal tract is a routine procedure in the examination of all our patients. We find that in more than 75 per cent. of cases the barium meal is still in the cecum and ascending and transverse portion colon, twenty-four hours after ingestion. Examination of the feces is another routine laboratory procedure in our work, and a large proportion of cases show mucus present in the specimens. The presence of mucus in the feces means a lesion somewhere in the intestines, and we think usually in the colon. We have found intestinal stasis and mucus in the feces in many of our diabetic patients, and it seems to me that a chronic colitis is most likely the source of infection in the pancreatitis which impairs the function of the islet glands.

It may be that the pancreatitis occurred years before glycosuria was found, and that the anamnesis does not elicit a history of a previous pancreatitis; but I believe that we may assume a previous or a present pancreatic infection in diabetes, and that we should endeavor to find the cause and remove it if possible. It seems probable that in many cases the pancreatitis was associated with the intestinal infections of infancy, and that the islands of Langerhans are able to secrete enough insulin for carbohydrate metabolism in a person of average weight, but that in obesity the overworked, damaged pancreas rebels against the load that has been placed on it by the individual who overeats.

THE FOOD FACTOR IN THE ETIOLOGY AND TREATMENT OF DIABETES

The theory of a previous pancreatitis in diabetes should not make us underestimate the importance of overeating as a large factor in the production of diabetes. The statistics of Joslin show clearly that the majority of patients with diabetes are, or have been, overweight; and most of our diabetic patients give a similar history. Paulin showed that the blood sugar was high in obese persons who did not have glycosuria, and his conclusion was that they were potentially diabetic; but the normal pancreas can stand a heavy load, and the great majority of obese persons do not develop diabetes. Overeating plus a damaged pancreas seem to me to be the important etiologic factors in diabetes.

MacCollum's observations on the diet of the American people as a factor in mouth infections apply equally to infections of all the organs of digestion, including the pancreas. He points out the fact that a diet of white bread, potatoes, refined cereal breakfast foods, polished rice and sweets; the muscle cuts of meat and fat meat, lard and butter substitutes, is deficient in vitamins and lacking in calcium, iodin, phosphorus and other essential minerals. He is urging the American people to go back to the diet of our parents and grandparents, who lived on bread made from whole wheat flour, or whole corn bread, unpolished rice, milk and its derivatives, butter and cheese; the green vegetables and raw fruit, with a moderate amount of meats. MacCollum has announced a formula for the perfect daily diet, i. e., "one raw fruit, one uncooked vegetable, two green vegetables and one quart of milk a day, to which should be added enough bread, butter and meat to meet the nutritional needs of the body." This diet, if carried out by the American people, would result in an enormous decrease in diabetes, along with a lessened number of cases of intestinal infections.

In the treatment of diabetes it is as important to see to it that the diet contains sufficient vitamins and the proper mineral constituents as it is to know that the starches and sugars and proteins and other glucose-forming foods are reduced to the patient's tolerance. Therefore, in the diabetic patient's menu, fats should

1. McCarrison, Robert: Studies in Deficiency Disease; Faulty Food in Relation to Gastro-Intestinal Disorder, J. A. M. A. **78**: 1 (Jan. 7) 1922.

consist largely of butter and cream, which are rich in vitamin A; the carbohydrates should come principally from the green vegetables, which contain not only vitamins A, B and C, but are rich in iron, calcium, phosphorus and other essential minerals, and from raw fruits and uncooked vegetables which contain the antiscorbutic vitamin. The diabetic patient should be taught the vitamin and mineral values of his daily diet as well as the arithmetic of carbohydrates, fats and proteins.

CONCLUSIONS

1. Diabetes is a disease characterized by impairment of the function of the insulin-forming glands in the islands of Langerhans, and is due primarily to trauma of the pancreas, or to a pancreatitis.

2. Infections of the pancreas are usually secondary to lesions of the other abdominal viscera, though other foci of infection, as the teeth and tonsils, may be the primary cause. In treating diabetes, the primary cause of the disease should be sought for and removed, if possible.

3. A deficiency diet is the predisposing cause to the intestinal lesions which seem to be an important source of infection in pancreatitis.

4. An educational campaign teaching the public the importance of a diet containing the proper amounts of carbohydrates, fats and proteins, as well as sufficient vitamins and the essential mineral food constituents, would prevent diabetes to a large extent.

5. In the treatment of diabetes, due regard should be paid to the vitamin and necessary mineral constituents of food.

ABSTRACT OF DISCUSSION

DR. FREDERICK M. ALLEN, Morristown, N. J.: The pancreas seldom gives clear symptoms or signs of its troubles; therefore, except for rare surgical cases, pancreatitis is seldom diagnosed clinically. Pathologic studies show that the pancreas is one of the most frequently damaged organs of the body, and in 50 per cent. or more of all necropsies it shows lesions of some degree. The literature divides pancreatitis etiologically into blood-borne, duct-borne and lymph-borne forms. Blood-borne pancreatitis is rarely diagnosed clinically. Hypothetically, at least, we may regard acute blood-borne pancreatitis as the cause of most juvenile diabetes and also of many cases, especially of the severe type, in later life. The duct-borne and lymph-borne forms of pancreatitis damage the acini more directly than the islands, but, nevertheless, the injury of the latter often suffices to cause diabetes. Thus, gallstones hold a place among the causes of diabetes. The differences in the progressiveness of diabetes are due not so much to the advance of the primary lesions as to differences in the susceptibility to hydropic degeneration of islands, which is greatest in the young. This form of degeneration is governed almost altogether by the diet. Both diet and the removal of infectious foci are necessary to protect diabetic patients of any age against downward progress. Concerning the diagnosis, diabetes is not shown by glycosuria alone. Much can be learned from blood sugar analyses, both fasting and after heavy carbohydrate meals, and also after 100 gm. of glucose. Accurate blood sugar and tolerance tests will unravel most of the mystery of necropsy studies, which heretofore have frequently shown pancreatitis in the absence of a clinical diagnosis of diabetes. More investigations should be made by the method introduced by Wille, namely, by testing the glucose tolerance of as many hospital patients as possible, and examining the pancreas of all who come to necropsy. Evidences of a lowered tolerance should not be ignored therapeutically. Treatment is generally advisable, even for persistent hyperglycemia of marked degree. This treatment generally requires limitation not merely of carbohydrate but also of fat and total calories in the diet, and appropriate reduction of body weight. Occasional digestive complaints are thus relieved, for one of the commonest causes of functional indigestion is simply the eating of more than the body requires. But, in addition, reduction of total calories and body weight often improves the carbohydrate tolerance and controls a stubborn hyperglycemia when carbohydrate restriction alone is unsuccessful. Surgical removal of infectious foci, whether in the gallbladder, appendix, tonsils or anywhere else, is desirable for either the prophylaxis or the treatment of diabetes. Thorough dietary preparation is advisable when possible, and makes operations on diabetic patients practically as safe as on nondiabetic patients. America has reversed the old European rule that surgery on patients with diabetes should be avoided as far as possible. All foci of existing or potential danger should be cleared up, all the more scrupulously because of an existing or threatened diabetes. Insulin can render further aid if required, but it does not absolve from the clearing up of infections.

DR. MAX EINHORN, New York: Some years ago I had a paper on pancreatitis which also mentioned the influence of diabetes in making a diagnosis of pancreatitis. I am convinced that a diseased pancreas is frequently the origin of diabetes. I will mention one thing, which is somewhat new: I had some diabetic patients who had to have duodenal feeding on account of other complications (ulcers of the stomach). I found that during the period of treatment (namely, feeding) they could stand milk and glucose without eliminating any sugar in the urine. The explanation for this could be found, as it appears to me, in the process of resting up of the pancreas. It is the same way as in regard to the conditions of the liver, when we take away part of the portal circulation. The same or a similar phenomenon probably takes place in the pancreas, and I think it is able to help in burning up the sugar which is given by the milk diet. We give half an ounce of glucose every half an hour in the milk, and the milk itself contains glucose besides. In two patients that I had recently this took place. They felt very well, and there was no sugar elimination in the urine. Maybe Dr. Harris can explain that.

DR. SEALE HARRIS, Birmingham, Ala.: I believe that when the public understands the need of having a properly balanced diet, one containing the proper amount of vitamins, as well as the chemical constituents, we shall then be able to prevent a great deal of diabetes because there will be fewer gastrointestinal infections and less pancreatitis. Diabetic patients are often undernourished, and I think that the cause is not in the amount of food but in the deficiency of vitamins and the mineral substances that are necessary to proper nutrition. We should also attempt to find and remove the primary foci of infection for the pancreatitis, the most important factor in the etiology of diabetes.

Culion Leper Colony.—This colony, established seventeen years ago in the Philippine Islands as an isolation place for lepers, is the property of the Philippine Health Service. It is for the most part a nipa-roofed town of 5,000 inhabitants and occupies about 40 acres. On this there are more than 600 houses for lepers. Rice is the staple food; beef is issued once a week, and 250 gm. of fresh fish is supplied to each inmate daily. A "gratuity" of ten cents a week is allowed each leper. Previous to 1921, when the new chaulmoogra oil treatment was started, all the medical work was done at the so-called general hospital on the island, consisting of six wards and 300 beds. This institution, through the active interest of Governor General Wood, has been enlarged. The equipment has been meager, but surgical instruments, scales, and blood pressure, aspiration and infusion apparatus have recently been secured, and this year a roentgen-ray, quartz light and electrotherapeutic apparatus will be added. There are at present fifteen physicians in the medical section, as compared with four in 1921. The nursing staff consists of ten sisters of charity, and twenty graduate nurses. According to reports, the results of the work done so far have been distinctly encouraging, not the least being the fact that for the first time since active segregation was inaugurated, lepers are voluntarily reporting to the authorities for treatment.

AN OPERATIVE METHOD FOR CORRECTION OF CERTAIN FORMS OF FLATFOOT *

C. L. LOWMAN, M.D.
LOS ANGELES

There are certain types of feet which, despite long and carefully applied corrective procedures, persist in assuming a bad valgus position with marked depression and flattening of the arches. We may prop them up, exercise them faithfully, and use massage, elevation, strapping and padding diligently for several years, and still find that, on removal of the brace or support, the foot tips and flattens as much as ever. Much attention has been given to the correction of valgus deformities in the paralytic type of flatfoot, but many are still withholding surgery from other forms of flatfoot, even though resistant to efforts at correction by other means.



Fig. 1.—The astragalonavicular ligament, having been incised, is held back with the upper two clamps; the wedge of bone has been removed chiefly at the expense of the scaphoid and partly from the head of the astragalus; the anterior tibial tendon, isolated in the upper margin of the wound, is displaced backward and downward so that it loops under the squared off corner of the scaphoid, coming up as indicated through the osteotomy incision.

Flatfoot of the congenital type, both rigid and flexible, and pes planus in young adults and adolescents, either flexible or rigid, that have failed of correction by conservative procedures, should be investigated most thoroughly to ascertain the cause of failure, and the same effort should be made to correct the deformity and obtain stabilization as is made in paralytic flatfoot.

Feet which we designate as potential valgus in young children and which have gone on for ten or twelve years with the history of weak ankles and low arches, easy fatigability and "growing pains;" which may get relief from symptoms of muscle strain and fatigue by the usual corrective procedures and by shifting the weight line to the outer border, but which will not tighten up enough to retain a normal position, shape or alinement, certainly present a problem serious enough to challenge our interest and demand our best judgment. The fact that many patients with extreme flatfoot go through life without foot symptoms is not a legitimate excuse for failure to advise corrective surgery. The deformity needs consideration just as much as a clubfoot of similar degree, or a foot weakened and deformed by paralysis.

As to the factors that cause this condition (excluding for the present the hereditary or congenital type), I would put faults in leg alinement first, faults in nutrition and lowered muscular and ligamentous tone second, and faults in tarsal development third.

This classification is a rough general one, and cannot be otherwise, because any or all of the conditions may be present in the same case, and a vicious circle usually exists, including all of them. For instance, structural faults increase the muscular load, inducing muscle strain and stretching, which in turn increases the deviation in alinement.

Tibial torsion, bow-leg and knock-knee are the chief factors that produce a faulty inward thrust on the foot, preventing its development along correct lines.

Inward rotation of the thighs with stretching and relaxation of the external rotators is probably secondary, but may occur concomitantly with the valgus in the foot. Once begun, it continues to act as a deforming force by its twisting effect on the astragalus, through the wrenchlike grip of the tibiofibular mortise.

If the downward and inward thrust through the neck and head of the astragalus which is transmitted by the tibia in either bow-legs or knock-knee is not resisted strongly enough by the deltoid and calcaneonavicular ligaments which support the scaphoid, the forefoot cannot assume the adducted position necessary to develop a normal arch. In the prepubertal period and during the fast growing years, increasing weight is often associated with decreased tone of muscles and ligaments. This, together with greater bodily activity, may stretch farther the ligaments mentioned above, and result in the loss of what little arch may have formed before that time.

If weight is borne continuously on a foot thus flattened, the plantar ligaments and muscles, which are the supporting structure, gradually lose all elasticity, and even though the weight is then thrown to the outer border of the foot, there is no "comeback" in these structures, and, in addition, structural changes may have taken place, chiefly in the scaphoid and astragalus. When these factors have become fixed, it will require actual structural correction to reestablish proper alinement and remove the elements of strain that produce the energy loss incident to the bad static situation.

When a foot is developing in this relaxed condition, the space between the sustentaculum tali and the cuneiform bone is longer than normal, and as both the scaphoid and the astragalar head occupy this space, they become malformed, of necessity, during growth; and, being too long on their inner aspects, they cannot later be crowded up into a space too small to accommodate them.

There is frequently seen a type of scaphoid which is almost crescentic, which hooks far around the inner side of the head of the astragalus (often with a tibiale externum present—sometimes fused), and the length of which from before backward on the inner aspect is much greater than ordinarily seen—sometimes even an inch in thickness. Any downward and inward thrust from above forces this scaphoid downward and for-

* Read before the Section on Orthopedic Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

ard as a wedge, transforming the potential into an ctual valgus. If the bone has grown thus, in a valgus nd depressed state, no amount of effort can force it p, nor can the forefoot be adducted again, as long as his obstacle prevents it.

One other developmental factor should be mentioned s causative in converting the potential into the actual tructural flatfoot. The scaphoid is the last of the arsal bones to appear, showing the beginning of its ssification at from 3½ to 4 years, and normally finishng it at about 6 or 7 years. However, there is great rregularity in this time of ossification, and its growth nay be erratic and ossification greatly retarded, as I ave mentioned before,[1] the retardation here being omparable to a similar one in the carpus, as pointed ut by Rotch.

If the scaphoid bone does not fill in and harden apidly enough, it fails to block out the length of the nner aspect of the foot, and the astragalus, which ppears at birth and is growing rapidly, has to elongate o make up the deficiency. In so doing, it is allowed to ag down, as mentioned above, or, more accurately, is ot raised up, as it is in a normally developing foot, by he growth and hardening of the normal navicular.

Poor nutrition, especially faulty lime metabolism and decreased alkali reserve, undoubtedly are influences that have to be considered in connection with this delayed ossification, which disturbs the formation of a normal arch.

There is another fact that we have considered of very real importance in feet of this type, and that is the direction of pull of the anterior tibial muscle, which

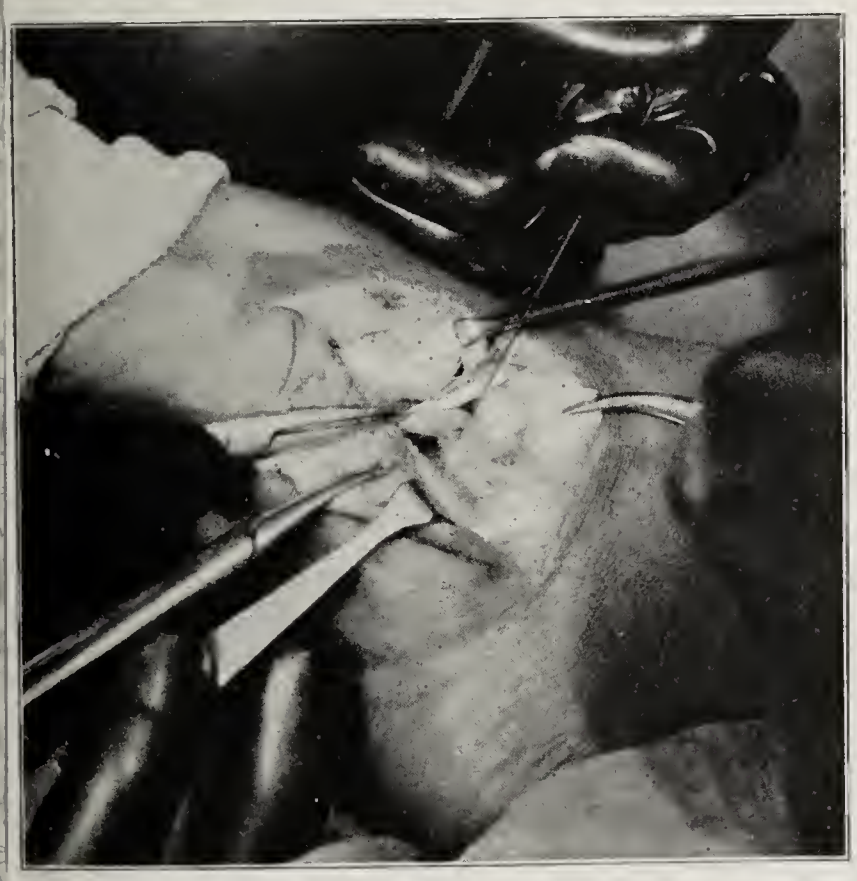


Fig. 2.—The deep suture (kangaroo tendon), placed through the calcaneonavicular ligament as deep in the osteotomy wound as possible, is brought up and tied around but not through the anterior tibial tendon, the assistant forcing the tendon as far back as possible. The slack is taken up in the calcaneonavicular; it is pulled up in tent fashion, being pulled in on its two ends, one of the tie bands under the arch thus being shortened.

normally aids greatly in holding the scaphoid strongly up against the head of the astragalus; but in these relaxed cases its pull is so far forward of the mediotarsal joint that it actually has become a powerful deforming factor. Whenever the scaphoid bone is below a certain level, and particularly when the plantar ligaments are relaxed, the pull of this muscle raises the front foot exactly as the Achilles tendon raises the os calcis posteriorly, thus supinating the forefoot.



Fig. 3.—Flaps of the scapho-astragaloid ligament laid back into position, imbricated and secured tightly. The margin of the calcaneonavicular ligament being sutured into the lower portion of the lateral flap over the distal portion of the anterior tibial, where it passes under the scaphoid.

There is no material difference between flattening an arch (*a*) by letting go of the struts and forcing its abutments apart by pressure in the middle, or (*b*) by lifting up its two ends when the supporting substructures cannot keep the abutments in place.

In order to restore the tarsus to a normal or improved weight-bearing condition, and thereby relieve stresses and strains on structures above the feet, it must be altered structurally.

METHOD OF OPERATING

The operation here described was designed to allow the reposition of the distorted tarsus by a skeletal attack, and to maintain this position by the correction of deforming factors with replacement as far as possible of the strutwork that ties the anterior and posterior members of the arch together.

A curved incision is made, base downward, extending from just below the inner malleolus upward and forward to a point above the scaphoid, and thence forward and downward to a point on the inner aspect of the base of the first metatarsal. The skin flap is dissected back, and a straight incision is made through the fascia, which is separated by blunt dissection well down below the tip of the scaphoid, exposing the inner edge of the calcaneonavicular ligament. The astragaloscaphoid ligament is incised in line with the joint, and the outer end of the scaphoid is denuded of its periosteum, with all ligamentous attachments. The Achilles tendon is tenotomized and the foot is forced upward to

1. Lowman, C. L.: Delayed Developing of the Tarsus, Am. J. Orthop. Surg. **15**: 479-482 (June) 1917.

lower the posterior end of the os calcis. Next, a wedge is excised chiefly at the expense of the scaphoid, a fair piece also being taken from the head of the astragalus, base downward and inward. It is deepened sufficiently to relieve all obstruction to adduction and depression of the forefoot for the formation of a satisfactory arch. If the Achilles tendon is too much shortened, it is lengthened rather than tenotomized. Next, if it is a



Fig. 4.—Foot before and after operation. The operation was performed June 4, 1920. The second model was taken in September, 1920, by the father and forwarded from New Mexico. The boy is at present taking a medical course at Ann Arbor.

simple nonparalytic flatfoot with fairly strong tibials and not much overaction of the peronei, the latter are simply tenotomized. Then the anterior tibial tendon is isolated down to its attachment, and it is displaced with a curved instrument or blunt hook, inward and downward until it slips over the squared-off corner of the scaphoid, thus passing through the opening made by the osteotomy. It is not detached, however, but its direction is altered, so that, in pulling upward, it raises the scaphoid or keystone upward, assisting in forming an arch, rather than deforming it, as it had been doing previously.

The displaced tendon of the anterior tibial should be grasped with strong forceps and held down under the scaphoid while the operator places a deep suture of fine kangaroo tendon strongly into the middle of the calcaneonavicular ligament under the gap of the osteotomy opening; next, this is brought up and passed around, not through, the anterior tibial tendon, the assistant making strong correction of the arch while it is tied. This position must be maintained while a couple of strong chromic sutures are placed through the margin of the cut astragaloscaphoid ligament laterally. When these are strongly approximated or imbricated, the foot will remain in fairly good position, which, of course, is improved to its maximum while the cast is put on.

In cases of marked overaction of the peronei, the peroneus longus may be brought across the front of the ankle under the annular ligament, by way of the sheath of the anterior tibial tendon; but, contrary to the usual practice, as given in some of the most recent articles on tendon transplantation, it is not inserted at the anterior tibial attachment, but is brought out of the anterior tibial sheath directly downward into the gap between the astragalus and scaphoid, and sutured to the calcaneonavicular ligament, the latter thus being pulled up tent fashion and this relaxed strut being drawn up tightly.

In a paralytic case without anterior tibial, the same procedure is carried out, except that the extensor proprius hallucis, as well as the peroneus longus, is brought back; and all these structures thus brought into the arthrodesed area are given a strong osseous implantation.

A subastragaloid arthrodesis by Hoke's method will give a most satisfying result when judiciously used with this procedure.

A plaster dressing with slightly flexed knee is kept on for four weeks, when it is changed to a straight cast with strong, well molded foot piece. Weight bearing is begun at from seven to eight weeks, followed at from the tenth to the twelfth week by a shoe with an arch brace, and, if necessary, a caliper leg splint until the latter can be removed. The plate should be worn for from six months to a year. Later, corrected shoes to maintain a proper relation of the foot to the leg and to neutralize any residual, uncorrectable element of leg deviation should be worn. Several cases of congenital rigid or semirigid flatfoot in adults have stood the test of five years, and many children and adolescents during this time have been satisfactorily corrected.

I advise that in most of the more serious older cases of congenital structural flatfoot, only one at a time be operated on, because the patient can be up sooner and has one reasonably useful foot to walk on while breaking in the new one. If the worst foot has been done first and not quite as good a position gained as might be desired, it can be further manipulated when the other foot is operated on.

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CORRECTION OF EXTREME FLATFOOT

VALUE OF OSTEOTOMY OF OS CALCIS AND INWARD DISPLACEMENT OF POSTERIOR FRAGMENT (GLEICH OPERATION)*

JOHN PRENTISS LORD, M.D.

OMAHA

In 1916, Dr. Percy Roberts read a paper before the American Orthopedic Association entitled "The Influence of the Os Calcis on the Production of Valgus



Fig. 1.—Plaster models of extreme flatfoot.

Deformities of the Foot," and exhibited a plate for the control of the position of the os calcis. In this paper, the mechanics of flatfoot and the rôle of the os calcis in its production were thoroughly set forth.

It was then that I conceived the idea of the operative attack on the os calcis with displacement inward of its

* Read before the Section on Orthopedic Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

osterior portion in order to change the center of veight bearing sufficiently to correct the everted flatoot. It was not until I began a search of the literature hat I discovered the operation of Gleich.

From inquiry among my friends, I judge that few or o osteotomies of the os calcis for the radical cure of xtreme flatfoot have been done in this counrty. I herefore venture to report my experience in fourteen

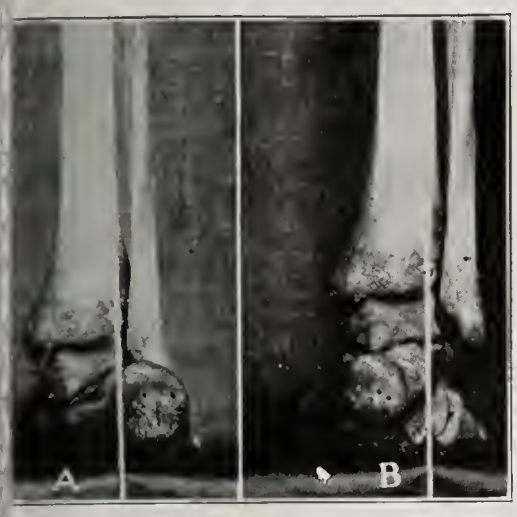


Fig. 2.—*A*, position of os calcis outside the plumb line, as in flatfoot; *B*, posterior portion of bone inside plumb line after division at its posterior third.

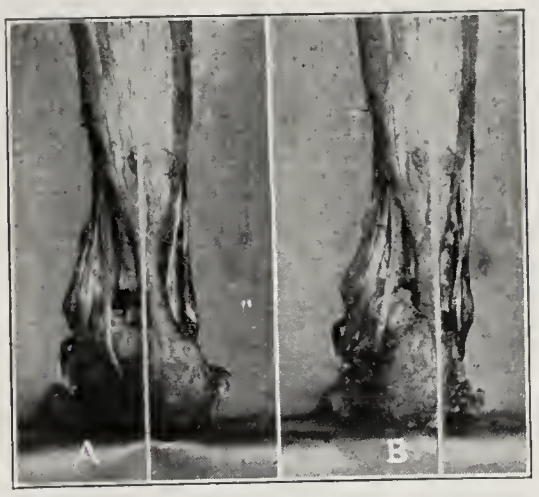


Fig. 3.—*A*, outward deviation of Achilles tendon as in all cases of extreme flatfoot; *B*, improved alinement after osteotomy.

cases covering a period of seven years. While the subject is not an original one, I feel justified because of a seeming lack of use of this procedure in this country.

In my work there have been fourteen cases that were regarded as sufficiently severe to warrant radical operation and in which I was able to operate. Only one case, however, had this operation only. All others had the various supplementary procedures, such as arthrodesis of the astragaloscaphoid joint, osteotomy of the tarsus, and sometimes of the metatarsals also, lengthening of the Achilles tendon, transfer of tendons in paralytic cases, and in spastic or rigid feet, tenotomies of the peroneals, or any procedure that might be indicated in the various cases.

One of the first objects to be attained in alleviating, correcting or curing flatfoot is so to change the alinement of weight bearing as to shift the center of gravity inward, and thus throw the direction of the body weight outside the centers of the feet. This is most commonly done by altered heels, by proper plates, and sometimes by surgical procedures. Attacks on the midtarsus have been useful in improving the arch and in carrying the pronated forefoot inward; but to obtain correction of the eversion, the skeletal deviation of first importance, attack on the os calcis becomes necessary. The operation of Gleich—osteotomy of the os calcis, and the displacement inward of the posterior fragment—changes the line of weight bearing as much inward as necessary to throw the balance of weight bearing to the outer side of the gravity center, and causes the weight transmitted through the foot to be thrown through its outer border, and thus relieves the longitudinal arch.

The technic as early practiced by me has varied little from the first, and consists in a curved incision a finger's breadth behind the external malleolus. A thin, broad chisel is driven obliquely through the bone, the lower edge of the chisel held 1 cm. or more forward. The posterior fragment of bone becomes so easily mobile, after having been pried loose, that it is easily held in the desired degree of correction, as the plaster is applied, experience having shown that a nail is unnecessary, just as other operators in this field have concluded. So far, my cases have been of the most extreme degrees of valgus; and tarsectomy, sometimes multiple, as well as the various modeling operations, with any supplementary procedures necessary, have been done to overcorrect the pronation completely and wholly, as well as the eversion in these extreme types. The finished plaster dressing shows the feet to be in extreme varus. After four weeks in unilateral cases, and eight weeks in bilateral ones, adhesive tape is applied to the feet, and high arched plates are placed in the shoes (in unilateral cases) and crutches used. If the feet are maintained too long in the overcorrected position in plaster, they are slow to resume their normal position, and disability is prolonged. Although from six to nine months' disability may be expected in bilateral cases, it should not exceed three to six months in unilateral cases. In a patient recently operated on, walking was painless after six weeks.

In cases requiring more than one-third inch displacement, it has been necessary to curtail the sharp external cut edge of the bone on the proximal fragment, by the use of a chisel. A wedge osteotomy excision of bone may sometimes be done to meet more fully the necessities in special cases.

A convincing proof of the value of osteotomy of the os calcis and its effectiveness in overcoming the faulty mechanics in valgus, has been my experience in having overdone two cases. One of these was that of a young



Fig. 4.—Examples of flatfoot.

woman with a bow in the leg just above the ankle, the subsequent correction of which by supramalleolar osteotomy resulted in an ultimately perfect result.

LITERATURE

Garrè and Küttner[1] say: "In severe long standing cases of flatfoot which can no longer be otherwise cor-

1. Garrè, K., and Küttner, H., in von Bruns, P.: Handbuch der praktischen Chirurgie, Ed. 4, **1**: 1207, 1914.

rected, a variety of operations on the bones has been practiced."

Golding Bird was the first to remove the navicular. Vogt and others after him excised the entire astragalus. Ogston [2] resected the head of the astragalus and the

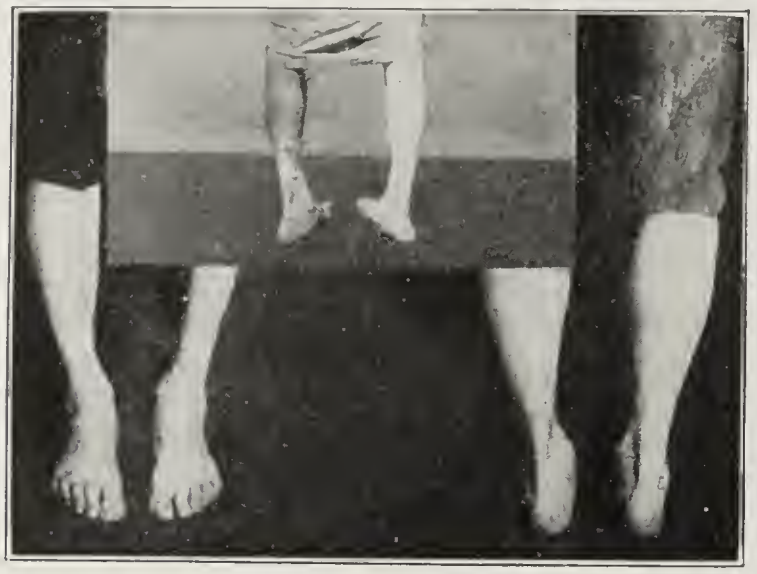


Fig. 5.—Flatfoot before and after operations, including osteotomy.

articular surface of the navicular and then produced synostosis between the two bones by bone suture. This operation has been repeated many times with success. Stokes resected a wedge from the head and neck of the astragalus. Schwartz chiseled a wedge out of the inner side of the foot regardless of the articular surfaces, but generally removing the articular surface of the astragalus and the entire navicular.

The exponents of all these operations call the results satisfactory. Garrè and Küttner's wedge resection seems the most practical in that it is directed at the deformity present in the individual case, rather than at any particular articulation, although it generally takes in the region of the astragalonavicular joint. It has been successfully practiced many times in von Bergmann's clinic. The bone surfaces may be united by metallic sutures, but suture is by no means necessary.



Fig. 6.—After osteotomy in a paralytic case with tendon transfers.

To produce an approximately normally shaped foot in the more severe cases, which cannot be otherwise corrected, Perthes has suggested the so-called modeling osteotomy. He attempts to restore the lost longitudinal arch by bringing the front part of the foot into adduction. He excises a wedge from the lower and inner surface of the navicular with the base of the wedge below and medial. The anterior portion of the calcaneus is then split by osteotomy, and the wedge from the navicular is inserted. The technic is as follows: The navicular is exposed by a small incision. On its lower surface, the insertion of the tibialis muscle with the adjacent periosteum is pushed back. With a flat chisel two converging cuts are made into the navicular so that the base of the wedge measures from 1 to 1.5 cm. and its length about 3 cm. This wedge is then implanted into the calcaneus on its outer aspect through a horizontal incision, the center of which lies about a thumb's breadth (from 1.5 to 2 cm.) below and in front of the malleolus. The peronei and the extensor communis digitorum brevis are carefully avoided, and the anterior portion of the outer surface of the calcaneus is exposed. The calcaneus is chiseled through at right angles to its long axis about 1 cm. posterior to the calcaneocuboid joint. The peroneus tendons are first lengthened by Bayer's "stair incision." The foot can then be adducted and supinated. The wedge shaped defect in the navicular disappears, and a cleft opens up in the calcaneus, into which the wedge of bone from the navicular is inserted with base up and apex down.

Wilms [3] recommends for moderately severe cases ankylosis of the astragalonavicular joint in order to prevent slipping of the astragalus forward and inward on the calcaneus. He also combines this arthrodesis with simultaneous wedge shaped bone resection from the anterior portion of the head of the astragalus, the base of the wedge lying downward and inward. This excised wedge is then planted into the outer side of the foot into the articulation between the calcaneus and the cuboid. In its new location, the base of the wedge lies externally. In the more severe cases, Wilms "corrects" the relation between the astragalus and calcaneus by excising the articular cartilage between these two bones. This arthrodesis is done through two horizontal incisions. This arthrodesis prevents slipping of the astragalus and turning over of the foot.



Fig. 7.—After operation in a paralytic case: anterior and posterior views of same foot.

Kruckenberg and W. Müller have also introduced procedures based on the same principle of wedge and osteotomy and reimplantation. In all the operative procedures on the bones mentioned above, the elasticity of the arch of the foot is sacrificed. A series of operative procedures aims at the avoidance of this sacrifice.

In the operation of Trendelenburg [4] and Hahn,[5] the tibia and fibula are divided just above the ankle joint through two incisions, one lateral and one medial. The foot is then adducted into normal position, or overcorrected and placed in plaster fixation. The subsequent treatment is that of a bimalleolar fracture. Only the valgus position of the foot is corrected by the operation, and yet Trendelenburg states that the arch of the foot becomes restored in younger patients of the

2. Ogston: Brit. M. J., 1884; Lancet **2**, 1884.

3. Wilms: Tr. Chirurgenkongress, 1913.
4. Trendelenburg: Arch. f. klin. Chir. **39**.
5. Hahn: Tr. Chirurgenkongress, 1889.

less rigid type of flatfoot, whereas, in the longer standing and rigid cases, no such recovery is noted. In the so-called pes reflexes, in which the foot is turned only slightly outward but has a prominent inner side, Hahn considers the Trendelenburg operation insufficient. He recommends for these cases a combination with the Ogston operation (described above) or the Ogston operation alone. The favorable results following the Trendelenburg-Hahn operation have been confirmed by various operations.

Gleich [6] exposes the calcaneus through a stirrup incision (like that for Pirogoff's amputation) and saws obliquely through the bone from below and in front to above and posteriorly. Then the lower and posterior half carrying the tuberosity is slid forward and downward. Thus, the angle between the axis of the calcaneus and the ground is increased. Beyond a certain point, this anterior displacement fails to "stay put." If this amount of correction is not sufficient, it may be increased by additional excision of a wedge of bone with base downward from the anterior end of the lower fragment. If the calcaneus lies in the valgus position, the posterior calcaneal fragment must be slid not only



Fig. 8.—Anterior and posterior views of an extreme case of paralytic valgus, right foot. This also shows overcorrection of flatfoot deformity.

downward but also inward. Gleich's operation may be carried out from a lateral incision (chisel ?) as well as from the stirrup incision. The lateral incision has the additional advantages that the plantar muscles and fascia are spared and no scar is left on the sole of the foot.

On account of the great importance of Gleich's operation in the estimation of Garrè and Küttner, the details will be further outlined: In Eiselsberg's clinic (as reported by von Frisch [7]) an oblique incision is made a finger's breadth behind the external malleolus. This incision divides skin, fat and fascia, the Achilles tendon, and the periosteum of the calcaneus. The soft parts are retracted by two sharp hooked retractors. With a broad, flat, sharp chisel, the os calcis is so divided that the cut surfaces are smooth and without bone splinters. Through the interval thus produced in the bone, the periosteum on the inner side is cut with a sharp knife so that the detached fragment is freely mobilized. It is recommended that the posterior fragment be slid downward and forward about a small finger's breadth (1.5 cm.) and also inward, but to a lesser degree. When in the desired position, the fragment is fastened with a nail.

6. Gleich: Arch. f. klin. Chir. **46.**
7. Von Frisch: The Gleich Operation.

The method as described is substantially that used by Brenner, with the exception that Brenner makes his oblique incision on the medial side of the os calcis in order to avoid injury to the vessels (!!). The incision is made a finger's breadth behind the internal malleo-

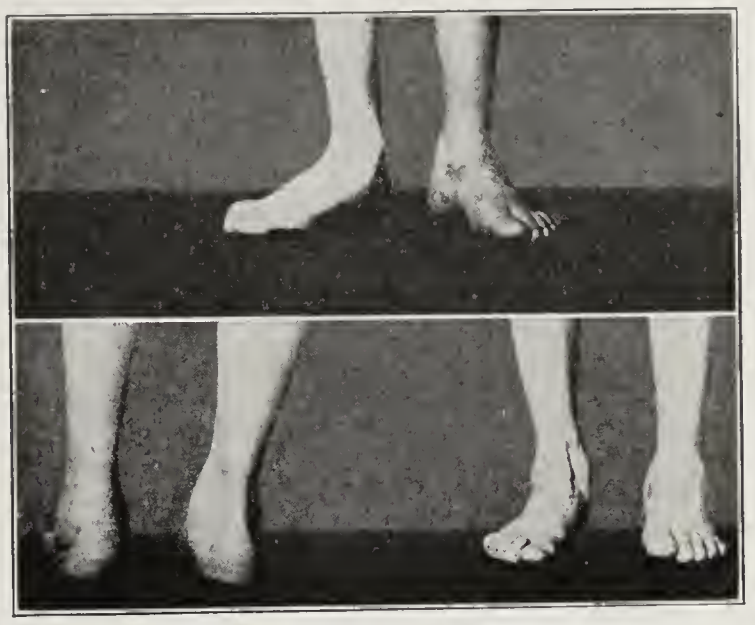


Fig. 9.—Three views of a paralytic valgus foot. The other foot shows the effects of its increased burden, it having developed moderate valgus.

lus. Brenner considers the inward displacement of the posterior fragment to be the principal consideration. He generally avoids Achilles tenotomy by placing the foot in plantar flexion (!).

Riedl [8] reports that Brenner fixes the fragments in no way and produces the necessary correction after the limb is in the plaster cast (!). The cast is removed in three or four weeks.

The results with the various modifications of the Gleich operation are excellent. A new pedal arch is



Fig. 10.—Result after supramalleolar osteotomy and deviation outward to counteract an overcorrection. The patient had a bowed leg just above the malleoli, which was corrected and the result made perfect.

finally formed, although it sometimes takes as long as a year to secure a complete result. Riedl says: "I fully concur in the statements made by the above mentioned

8. Riedl: Gleich Operation, Arch. f. klin. Chir. **8.**

authors as to the value of this simple Gleich-Brenner operation, and prefer it to all other bone and tendon operations in the more severe cases of flatfoot."

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. LOWMAN AND LORD

Dr. M. S. Henderson, Rochester, Minn.: Dr. Lowman is to be congratulated on the results he has obtained. I have never done this particular operation. I have done the arthrodesis of the astraguloscaphoid joint, taking out a wedge bone, and in these bad cases have obtained some very good results. I can see where his method of hitching up the calcaneoscaphoid ligament will help a great deal, and using the tendon of the tibialis anticus in the manner described will further correct the deformity. Dr. Lord's operation, too, is more or less new to me. An osteotomy to correct the lateral deformity is not new to me, but the exact manner in which Dr. Lord does it is different. His results show that the operation does correct the deformity and gives stability.

Dr. Arthur L. Fisher, San Francisco: It seems to me that the etiology of flatfoot is more simple than Dr. Lowman makes it. The main factors involved are weakness of the muscle and stretching of the ligaments. The skeletal changes are of secondary importance. Any arch requires something to hold it up, whether it is a masonry arch or an osseous arch. It requires either a buttress or a tie ligament. In the foot, tie ligaments are represented by the plantar fascia and the short flexors of the foot. If those ligaments are stretched, the arch naturally descends. The thing to do is to remedy the stretching of those ligaments. This can be done by replacing the foot, and making pressure. As it is done ordinarily, it is no better than inserting a plate, if the pressure is made upward. If we attempt to get a shortening of the ligaments that way we shall fail. If, on the other hand, we make downward pressure, on the dorsum of the foot, than the plantar fascia will wrinkle, and it will gradually shorten, if the foot is maintained in plaster of Paris. That is the essential thing in the treatment. The reason so many plates fail is that they stretch the plantar fascia, and when the plate is removed, the condition is worse than it was before. Of course, muscle training must be given when the plaster of Paris is removed. It is highly essential to differentiate between the rigid flatfoot and the flexible one. Rigid flatfoot is due to arthritis, and that condition should be treated. Another thing I am going to take exception to in Dr. Lowman's paper is the operation in flatfoot merely for the cosmetic effect. It is hardly justifiable to operate on flat feet simply because they are flat, if they are symptomless. With the operation itself I have had no experience, but I think it is a very ingenious one and in a case that is suitable for it, it will do all that is expected of it. The only thing that strikes me is that it is a very extreme procedure for a condition than can be corrected by other methods.

Dr. H. Winnett Orr, Lincoln, Neb.: I have not employed Dr. Lowman's operative technic in such cases, but he has offered us some very valuable suggestions along the line of treatment of disabled and deformed feet of this character. I wish to call attention to two points mentioned by Dr. Lord. I had an experience with three industrial cases, fractures of the calcaneum with very severe pronation of the foot. The disability extended over periods of from one week to several months after the accident. All three patients were either claiming or about to claim rather large amounts of compensation as the result of their disabilities. In all these cases I did procedures similar to those Dr. Lord has described. Dr. Lord, and the majority of those who have written on this subject, stated that no control by means of a nail or any other mechanical means is necessary. With that statement I find myself not in accord, because in my cases, and in those following fracture, or in any other condition in which there is a considerable amount of spasm of the Achilles tendon, there is great danger of not being able to control this posterior fragment of the os calcis unless a nail or a pin is used. In the three cases in which I did this operation, or an operation resembling it, I found it was necessary to use a nail to control the fragment and keep it down where it belonged. One man had a fracture existing several months with outward and upward displacement, severe deformity and disability, and in that case I used only a nail to hold the fragment down. In two cases, plaster of Paris had been employed originally in a fairly skilful manner, but in all of the cases there had been a complete failure to keep the posterior fragment in correct position. I believe it will be found that control of the fragment by a nail is very simple and involves no particular risk, and makes the progress of the case much more certain than if the nail were not used.

Dr. Frank Lowe, San Francisco: I think we operate many times too frequently for flatfoot. The patient is subjected to unnecessary chances for infection. Exostoses may prevent correction, and then operation is indicated. Correction may be effected by forcing the scaphoid back into position, thereby lessening the calcaneoscaphoid space. Mild or flexible types of flatfoot, properly padded with good absorbent cotton, can be held corrected by an assistant, skilfully trained, and placed in plaster-of-Paris dressings by the surgeon. Rigid flatfoot and traumatic cases can be corrected forcibly with the osteoclast, and then application of plaster of Paris. The bottom of the plaster cast is reinforced like a rocker beneath the arch. The patient will not miss the ankle joint in walking, and the plaster softens beneath the foot and further corrects the flatfoot by forcing the convex surface of the plaster upward under the arch. Patients are allowed to walk daily. At the end of four weeks the casts are removed. A drawing is made of the feet, and from these diagrams a pair of felt arch supports are made. Feet are retained in corrected position by second casts until arch supports are ready. These felt arches are flexible, and allow normal foot movements. There is no steel shank present. Flatfoot is not due to stretching of ligaments and plantar fascia. It is necessary to have a weakening of the tibialis anticus muscle. The latter muscle, owing to overweight, lack of exercise, faulty development of bones in mediotarsal-tarsal regions, becomes weakened, overstretched and atrophied. The peroneus group of muscles are contracted and sore. The plantar fascia acts like a bow string, and causes the anterior two thirds of the foot to abduct. The weakened tibial muscle allows the arch to buckle downward and inward. White fibrous tissue, of which the ligaments and plantar fascia are composed, does not stretch. Atrophy of tibialis anticus muscle can be demonstrated by palpating along the outer border of the crest of the tibia. Placing the feet in a properly applied plaster-of-Paris dressing allows the muscles to recuperate. Many cures are effected by wearing felt arch supports and straight last shoes with shanks strong enough to support the body weight.

Dr. W. G. Stern, Cleveland: These two papers attack this problem from two different angles. One operation raises and pulls up the bow of the arch, and the other operation adjusts the posterior buttress so that the arch is again reformed. I have had some experience with an operation similar to Dr. Lowman's. I did not transplant the tendon of the tibialis anterior in the ingenious way he does. I think Dr. Lowman's operation is safe and sane, and I can heartily second his recommendation for its use. It seems to me that not enough stress was laid in one paper on the influence of the muscle buttresses and muscle contracture in causing the type of flatfoot for which Dr. Lowman's operation is most suitable. I should think his operation was more suitable in juvenile congenital flatfoot than in the flatfoot of adults, especially that seen as the result of trauma. I have found that practically all the muscles of the foot in the more severe types of congenital flatfoot act in such a manner that they increase the amount of displacement of both the front and back halves of the foot, and that the tibialis anticus, as well as the extensors communis and peronei, were tight and acted as abductors. Many times a plaster-of-Paris cast applied after the manner of Dr. Fisher, is all that is necessary to correct; but if that is insufficient, then an operation, such as proposed by Dr. Lowman, possibly amplified with the lengthening of the Achilles tendon in the proper fashion, will effect a cure. I am sure Dr. Lowman did not mean to give the impression

that he operates merely for appearances. Many of these patients are badly disabled. In cases of a twisted foot in adults, especially after fracture, Dr. Lord's operation is the solution. A fracture of the os calcis is one of the most disabling deformities a workman can get on account of the pes planus resulting. In caring for fresh fractures of the os calcis, we should take the fragment to which the Achilles tendon is attached and turn it inward and pull it downward. We must be sure to get the posterior fragment downward and inward, to avoid later disability.

DR. E. W. CLEARY, San Francisco: It seems to me that Dr. Lowman's operation is mechanically correct and very carefully worked out. I want to speak particularly of old fractures of the os calcis. I have seen a great number of such fractures, with extreme degree of deformity and disability. I believe that very few fractures of the os calcis are efficiently reduced in their recent stage. I have felt that there has not been, up to the present, any treatment either surgical or conservative, that would relieve the extreme disability following an old, unreduced fracture of the os calcis, and I cannot see that either of the operative procedures under discussion fully solves that problem. The procedure described by Dr. Lord will undoubtedly correct the pronation deformity, but in my experience the great factor in the disability, after an old unreduced fracture of the os calcis, is the almost absolute loss of lateral mobility in the subastragaloid joint. I hope that some one will find a procedure that will restore, to a degree, at least, the lateral mobility that is lost, and relieve the pain that is consequent on the loss of lateral mobility in the subastragaloid joint after old fractures of the os calcis. I believe there is coming into more general recognition a treatment of recent fractures of the os calcis by traction with ice tongs, which method, I believe, tends to overcome the widening and the loss of lateral mobility.

DR. CHARLES LEROY LOWMAN, Los Angeles: I tried to be specific in stating that we were dealing with a particular kind of flatfoot, cases that were absolutely incurable after many years of conservative work. I do not think that there is any more conservative man, from the standpoint of operative work, than I am. I had done work a long, long time by corrective and preventive means before I ever resorted to operation.

DR. JOHN PRENTISS LORD, Omaha: My work had practically all been finished and my conclusions arrived at before I discovered the literature which is given in my paper. All my patients were adults. The flatfoot had existed for a long time, sometimes from childhood, and definite structural changes were present in the bone. Many of them were so-called osseous flatfoot.



Fig. 1.—Appearance of V. J., at age of 3, after fracture and rotation of both humeri.

Malaria Control at Low Costs.—The International Health Board conducted a series of demonstrations in small towns in Arkansas and Mississippi, in cooperation with the state and federal authorities, in 1916, to determine whether a small city, a town or a rural area could be protected against malaria at a cost that the local population could afford. The result of these experiments was so successful that for the season 1920 widespread demonstrations were begun under the joint auspices of the local government, state health departments, the U. S. Public Health Service, and the International Health Board. The program for 1922 included thirty-four county-wide malaria control demonstrations and thirty-two town demonstrations in ten states, which afforded proof that under normal conditions an average community can practically rid itself of malaria at a per capita cost of from 45 cents to $1 a year.

ARTHROGRYPOSIS MULTIPLEX CONGENITA *

WALTER G. STERN, M.D.
Orthopedic Surgeon, Mount Sinai and St. John's Hospitals, Cleveland, and Surgeon in Chief, Gates Hospital for Crippled Children, Elyria, Ohio
CLEVELAND, OHIO

Having had under my care, in recent years, four cases of congenital, multiple, incomplete fibrous ankylosis of the joints of the extremities, with complete extension of the arms and legs (Fig. 1), not due to muscle or tendon contractures, and having recently seen several additional cases of a similar nature at the clinic of Dr. Chatterton at Phalen Park, St. Paul, I feel impelled to present this condition to the profession at large, as a constant, characteristic and real—though rare—medical entity. It is unfortunate that I have not found a shorter term to describe this deformity adequately, but it is likely that a shorter name will suggest itself to the reader and to the critics who might review this paper.

The principal characteristics of this condition seem to be a congenital limitation of motion in all the joints of the body except the maxillary joints and the vertebral column; a characteristic rotation deformity of the arms (inward) and the thighs (outward), and a fusiform or cylindric shape to the elbows and knees, the latter of which are extended, while the wrists are flexed, the hands compressed and the feet twisted. The head and neck are not deformed or compressed, though there is a marked atrophy of the muscles of the shoulder girdle. The limitation of motion does not seem to come directly from malformation of the joint surfaces (as in one of my cases at least 25 per cent. increase of motion was obtained in the shoulders, elbows, hips and knees by daily passive motion and physiotherapy alone), nor is it due to multiple congenital contractures of the muscles and tendons, as these do not exist. One patient presented a congenital dislocation of the hip, while another had subluxation of both tibias. With the exception of these two conditions, the roentgenograms showed no marked abnormalities of the joints (Figs. 4, 5 and 6).

The capsule of the joints and surrounding tissues, especially of the knees and elbows, seemed unduly thickened (elbow, Fig. 4).

The limitation of motion in the joints is quite characteristic; motion in the joints is quite free and unimpeded for a few degrees to either side of the center of the arc of motion. Beyond this, both active and passive motions are impossible. Motion does not set up any tension or contractures in the tendons controlling joint motion. Owing to the limitation of voluntary motion, the musculature of the limbs is not well developed. In no case was there any genuine loss of nerve or mus-

* Read before the Section on Orthopedic Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

cle function demonstrable. As far as they could be demonstrated in such subjects, all reflexes and sensations were normal.

The special senses reacted normally to efficiency tests, but the children seemed somewhat backward in their mental development. Only a few of the older children seem to have acquired the ability to walk; all can sit up. The child whose condition is shown in Figure 1 did not sit up or walk until over 3 years of age. The head and neck are not malformed and are well developed. This child and the one shown in Figure 2 have a marked atrophy of the muscles of the shoulder girdle. The arms are rotated inwardly at the shoulder joint; abduction and adduction, and flexion and extension are each possible but only to about 5 or 6 degrees. The elbows are fusiform and symmetrically enlarged; the olecranon points almost anteriorly, and the joint is habitually held almost completely extended. The relative length of the arms is normal, in contradistinction to that of the lower limbs.



Fig. 2.—Appearance of C. C. (courtesy of Dr. Chatterton of St. Paul).

The bones of the forearm are rotated, though not deformed, and the wrist is held pronated and semiflexed, while the hands and fingers are compressed so that the fingers in the early cases are gathered together into a point.

The thumbs of the colored child are adducted so far that they seem to come off at a right angle. The flexors of the elbow and the fingers, the triceps and pectoral muscle and the muscles of the hands and feet do not present contractures.

The lower limbs are relatively short, and the hips are held extended and rotated outward about 60 degrees: about 10 degrees of flexion and abduction are possible. One case presented a congenital dislocation of the hip; another presented a subluxation of the tibia. The knees are turned outward and held fully extended; about 15 degrees of flexion is usually possible. The feet are small and twisted, the toes short, pointed and compressed (Fig. 3, left foot) but not at all typical of congenital clubfoot. There is a dimpling of the skin over the elbows and over the patella (Fig. 3, right knee).

There are at least three etiologic possibilities for this condition: (1) maldevelopment of the ovum or the fetus; (2) intra-uterine joint disease—periarthritis, or (3) intra-uterine pressure and forced intra-uterine positions.

The position and shape of the hands and feet are evidently those of a forced and long continued intra-uterine position. The dislocation of the hip, the genu recurvatum and the cramped position of the fingers all speak for untoward intra-uterine pressure as an etiologic element. Against this, however, are the marked limitation in the motions of the joints, the thickening of the capsule and the tissues surrounding the elbow and knee joints, the wasting of the muscles, and the absence of permanently contracted flexor muscles such as is seen in undoubted cases of intra-uterine contractures. The knee and elbow symptoms all speak for some form of inflammation about the joints, possibly some intra-uterine periarthritis. The deformities are too symmetrical and too regularly distributed to be the result of abnormal embryonic growth. It is more than likely that these cases are the result of a rare combination of both the intra-uterine periarthritis and intra-uterine pressure.

Every form of treatment so far applied in any of these cases seems to be ineffective in increasing greatly the arc of motion of the affected joints. Numerous open operations done on my oldest patient (at other hands) in no way restored the ability to walk or increased the useful range of motion or strength to the upper extremities.

In the second case (the colored child), osteoclases to the humeri, to both bones of the forearm, the femurs and both bones of the leg permitted both the upper and lower extremities to be rotated into their normal planes, while physiotherapy, massage, gymnastics and exercise over a period of two years has increased somewhat the range of motion to the shoulders and elbows. This is the case in which the muscles of the neck and the shoulder girdle are almost entirely absent; and yet, even were they present, the useful range of motion to the shoulders would be small. The deformities of the hands and feet can be corrected by redressment.



Fig. 3.—Characteristic appearance of the arms; rotation of left femur, pointing of toes of left foot, left varus and dimpling of skin over right patella (courtesy of Dr. Chatterton of St. Paul).

These patients can be taught to do some useful things with their deformed hands, but the chances for making them self supporting are, indeed, very small. It is my opinion that these children are all good subjects for custodial institutional care; the work and the facilities could thereby be brought directly to the patients, and in this way they might be made to contribute something toward their support.

Note.—In order to get an accurate idea of the relative frequency of this deformity, the author would be very grateful if the reader would kindly report to him any cases which have come under his observation.

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ABSTRACT OF DISCUSSION

DR. WILLIS C. CAMPBELL, Memphis, Tenn.: I have seen two cases of this condition. It may be not only general but also local. I have seen cases in which there were similar deformities in one or more joints of the lower and upper extremity, and, in some instances, associated with other anomalies, such as congenital dislocation of the hip. One of my patients had extreme club feet and club hands. The

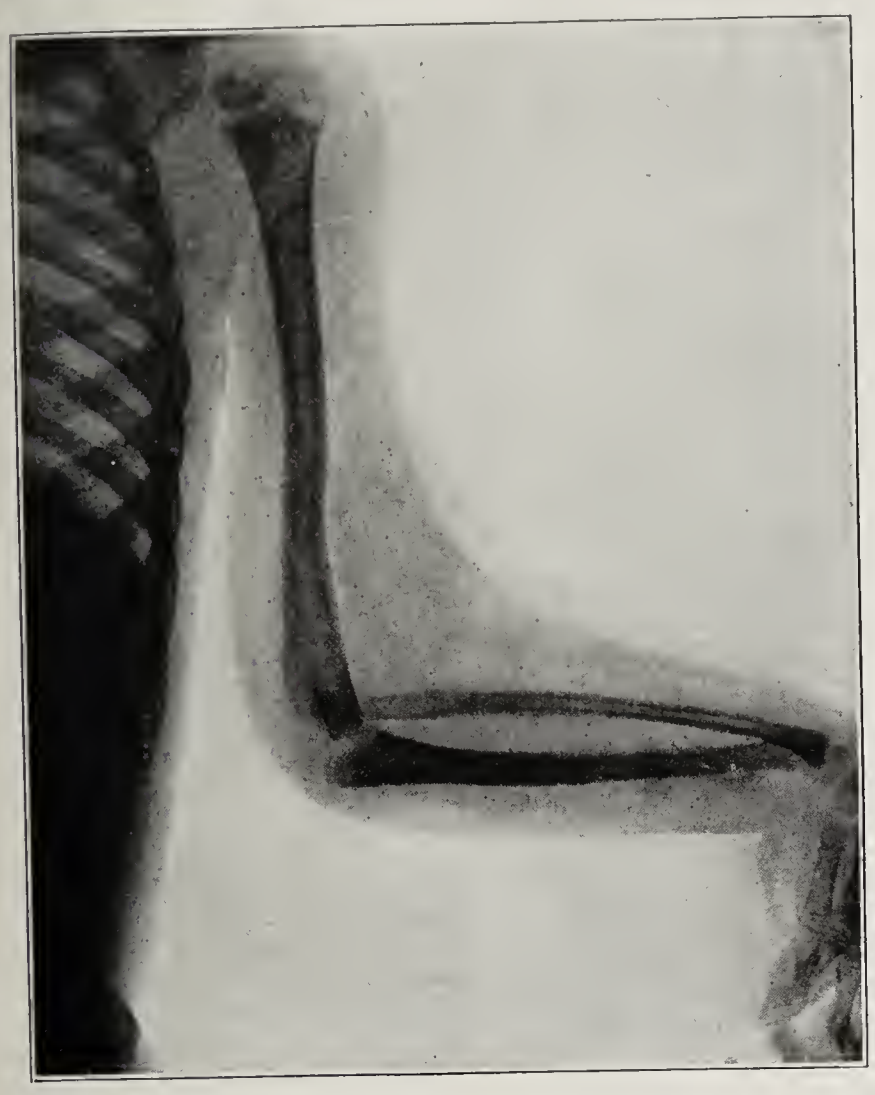


Fig. 4.—Shoulder, elbow and wrist of V. J.

knees were blocked at about 40 degrees; they were very useful members, however, and he could get about very well so far as his knees were concerned. I simply did a rather radical operation on the club feet and on the club hands. This boy was not nearly so severe a type as the subsequent case we had. On the club hand we did a resection operation at the wrist, and removed some carpal bone so as to give him an extended wrist, and we were able to relieve him to a considerable extent, so that he will be able to return to the ordinary public school and continue life as a practically normal individual. Another patient had club feet and a complete anterior dislocation of the head of the radius. The radius was probably an inch or more longer than the ulna, and projected above the joint. I thought it was probably blocking the joint. We straightened the club feet radically, and we have operated on one elbow, trying to do a reconstruction operation there, possibly to give the boy a more useful joint. His elbow was blocked at about 140 degrees, so that it was impossible for him to get his hand to his mouth. Both hands were extremely pronated. I removed a portion of the upper extremity of the radius. I thought possibly that was the cause of the blocking. It was not, however, and required a more extensive dissection on the joint, so as to obtain better function. We also did radical procedures in the hand and at present he has a fairly useful elbow. He is still under treatment in the hospital. I feel that a great deal can be done for these children by successive operative procedures. There is no precedent to follow. We simply have to do such a reconstruction operation as may be required by the anomalies in each individual.

DR. G. J. MCCHESNEY, San Francisco: This is undoubtedly a clinical entity. I have under observation now a case in which the elbow contracture is most marked, the contracture being less in the legs. There is a marked compression deformity of the thorax. The sternum is depressed; the whole thorax looks as if it had been squeezed tightly. The patient is a new-born infant; perhaps older children do not show this thorax deformity on account of the expansion by respiration during the early years of life.

DR. F. J. GAENSLEN, Milwaukee: The condition described is unusual, and interesting from the standpoint of etiology I had not known of this condition until quite recently. I can fully agree with Dr. Stern in assuming that the condition is due largely to intra-uterine pressure. I also feel that the picture is not necessarily constant, but one that may vary, depending on the intra-uterine position. In a case I saw the position was practically that discussed by Dr. Stern, except that the knees were in flexion. Motion at the shoulders and hips was considerably restricted. As the patient was only 3 months old and the numerous skin folds and creases due to intra-uterine position were still present, there was no difficulty in "packing" this infant into the exact position it occupied in the uterus—with the arms rotated inward, the olecranon on each side pointing forward, the elbows almost fully extended, the hips completely extended, the knees acutely flexed, and the leg crossed behind, each heel resting against the opposite buttock. The index fingers and thumb lay parallel in full extension and in close contact with one another. There was definite flattening of the apposed surfaces of the thumb and index fingers from the long continued pressure. I wish Dr. Stern would go a little further into the position of extension of the hips and knees. If this condition is congenital, it would mean that the fetus had been in utero in the upright position, with, no doubt, some flexion of the spine. That position seems to be impossible. Contrary to Dr. Stern's cases, my own showed marked limitation of motion in the spine in extension so that when the legs were lifted up, the child being in the prone position

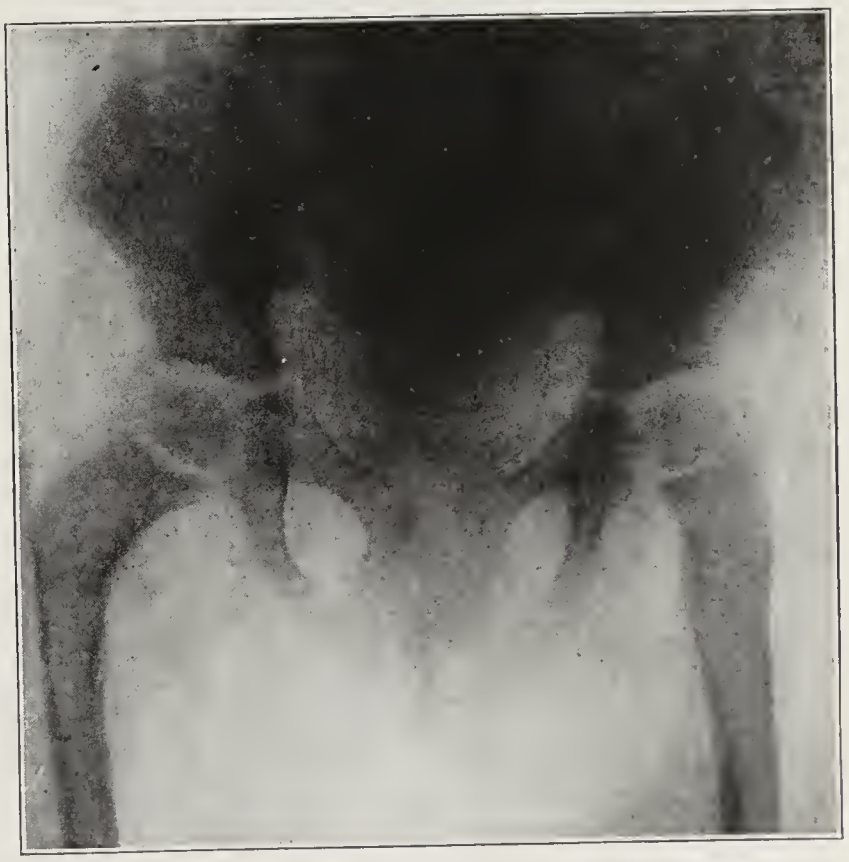


Fig. 5.—Hips of V. J.

on the table, hyperextension of the spine was impossible. What the factors are producing the thickening of the joints I am unable to say. It is possible that extension of the knees might be produced through long continued splinting for congenital flexion contractures. The fact that Dr. Stern found dimpling over the knees would indicate that the knees in utero had been in acute flexion. The fact that he was able to get a considerable increase in motion in the joints follow-

ing a comparatively short period of treatment would indicate that there was really no intrinsic joint disturbance of the nature of an arthritis. Dr. Stern believes that the thickening was of the nature of a periarthritis. My patient had snuffles, although the Wassermann reaction was negative. Whether syphilis might be a factor in producing periarthritis changes in utero I do not know. One other factor that may assist in explaining the fibrous ankylosis of the joints is a trophic disturbance due to continued pressure of the nerves supplying the joints involved. In the upper extremity this could readily happen by pressure of the internally rotated head against the brachial plexus.

DR. CHARLES LEROY LOWMAN, Los Angeles: It is a very serious economic situation for a hospital management to care for such a case. This year I had a case that came from a very indigent family. The child was found eating with his nose in his plate. At the time he was brought to us, both feet were turned completely backward. We corrected the club feet and the boy was able to walk very well, and he came back about two years ago. His hands are in the typical position described by Dr. Stern. I think that his argument in regard to congenital pressure holds very well because this boy had almost a complete absence of deltoids We have never been able to demonstrate any shoulder abductors.

DR. WALTER G. STERN, Cleveland: I purposely did not describe any cases of variations of cases in which characteristic deformity was limited to one limb. I wanted to make the point that this is a real medical entity. The variations can come later on. Many things have been done in our cases that I did not speak of. For instance, in one case we were able to trace back the whole family and had different biologic tests made — measurements, the Wassermann test, blood chemistry tests, and the many things that Dr. Goldthwait spoke of. Up to the present our results have all been negative. We measured the other children of the family of several patients and took the relative size of the trunk and the arms and the width of the shoulders and the lower ribs and all that sort of thing, and the only thing the measurements have shown is that in the affected children alone the relative length of the upper extremities is normal, while the relative length of the lower extremities is short. Dr. Gaenslen has raised a pertinent question that I do not really know how to answer. The patients I have seen have all had their knees and hips extended. One child, aged 3 months, had hips that were flexed to 5 or 10 degrees, and the knees were both extended. Both the mother and the obstetrician say that this was the condition they noticed immediately after birth. My youngest and latest patient was less than a week old. It was thought to be a case of congenital clubfoot, and when I saw the child eight days after birth, the hips and knees were at that time in extension; though there was a subluxation of both knees, with an arc of 5 or 10 degrees of motion. One of the characteristic things in all these cases seems to be that the capsule of the larger joints is thick, so that at first glance, if you only saw the photograph of the elbow, you might think you were dealing with a tumor albus. It is my opinion that the limitation of motion is due to the thickening of the periarticular tissues and not to any muscle or tendon contracture.



Fig. 6.—Knees and feet of V. J.: 90 degrees of rotation between hips and knee.

STONE EVACUATING CYSTOSCOPE*

RAYMOND L. SCHULZ, M.D.
LOS ANGELES

One of the difficulties in removing stones from the urinary bladder with the ordinary lithotrite is that the process is not under sufficient visual control, and it is not easy to get out all of the fragments even after they have been crushed. Residual fragments become the nuclei for further stone formation.

Lithotrites which embody a cystoscopic telescope are now available. Some of these instruments are of so large a caliber as to have a limited field for use. For crushing stones, the Bigelow lithotrite is still a very good instrument, and can be found in many hospitals. Most of the evacuators heretofore in use have been more or less cumbersome. The work has to be done blindly, and considerable irrigation is sometimes necessary in order to remove all fragments. Apparently no one method is applicable in all cases. The device here presented is intended to simplify the complete removal of all fragments of stone after litholapaxy.

The apparatus consists of two portions, a plain direct observation cystoscopic tube and a suction device, which consists of two tubes crossed at right angles, with full openings into each other at the point of intersection. One end of the horizontal tube fits into the end of the cystoscope. The cystoscopic window is inserted opposite it. The upper end of the vertical tube is closed with a small glass dome or cap for observation and collection of air bubbles. Escape of the air is permitted through an L tube with stopcock, which reaches to the top of the air chamber and emerges at the side of the tube. This part of the device is very essential. It keeps the cystoscopic field free from air bubbles and thus makes it possible to view the interior of the bladder simultaneously with the manipulation of the suction device. To the lower end of the vertical tube a small, clear, glass bottle is attached by means of a perforated rubber stopper. Just below the joint of intersection of the main tubes is a moderately large tube at right angles to the plane of intersection and curved downward. The strong rubber suction bulb is attached here. At the point at which this tube connects with the vertical portion is a fine wire screen which prevents fragments from entering the suction bulb.

The bladder stones are crushed in the usual way with a lithotrite. The cystoscopic tube is then inserted into

* Read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

the bladder and the major portion of débris washed out a few times by simple irrigation. When the return fluid is clear enough, the suction apparatus is attached to the cystoscope. The entire system is filled with water from the irrigator, and the air is allowed to escape from the dome. During the filling with water, the bulb is gently compressed several times so as to expel all the air. The patient's bladder should not be overdistended. The electric light is then turned on, and one gets a clear view of the inside of the bladder through the observation window. Fragments of calculi are readily located. The suction bulb is gently and completely compressed, while the other hand manipulates the cystoscope in search of fragments and brings the beak into proximity to them. Then the compression is slowly released, thus producing a strong current of water, which carries with it the fragments seen and deposits them in the bottle. The entire process is visible throughout; the stones can be seen rushing up into the cystoscope, and if a fragment does not pass readily, it may sometimes be coaxed up by alternate compression and suction, or manipulation of the beak of the cystoscope.



Stone evacuating cystoscope.

Fragments that are too large to pass through the cystoscope must be either crushed still smaller or broken by means of a long snare, which may be used in the same cystoscope through a special window. After the fragment has been broken small enough, it may be evacuated immediately through the same tube.

The snare was made from an ordinary nasal snare. The cannula was replaced by a longer tube, which was bent slightly at its proximal end in order to provide sufficient clearance to permit observation through the cystoscope. The advantage of the snare is that it may be used through the same cystoscope that is already in the bladder. It is easier on the patient to use a few minutes in placing the snare accurately over a stone than it would be to change instruments in the urethra and go fishing for the small stone with a lithotrite. For breaking some of the smaller bladder stones, Dr. Young's cystoscopic ronguer is very useful and easier to manipulate. The latter instrument could be improved considerably by reversing the handles. As it is, with beak and handles on opposite sides, it is awkward to manipulate.

The cystoscopic tubes were specially made for this purpose. Other tubes were tried but found to be unsatisfactory. It is very necessary that the tube have an unobstructed lumen and be of sufficient length to reach well into the bladder. The stopcock on the side of the cystoscope has been made exceptionally large so as to facilitate rapid filling of the apparatus when in use. Special operating windows will permit various other intravesical procedures through these cystoscopes.

By means of this cystoscopic evacuator, it is possible to clean out all fragments of stone more quickly and leave the bladder in a less traumatized condition than if stronger evacuators are used which are not under visual control. This method can be employed without a general anesthetic, if the patient's bladder is not too sensitive. The use of the lithotrite is likely to be the more painful part of the procedure, but even this need not be unduly severe if one is a little bit considerate.

With the introduction of these methods, there is no longer any excuse for suprapubic lithotomy in uncomplicated cases in which the stone can be crushed. The entire process can be accomplished readily through the urethra, and the greater portion is under visual control.

The evacuator, with a few minor improvements not shown in the illustration, is being made by the Boehm Surgical Instrument Company of Rochester, N. Y.

1020 Story Building.

ABSTRACT OF DISCUSSION

DR. PAUL A. FERRIER, Pasadena, Calif.: Dr. Schulz has used this instrument twice in my office, and I am sure that it shortens the time necessary to evacuate the fragments, as compared with the Bigelow instrument.

DR. ALBERT E. GOLDSTEIN, Baltimore: I am sure that in my work this instrument would be of value. We have used the Bigelow evacuator, but this one seems to be more applicable. The snare that is applied may cause some difficulty in that it will not crush or break large pieces, and the lithotrite will have to be reintroduced. The main point, I think, is to crush the stone at one sitting, if possible, and remove it all at the same sitting with this instrument. After the stone has been crushed, the evacuator is introduced and the crushed stone removed by observation; but if any large pieces are left, the lithotrite will have to be reintroduced. Our procedure of crushing the stones and then the introduction of this evacuator would be an ideal method. I believe that it would cause less trauma, and there would be no bleeding to obscure vision.

DR. RAYMOND L. SCHULZ, Los Angeles: Dr. Braasch emphasized the fact that the large stones can be grasped quite readily with the lithotrite. That was my intention—to grasp the large stones and then get the small fragments with this apparatus. I think that this is easier than to go fishing around with a lithotrite. The snare is not the easiest thing to use, but I have used it successfully in removing small pieces of stone and consider it superior to the lithotrite. If there is any bleeding in the bladder, that would, of course, interfere with vision when using any kind of an instrument. One would either have to wait until it subsided or resort to other measures.

Genius.—The theory that genius is a recessive trait and therefore due to the loss of something receives a certain degree of plausibility from the apparently sporadic appearance of great minds.—Holmes: Studies in Evolution and Eugenics, New York, 1923.

A CLINICAL STUDY OF URETERS*

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The ureter is a subject of great interest to the abdominal surgeon as well as to the urologist. More and more are surgeons learning that abdominal pain, either



Fig. 1.—Reduplication of ureter, complete, with double kidney; this condition is not so infrequent as was formerly considered.

right or left sided, is often caused by lesions of the ureter. In all obscure pains of this region, the condition of the ureters and kidneys should be determined. In going over my consultation records, I am greatly impressed by the patients who have been unsuccessfully operated on for abdominal pain, only to find a urologic condition present, such as stricture of the ureter, regurgitation from the bladder up the ureter, dilatation, nephroptosis, kinks of the ureter and impacted calculus.

My object in this paper is not to report any new or rare pathologic lesions, but to demonstrate just what things are discovered by routine pyelograms; at the same time, it is also urged that the ureters be more carefully studied, for such study will often clear up obscure symptoms which have embarrassed the diagnostician. The kidney and bladder have been better studied than the tube that connects them. It is an organ that has its own identity and will bear closer study in order to learn its pathologic changes and consequent symptoms.

ANATOMY OF THE URETER

Briefly, the ureter is a muscular tube with a diameter of 0.5 cm. and an average length of from 29 to 30 cm. The left one is 1 cm. longer than the right. The tube when empty is slightly flattened, with a star-shaped lumen on cross section. The caliber is not uniform, there being several points of constriction due to the circular or ring muscles; first, just below the renal pelvis; second, crossing over the iliac vessels; third, through the broad ligaments (in women); fourth, in the wall of the bladder. These divide the ureter into several clearly defined sectors.

Structure.—There are three coats to the ureter, an outer fibrous coat, a middle muscular layer and the mucosa. The fibrous envelop is very loose, and is thickest near the bladder. The muscular structure consists of an outer and inner longitudinal layer and a middle circular layer. The mucosa is four cells deep, with columnar epithelium.

Vessels.—The vessels of the ureter consist of (1) twigs from the renal artery; (2) twigs from the ovarian or spermatic artery; (3) branches from the common iliac, and (4) small twigs from the vesical artery.

Lymphatics.—These are mostly in the muscular and adventitial layers accompanying the arteries. This is a complex system. The nerves arise from the sympathetic system; hence, they give general abdominal pain, nausea and vomiting when acute lesions develop.

RELATIONSHIP OF THE URETERS TO THE ABDOMINAL ORGANS

First of all, the ureters are suspended from the kidney, a loosely attached organ lying in the renal niche



Fig. 2.—A peristaltic wave working against a kink in the ureter; such waves produce colic and simulate calculi.

or shelf; and, secondly, they are retroperitoneal. These are two important points to remember in reading ureterograms in which there are intraperitoneal or retroperitoneal growths displacing the ureters. Have the ureters a fixed course? Only approximately, lying just outside the line that marks the tips of the transverse processes of the lumbar vertebrae. The ureters

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do not adhere to the muscles over which they lie and pass, but are really incorporated in the posterior layer of the peritoneum. This also is important to remember, as in the extraperitoneal exposure of the ureter in its middle and lower third. I have seen surgeons hunt a long while for the ureter, carefully combing the iliac vessels and muscle bed when the ureter was hid-



Fig. 3.—A dilated ureter and pelvis; several kinks and angulations can be seen which produced tenderness, and a dull ache in the left part the abdomen.

den under a retractor in the wall of the peritoneum. When periureteritis takes place, the ureter becomes firmly attached to the peritoneum in places, interfering with its wavelike contractions, or peristalsis, and sharp kinks develop.

On the right side, the ureter passes directly under the head of the cecum and near the base of the appendix. This is one reason why right ureteral pain is frequently confused with that of appendicitis. We can reproduce the ureteral colic with a catheter and water, but not the appendical pain.

This retromural (peritoneal) position of the ureter is an important one, indeed. At McBurney's point, the ureter dips sharply into the pelvis, as does a rope in a well. In the female pelvis, it runs through the broad ligaments, just missing the cervix uteri as it enters the bladder wall. This relationship results in a confusion of ovarian and ureteral colic. Many pelvic operations have thus been resorted to in order to relieve a pain that was really ureteral in origin.

The importance of recognizing this relationship of the ureter is well illustrated by this case:

B. B. Z., a man, aged 25, a coal miner and former soldier, complained of a pain on the left side in the region of the kidney. The patient had no fever, and chemical examination of the blood and blood counts were normal. The roentgen ray revealed no pathologic changes either in the kidney or in the vertebrae. There were no urinary symptoms, and the only symptom noted was an area of dulness anterior in the region of the left kidney and a dull ache in the left hip and groin. A urologic study was made. No disease condition was found in the kidney glands, but the pyelogram showed a marked displacement of the left ureter toward the median line. This could mean only one thing: that there was a retroperitoneal mass pushing the ureter upward to one side. This patient later aspirated a large psoas abscess, from which he completely recovered after a long period of fixation of the spine.

PHYSIOLOGY OF THE RENAL PELVIS AND THE URETER

The calices and the pelvis are the expanded upper end of the ureter. It is the function of the ureter to receive the urine from the pyramids and propel it toward and into the bladder. The capacity of the normal pelvis is from 1 to 20 c.c., though 5 c.c. is an average; that of the ureter is from 1 to 5 c.c.

PERISTALSIS

Contraction starts at the pelvis and travels from 20 to 30 cm. a second; from three to six contractions occur in a minute. A swelling from 2 to 5 mm. long is seen, caused by the ureter being full of urine. Just back of this, the ureter is contracted from 1 to 5 mm. These contractions are influenced by the temperature, the blood pressure, the amount of urine and the nervous mechanism. Cold inhibits the contractions; so



Fig. 4.—A calculus impacted in the lower third of the right ureter; the maximum tenderness was located over McBurney's point; ureteral catheterization and the roentgen ray accurately plotted this obstruction.

does cutting off the blood supply. The presence of urine is not necessary for a contraction. Foreign bodies in the ureter stimulate the contraction and give colicky pains.

This peristalsis is an automatic function of the musculature, as it has been observed in a small piece of ureter cut out, just as the heart of a frog contracts

rhythmically after its removal from the body. The contractions are from above downward. These contractions take place no matter what position the body is in, and though aided somewhat by gravity, that force has nothing to do with the normal ureter. We have the familiar examples of a greatly overdistended bladder



Fig. 5.—Hydronephrosis with pyelitis, occurring in pregnancy; miscarriage frequently occurs in these patients; an understanding of renal pathologic changes present is most important before labor sets in.

hardly capable of receiving another drop, and yet the ureters continue to project their waves of urine into these bladders, against enormous pressure. However, electrical stimulation of the ureter sometimes causes reverse peristalsis. Experimentally, Lewis and Goldschmidt have produced reverse peristalsis by filling and stimulating the bladder; accompanying this was a reflux of fluid from the bladder to the kidney. This phenomenon has often been observed in making cystograms. Disease of the vesical orifice of the ureter is not necessary.

CLINICAL CHANGES

The orifice has many variations which practice alone will enable most men first to identify, and then to catheterize. The ureter travels for 2 cm. submucously, and then dives obliquely through the bladder wall. When a ureteral catheter is inserted, this portion of the ureter frequently wrinkles up; the catheter digs into the side of the lumen, and it seems impossible to thread the loose ureter down over the catheter. An attempt to change the angle of insertion is made, and also to rotate the catheter. Frequently, however, the ureter grasps the catheter and turns with it. The next expedient is to try a softer and smaller calibered catheter. Another trick is to just insert the catheter and lift up the lip of the orifice, and then to try to insert the catheter farther. Stricture of the orifice calls for incision. Spasm of the orifice requires patience and often another sitting. The "golf hole" orifice is very easy to catheterize.

The pregnant uterus and cystocele present additional difficulty in catheterizing, as these conditions displace the orifice. In men, the interureteral ridge forms a good landmark; in women, it is frequently absent. Disease of the ureter may be indicated by an edema of the orifice, or redness, deformity or displacement. Pus, blood or calculi may be seen issuing from the orifice. Edema is often an indication of stone or tuberculosis. At times, stricture or complete obstruction of the ureter will be encountered.

SPASMS OF THE URETER

Spasms of the ureter are not uncommon, especially in the presence of foreign bodies such as a stone or a catheter. Frequently, a catheter may be inserted for 10 to 15 cm., and then stop. We withdraw the No. 6 catheter we have been using and try a No. 4 or a No. 5. Often there is no such spasm with the smaller sizes. At another sitting, the spasm may be entirely absent, and the catheter may ascend with ease.

STRICTURE OF THE URETER

Stricture of the ureter is far from uncommon. Hunner's pioneer work and classic reports on ureteral stricture are well known. He encountered much opposition,



Fig. 6.—A contracted bladder, with dilated ureteral orifices and regurgitation; a cystogram was attempted and the ureterogram resulted; not all renal infections are hematogenous; some must be ascending.

but the evidence of these cases, their pain, diagnosis and the entire relief of symptoms by ureteral dilation, has been piling up steadily until there are few doubters left. The literature from all parts of the world is being enriched by such case reports. Referring back to our anatomic review of the ureter, one sees how this is true.

Pyelitis and inflammation of the ureteral mucosa, tumors from without pressing against the ureter, adjacent inflammatory processes such as chronic appendicitis and colitis, salpingitis in women, and trauma resulting from blows to the ureter—all these and other causes frequently result in stricture. Most of them are easily stretched and dilated, and the prognosis is good, two or three dilations proving sufficient. Occasionally, one encounters strictures that are very fibrous and will not dilate. I recall one recently in which only a No. 4 roentgen-ray (stiff) catheter could be inserted. This ureter would shut off entirely, giving the patient severe renal pain from distention. A transperitoneal exposure of the lower third of the ureter was performed. The tube was dilated to the size of a lead pencil; it was tortuous, and peristalsis was gone. The ureter was incised, urine being released under great pressure. No stone was found either above or below. The stricture at the orifice could not be dilated from the ureteral side; it was very fibrous, with an edematous mucosa.

NEPHROPTOSIS

Nephroptosis, with kinks and twists of the ureter, is frequently found in routine pyelograms, which show considerable variation in the caliber of these ureters, for, as a rule, they are dilated for their entire length. The calices are also blunt, rounded and distended. With a sagging of the kidney there is also a rotation of the kidney, the outer edge of the kidney turning forward and the long axis taking a decided pitch downward. These cases are the ones giving us most of our cases of orthostatic albuminuria.

Fluoroscopic study of these ureters show them to be sluggish, as their contractile or peristaltic action is greatly diminished. Naturally, the question arises What is a normal and what is a pathologic kink? The latter question is answered by the clinical symptoms of pain, either a dull ache in the kidney region or a sharp ureteral colic, simulating calculus colic, and intestinal nausea with flatulence; there is a mild hematuria in 10 per cent., and transient albuminuria in 30 per cent., of the cases. If a ureteritis or a periureteritis has existed, pathologic kinks, those producing a pinching off with total or partial obstruction, are more likely to occur. Sagging kidneys play a very definite rôle in producing kinks and dilatations of the ureters.

CALCULI OF THE URETER

Calculi of the ureter are of all sizes, shapes and locations. As a rule, they are too large to slip from the renal pelvis into the ureter. I observed a stone the size of an almond in the renal pelvis for two years. The patient kept postponing operation, though he did submit to periodic pelvic lavage. The ureter, however, became dilated, and this stone slipped into it, lodging 6 cm. below the pelvoureteral junction. It completely occluded the ureter, and this kidney was out of action for forty-eight hours. After the stone had been removed, it was another thirty-six hours before the kidney started to function. Of course, these large stones can be removed only by ureterotomy. The smaller ones, however, can be passed by patiently dilating the lower end of the ureter. Bougies up to No. 11 French, then one or two extra ones besides these, are used if necessary. These may be left in several hours or over night. Caulk [1] reports great success by this method; he delivered eighty-eight patients with ureteral stones out of ninety-six, a very high percentage. The orifice can easily be nicked with scissors, and a stone at the orifice will drop into the bladder, where it will be voided or picked up with rongeur forceps. Renal cauculi are often mutiple, and also are inclined to recur; therefore, this method of dilation is far in advance of a cutting operation. It is the comparative small calculus that often plays the most havoc, as it completely blocks the ureter. The roentgenogram often misses them, so their presence must be determined by the catheter, the absence of function and of urine, and the existence of stoppage. A calculus can either block off a ureter, suddenly and permanently, or it can block, release a little, and block again. It is in this time that a gradual dilatation of the ureter occurs with considerable pathologic changes.

Dilatation of the ureter is both congenital and acquired. These hydroureters are often very large, resembling in size and appearance the small intestine. They stretch longitudinally also, which gives them a twist and a kink. All the coats are thickened, to which a periureteritis is added. These ureters often fill up enormously, distend, and then suddenly empty out, the patient being able to record accurately this phenomenon; that is, the relief from fulness, a distress and the sudden filling of the bladder, often with cloudy urine. The patients will often tell of the disappearance of a "lump" in their side. These ureters will often hold 100 c.c. or more. Their size and shape is accurately recorded by the pyelogram. In draining them, the operating cystoscope and a No. 11 catheter should be used. The patient should sit up in a chair; it will greatly hasten the emptying of these loose, baggy tubes. One is surprised how frequently they are found when never suspected. In not a few cases, the ureterovesical orifice loses its sphincter-like action and becomes dilated, and regurgitation occurs. In making cystograms on contracted bladders, the contrast solution is frequently found filling the ureter and even giving a very good pyelogram. In one of my cases, the soft rubber catheter employed ascended the right ureter for 10 cm. This patient, with a bladder capacity of 90 c.c., was using the ureter as an auxiliary bladder. It held as much as the bladder itself.

TUBERCULOSIS OF THE URETER

Tuberculosis of the ureter, of course, is incident to tuberculosis of the kidney, parenchyma and pelvis, or of the bladder. All the coats of the ureter are greatly thickened by the inflammatory process, and tuberculous lesions occur throughout its length, extending into the bladder. Periureteritis accompanies it, becoming adherent to the peritoneum. The lumen may be very small for the thickness of the ureter, or it may be enlarged. The ureteral orifice is frequently contracted, and catheters cannot be inserted on account of an inflammatory stricture. The orifice may protrude and may be very irregular. Tubercles are often scattered below or around such an orifice. In other types, the orifice is dilated, does not close, and is flat and round. The classic description of "golf hole" orifice cannot be improved on. When such an orifice is seen, one can always count on a very large ureter above it. A rare type of tuberculous ureter was seen recently. The kidney was small and sacculated, and looked like a small bunch of grapes; the inside was filled with a pinkish white, thick, creamy substance; there was no paren-

1. Caulk, J. R.: Megalo Ureter: The Importance of the Ureterovesical Valve, J. Urol. 9: 315 (April) 1923.

chyma. The ureter was almost entirely obliterated, appearing as a small, soft, stringlike cord. From below, the catheter just traversed the submucous portion of the ureter. No function or efflux of dyes was found.

In all nephrectomies for a tuberculous condition, when shock and other conditions do not forbid it, all of the ureter possible should be removed. Some surgeons even resect the orifice and bladder portion of the diseased ureter.

CATARRHAL URETERITIS

Catarrhal ureteritis, secondary to pyelitis, is a mucous membrane inflammatory process. This condition should be considered and treated as a part of the pyelitis. It should be remembered, however, that catarrhal inflammation of the ureter is common, and plays no small part in the formation later of stone and stricture.

CONCLUSION

There are many other lesions of the ureter which I have not taken up, as tumors (papilloma, epithelioma, hypernephroma), diverticula, surgical wounds (accidental ligations and amputations), the transplantation of ureters and the various other operations performed on ureters.

Finally, I will call attention to the commoner pathologic changes. The ureter should be thought of as a very distinctive organ, with its rhythmic contraction and function quite independent of the balance of the urologic tract. The diagnosis of its lesions and the surgery to correct them must all be considered in a separate chapter from the rest of urology. In other words, let us study the ureter more than we have in the past.

ABSTRACT OF DISCUSSION

Dr. William E. Stevens, San Francisco: One of the points worthy of additional emphasis is the fact that more than one examination is necessary in order to make an accurate diagnosis. We hear some urologists advocate a single cystoscopy and pyelography and they endeavor to make an accurate diagnosis. This, however, is seldom possible. In San Francisco the majority of roentgenologists do not believe in much preparation of the patient prior to roentgenography. Breakfast is omitted the morning the picture is taken, and if good roentgenograms are not obtained because of an excessive amount of gas, additional pictures are taken, castor oil being given the night before and no breakfast the following morning. We like the Bucky-Potter diaphragm, and take one large picture, 14 by 17, which shows the entire genito-urinary tract. If suspicious shadows are seen, we use a cone with deep compression. We also ascertain the location of the shadow in relation to the pelvis of the kidney. Roentgenography is certainly most necessary in addition to the cystoscopy to determine the presence of malformation, strictures, kinks, diverticula and other conditions in connection with the ureter. We find stereoscopic pictures most advantageous when the shadow is in line with the ureter.

Dr. Herman L. Kretschmer, Chicago: The phenomenon of regurgitation is possible in normal patients, without disease of the urinary tract, and was demonstrated some years ago in children and also in adults. This phenomenon is possible also in pathologic cases in which the action of the uretro-vesical valve has been destroyed by disease. There is need of close cooperation between the roentgenologist and the urologist, and that is what we are all trying to do—to get the roentgenologic unit and the cystoscopic unit into very close proximity.

Dr. John W. Marchildon, St. Louis: I am a urologist and not a roentgenologist, and so far stereoscopic views have been more or less unsatisfactory with us. We have found that the single pictures, 8 by 10, using the cone that produces the most detail, have been the best, taking into consideration those principles that have to do with compression of the soft parts. It seems that this is not well understood, and there is very little in the literature about how to produce pictures of soft tissues with the roentgen ray, and so we use the cones rather than the Bucky-Potter diaphragm. We have used the Bucky-Potter diaphragm only when taking a large, square picture, and for very sick persons, or when there is a painful abdomen. It is not used often enough to necessitate our building a Bucky-Potter diaphragm into the cystoscopic table.

THE TREATMENT OF SEPTIC MENINGITIS BY CONTINUOUS DRAINAGE *

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AND
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Recovery from septic meningitis developing after skull fracture or, indeed, from any other cause, is sufficiently rare to justify the reporting of illustrative cases. In the present instance, we find further reasons for publishing the reports of two cases in the facts, first, that previous accounts of the therapeutic methods employed have not attracted the attention of the profession which they deserve; and, second, that in one of the cases a simplification of technic which promises to popularize the method was introduced.

A survey of the literature discloses that spinal drainage, or drainage combined with irrigation, is no novel procedure in the treatment of meningitis. During the last fifty years there have been numerous accounts of its use in some form or other, and at a number of different points in the skull or vertebral column. It is scarcely necessary to give a detailed summary of the literature on the subject for the reason that cases were too few or else results too unsatisfactory for the forming of definite conclusions on the most promising method. So we shall here make reference only to those contributions which have a bearing on our cases.

In a discussion of his experience in treating cases of head injury during the Civil War, Gross [1] of Philadelphia, in 1873, made the statement that an effusion of pus in the arachnoid space is a purely surgical condition, and, like any other pus collection, should be treated by drainage. An English surgeon, Wynter,[2] in 1891, published accounts of four cases of meningitis which were treated by drainage. Two of these are worth mentioning. In one, laminectomy in the lumbar region was done, and a rubber tube was inserted beneath the dura; in the other, an India rubber tube was introduced into the arachnoid space through a trocar, and held in place while the latter was withdrawn. Drainage continued for twenty-four hours in the latter case, and until death three days later in the former. It is interesting to note that these operations (1889-1890) antedated Quincke's [3] contribution on lumbar puncture. Following Wynter's publication, there are numerous accounts of drainage with both favorable and unfavorable consequences, chiefly the latter. One report which is well worth reading is that of Rolleston and Allingham [4] (1899), whose case of meningitis (probably

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1. Gross: Am. J. M. S. **66**: 40, 1873.
2. Wynter, W. E.: Lancet, May 2, 1891, p. 981.
3. Quincke: Verhandl. d. Cong. f. inn. Med. **10**: 321, 1891.
4. Rolleston and Allingham: Lancet **1**: 889, 1899. A review of the literature is given by Haynes: Laryngoscope **22**: 865, 1912.

meningococcic) resulted in recovery after lumbar laminectomy with drainage.

Especially noteworthy is the work (both published and unpublished) of certain St. Louis surgeons. In 1907, Kirchner,[5] in a case of meningitis that developed some days after skull fracture, reopened the cranial operation wound and on several occasions irrigated with salt solution the entire arachnoid space, introducing the solution through a needle in the lumbar region and allowing it to escape through the cranial opening. Large quantities of blood and pus were washed away, and the child eventually recovered. Leighton and Pringle,[6] in 1915, performed a lumbar laminectomy and instituted drainage with success in two cases of streptococcus meningitis that followed head injury. In 1921, Hill [7] reported two additional successful cases. July 29, 1922, without knowledge of Wynter's cases, Babler,[8] in a case of pneumococcus meningitis following a severe skull fracture, inserted a rubber catheter through a trocar and withdrew the latter. Recovery ensued. We also have information with regard to a number of other instances in which drainage was resorted to, but, unfortunately, without success. These cases were all in late stages of the disease, and in some instances, at least, drainage was not as free as could be wished. They will be referred to again in another connection.

REPORT OF CASES

CASE 1.—W. M., a white boy, aged 13 years, admitted to the St. Louis City Hospital after a 60-foot fall, was in an unconscious condition, with several bruises and lacerations about the head and shoulders, and bleeding from the right ear. During the course of the next four hours, the patient became delirious, but later again became quiet. The roentgen-ray examination by Dr. L. R. Sante disclosed a linear fracture of the skull in the left mastoid region extending across the petrous portion of the temporal bone and involving the base of the skull; there was no depression.

On the following day, the patient was more stuporous; the temperature rose to 101, and spinal fluid discharging from the ear was noticed to be cloudy.

The next day, June 29, the temperature was again elevated, there was some rigidity of the neck, and the culture taken from the discharging fluid was reported to be positive for streptococcus.

July 1, as the symptoms of meningitis were becoming more pronounced, it was decided to operate for the purpose of establishing spinal drainage. Accordingly, Dr. Rainey, with the patient under ether narcosis, did a laminectomy, removing the posterior arches of the second and third lumbar vertebrae. The dura was incised longitudinally for 3 cm., and crosswise for 1 cm. Cloudy fluid escaped in considerable amounts. A narrow strip of rubber dam was inserted just within the dural opening, and sutured in place with catgut. The muscles were closed in layers, and the wound was dressed with gauze. The duration of the operation was forty-five minutes. The patient was removed to the postoperative ward and placed in bed with the head elevated. During the night the dressing twice became saturated with fluid and had to be changed.

July 2, the patient slept quietly, and the maximum temperature was 103; fluid was still discharging freely from the wound, but there was no discharge from the ear.

July 4, the maximum temperature was 99.6, and the condition of the patient was considerably improved. During the following week, the temperature ran an irregular course, with a tendency to reduction. At the end of this period, the drain was removed.

July 18, the temperature and pulse had become normal, and there was no sign of meningitis, although mentally the patient was still somewhat confused.

July 30, on discharge from the hospital, the patient was in every respect normal, except that some mental confusion was still evident. An examination two months later was completely negative, and it was stated that the patient was taking part in play as freely as before the accident.

CASE 2.—A white man, aged 58, admitted to the St. Louis City Hospital, Sept. 24, 1922, had been accidentally shot in the right ear. The patient was conscious and rational; blood was issuing from the right external auditory meatus. There was complete paralysis in the muscular distribution of the right seventh nerve, and complete deafness in the right ear. The right knee jerk was slightly greater than the left.

September 25, the patient was in good condition, but the temperature rose to 101. The roentgen-ray examination, by Dr. L. R. Sante, disclosed that the bullet was located in the retropharyngeal tissues and perhaps in the petrous portion of the temporal bone, possibly slightly to the right of the midline. It was deemed best by Dr. Rainey not to attempt removal. The patient's condition remained unchanged during the next ten days.

October 5, the temperature rose to 102.2.

October 6, the patient was stuporous. Examination revealed slight indications of meningitis.

October 7, the temperature rose to 104, and there were positive signs of meningitis. Lumbar puncture produced turbid fluid under pressure and was found to contain 4,200 leukocytes, 98 per cent. of which were polymorphonuclears. Accordingly, under gas anesthesia, a trocar was introduced into the lumbar subarachnoid space, and a catheter was inserted through the trocar and held in place while the latter was removed.

October 8, the patient appeared much improved, although the temperature rose to 103.2. Drainage of the spinal fluid through the catheter was profuse. It was noticed that pus was issuing freely from the right ear.

For a week there was an irregular temperature with a tendency to decrease, and the spinal fluid continued to discharge but in constantly decreasing amounts.

Two days later, drainage had ceased altogether, and the patient appeared to be in a normal condition, except that there was still a discharge of pus from the ear.

This situation continued until November 11, when the patient had a chill, with nausea and vomiting, and the temperature rose to 102.4. Examination again revealed signs of meningitis, and the spinal fluid was found to be cloudy and to contain 8,000 cells, mostly polymorphonuclear leukocytes. A smear was reported as showing extracellular gram-negative diplococci.

November 15, the catheter was inserted as before, but in the interspace above that previously used.

November 16, the patient was stuporous and irrational, and the temperature was still elevated, but thereafter it gradually decreased for ten days, remaining normal afterward. The patient, however, continued to be somewhat irrational for several days longer.

Drainage continued but in decreasing amounts until November 21, when the catheter was removed and the patient was allowed to sit up in a chair. The discharge of pus from the ear was still present, but was much decreased in amount. The patient's condition continued to improve, and he was permitted to walk around the ward.

December 11, the temperature again rose, reaching 103.

December 13, an abscess was detected in the muscles of the right shoulder. The patient again became delirious but there were no signs of meningitis.

December 16, the abscess was incised, and 2 ounces of pus, which was found to contain streptococci, was evacuated.

December 18, the patient died, after developing definite signs of pneumonia. Postmortem examination revealed the bullet lodged at the right of the median line posterior to the sella and surrounded by a small amount of pus, which had a free tract for drainage into the external meatus. The arachnoid over the cerebral hemisphere was slightly thickened, but without evidence of an acute inflammation. Permission to examine the spinal cord was not obtained.

5. Kirchner, W. C. G.: Personal communication to the authors.
6. Leighton, W. E., and Pringle, J. A.: Recovery in Two Cases of Streptococcus Meningitis Following Lumbar Lamenectomy and Drainage, J. A. M. A. **64**: 2054 (June 19) 1915.
7. Hill, Roland: Surg., Gynec. & Obst. **33**: 288 (Sept.) 1921.
8. Babler, E. A.: Personal communication to the authors.

COMMENT

We feel convinced that continuous drainage is the correct principle for the treatment of septic meningitis. It seems unlikely that anything will be accomplished by following the principle now used in meningococcic meningitis, for the reason that septic organisms do not lend themselves to the preparation of specific antiserums, and the use of a nonspecific serum seems *a priori* to be without justification. Such successful results as have been reported can probably be correctly accounted for as largely the result of the drainage obtained by the lumbar puncture incident to the injection of the serum. Undoubtedly, mild cases of meningitis occur in which the patients recover spontaneously or under the influence of slight therapeutic efforts, such as the drainage obtained by lumbar puncture. During the war one of us (W. R. R.) observed such recoveries when repeated lumbar puncture was utilized for the purpose of reducing hernia cerebri. As regards irrigation of the arachnoid space between two openings, there is much to be said for its use.[9] It would not seem necessary, however, if free continuous drainage can be maintained; for it is well known that when the subdural cavity has an external opening, the rate of spinal fluid formation increases probably to several hundred cubic centimeters daily, and the fluid itself thus forms an ideally constituted and correctly flowing irrigation solution. Under such conditions, it is probable that the spinal fluid receives accretions by transudation from the cerebral veins, thus insuring lavage for the convex as well as for the ventricular surface of the brain.

So with the demonstration of the efficacy of catheter drainage, we have a method so simple and innocuous that there will be no hesitation in resorting to its use either in very early or suspicious cases, or in very late cases in which the patient is dangerously ill. One obstacle that remains to be overcome is the diminution of the flow of the spinal fluid, which invariably appears a day or two after the introduction of the tube. If results are to be attained in advanced cases or in cases of tuberculous meningitis, obviously the drainage must be quite free for a number of days. In the cases of which we know, this difficulty was surmounted, but only in part, by the daily use of aspiration with a large syringe. Evidently, adhesions quickly form and block the outlet. We have investigated this point on animals by the introduction of small pieces of rubber tissue beneath the dura. At the end of a week, the animals were killed and the surroundings of the drain examined. The rubber drains were enclosed in fine adhesions which completely occluded the dural opening. Apparently these adhesions had their origin chiefly from the fine, loose arachnoid membrane. With the dog, of course, there is not the drainage following operation that occurs in man. For one reason, the drain is introduced at the highest point of the cerebrospinal mechanism when the animal is standing, and for another reason, animals do not have the same free space beyond the cord that man has.

In our cases, daily aspiration by means of a large syringe generally withdrew a gelatinous plug from the drainage tube, which obstruction undoubtedly served to diminish the drainage. We have considered, as other means of opening the way, the introduction of a ureteral catheter through the drainage catheter in the hope that it will break up the fine adhesions which, as our experiments show, form about the drain, without at the same time injuring the roots or cord. Still another expedient would be the forcing into the drainage catheter of sterile saline solution.

There can be little doubt, from a theoretical standpoint, that the point of election for drainage is the lumbar region of the spinal column. At this point, the entire arachnoid space can be drained without any considerable stagnant pool suitable for the growth of organisms remaining. This situation obviously does not exist when the opening is situated anywhere in the cranial cavity.

An objection to drainage that has been mentioned to us is the danger of a superimposed infection arising from the drainage tube. This objection hardly deserves to be entertained, for we are mostly dealing with desperate cases in which the slight risk incident to manipulation is far outweighed by the added chances for recovery. It may be said, moreover, that in the presence of an infection, additional infection is less likely to occur or to assume serious proportions than with normal meninges, because barriers against infection have already been raised in the presence of the preexisting infection. Thus, in epidemic meningitis and in syphilitic conditions, such super-infection is rarely seen, although the manipulation incident to intraspinal therapy offers abundant opportunities for it to occur.

CONCLUSIONS

1. A survey of the literature indicates that recovery from septic meningitis rarely ensues, whatever the method of treatment.

2. The two cases described here, together with those previously reported, are sufficient to warrant giving continuous spinal drainage a fair trial as a method of therapy.

3. As contrasted with serum therapy, we believe, on theoretical grounds, that drainage offers the better prospect of success.

4. To be successful, drainage should be applied to the lumbar region, should be continuous for several days, and should be instituted early in the infection.

5. Since both laminectomy and the introduction of a trocar are simple and innocuous procedures, we recommend that in cases of septic meningitis continuous spinal drainage be given a trial.

9. Alford, L. B.: Irrigation of Subarachnoid Space, J. Nerv. & Ment. Dis. 48: 359 (Nov.) 1918. (An experimental study of subarachnoid irrigation.)

Ventilation in Mines.—Many metal mines in the United States have unsatisfactory ventilation systems. The result is that employees frequently work under conditions which materially reduce efficiency. The Department of the Interior states that high temperatures and humidities, which unduly deplete the miners' vitality, prevent his working full time, and undermine his health. Workers at faces frequently breathe air impregnated with large quantities of fine mineral dusts. While siliceous dust is probably the most dangerous, dusts low in silica are also harmful. In some instances, the air in mines has been found to have a high content of carbon dioxide or even of carbon monoxide. Remedial measures suggested by the Bureau of Mines are the adoption of mechanical ventilating methods and the use of devices for reducing the dust, including the use of wet drills and the sprinkling of mine workings, and muck piles. Not a few metal mines throughout the country have adopted all or some of the bureau's recommendations for better ventilation and dust elimination. In one mining district where health and efficiency were especially poor, improvement of ventilation and the reductions of air dust caused a 50 per cent. reduction in insurance premium rates.

BARBITAL (VERONAL) INTOXICATION *

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Since its introduction in 1903, diethylbarbituric acid, or barbital, introduced under the proprietary name "veronal," has enjoyed the reputation of being an efficient and practically harmless hypnotic in proper dosage. Especially has it gained popularity in neuropsychiatric practice, partly because of its efficacy in inducing sleep in the various anxiety states, and partly on account of its usefulness in the management of other conditions in which there are disturbances in the emotional field. Its popularity soon reached the laity, and the latter began to use it extensively for insomnia and all other conditions to which laymen apply the term "nervousness." This promptly resulted in cases of intoxication due to excessive dosage.

In order to understand the signs and symptoms of barbital intoxication, it is opportune to review the physiology of the drug, and to discuss the pathologic findings in fatal poisoning cases. Animal experimentation, clinical observation and studies of postmortem material have established the fact that the chief action of the drug is on the walls of the small vessels and capillaries, causing their dilatation. This results in slowing the circulation, reducing oxidation, dissipating heat, and lowering the temperature. The slowing of the cerebral circulation and the reduction in the rate of oxygen and carbon dioxid exchange in the cerebral capillaries are responsible for the hypnotic effect of the drug. Bachem found that, by subcutaneous injection of sodium barbital, approximately 90 per cent. of the drug was recovered in the urine. When larger doses were injected subcutaneously, only from 45 to 50 per cent. of the drug was recovered in the urine, the remainder being retained in the other tissues of the body. Fischer and Hoppe recovered barbital from the urine within forty minutes after it was administered by mouth and within fifteen minutes after its subcutaneous injection. Roemer concluded from his experimental investigations in animals that barbital in general reduces the respiration, slows the circulation, and lowers the temperature, causing a general hyperemia of all the organs, and, in the terminal stages, twitchings of the general musculature. The postmortem examinations of fatal cases as a rule showed general hyperemia of all organs, cardiac dilatation, pulmonary edema, and frequently bronchopneumonia, degeneration of the convoluted tubules of the kidneys, and fatty degeneration of the liver. The brain, with the exception of hyperemia, showed nothing of significance. Barbital may be recovered from the brain, liver or other viscera.

Barbital poisoning may be either acute or chronic, the former resulting from a single large dose, such as from 40 to 50 grains (2.6 to 3.25 gm.), and the latter from repeated smaller doses. Special idiosyncrasies toward that drug may exist, in which condition it is quite possible to get toxic symptoms from the ordinary dose of 5 to 10 grains (0.3 to 0.65 gm.). Fortunately, however, such cases are rare. The amount of the drug ordinarily causing acute toxic symptoms is above 50 grains (3.25 gm.). The literature is full of reported cases in which from 50 to 125 grains (3.25 to 8 gm.) of the drug have been taken; and the vast majority of the patients have recovered. Our own patients admitted having taken amounts from 50 to 125 grains, and have made good recoveries. Recovery from more than 125 grains is not common.

In acute intoxication, the patient is usually comatose; the temperature may be subnormal, or moderately elevated; the pulse is either very slow or rapid; respiration may be lowered or increased. The face is flushed, the lips and finger tips are somewhat cyanosed, and the extremities are cold and clammy. The blood pressure is low. The urine in this state is diminished in quantity, of specific gravity somewhat higher than normal, and contains traces of albumin, and granular and epithelial casts. The drug may be recovered from the urine. The tongue is heavily coated and the breath is foul. The bowels are constipated. Usually there is incontinence of urine and feces. The corneal and abdominal reflexes may be absent. The knee jerks are diminished, and in severe cases are often absent. The pupils may not react to light. Spontaneous contraction and dilatation of the pupils are often encountered, and this phenomenon is regarded by some authorities as being pathognomic of the condition. Ptosis and diplopia may be present. Amaurosis has been reported. Nystagmus is frequently encountered. The coma may last from twenty-four to seventy-two hours, and the patient may gradually regain consciousness. He then invariably will show ataxia, dyssynergia, a thick, drawling, indistinct speech, and he may complain of diplopia. Often a stage of delirium may supervene, and it is of the usual occupation delirium type. After consciousness is regained, the patient is irritable and at times ugly, making unusual demands from the nurses and physicians. Recovery may be complete in from two to three weeks. The danger signs in the acute period are the absent abdominal and knee reflexes, and bronchopneumonic conditions.

In cases of chronic intoxication, the patient presents a general cyanotic appearance, possibly with erythematous skin lesions. The gait is ataxic, and the station is unsteady, and there is a general dyssynergia. The speech is drawling and indistinct. Frequently there is omission of letters and syllables. The breath is foul, the tongue coated, and constipation persistent. The temperature is somewhat subnormal; the blood pressure is low, and the pulse slowed. The outline of the pupils may be normal, or may show inequality and irregularity. Reflex disturbances may be present. In chronic cases of barbital intoxication the mental attitude is irritable, the speech is somewhat incoherent and rambling, and perception is quite dulled. There is often a defect in attention, retention and association. Memory, especially for recent events, is poor. Emotional instability is common, and frequent outbursts of temper are encountered. The patients never have a clear insight into their own condition, and their judgment is faulty. They often complain of insomnia, and of general restlessness. They may become quite deluded, and may blame others for their failure of adaptation. They find excuses for unhappy states, but are never able to give sound logical reasons for their inability to meet situations adequately.

From the foregoing symptoms, it is quite obvious that unless there is a definite history of taking barbital, diagnosis of the conditions is not always easy. The lethargy, ptosis of the eyelids, extraocular muscle paresis, pupillary disturbances, absence of superficial

* From the Psychopathic Service of Bellevue Hospital.
* Read before the New York Neurological Society, April 3, 1923.

and of deep reflexes, and the relatively afebrile condition may stimulate epidemic encephalitis. The coma, scanty urination, with albumin and granular hyaline casts, the suffused facies, and the stertorous breathing may lead one into the error of diagnosing the condition as uremic coma. The ataxia, speech defect, pupillary disturbances and emotional instability may be mistaken for general paralysis. The literature is full of instances of barbital intoxication simulating these conditions. Even brain tumor and pneumonia have been considered diagnostic possibilities.

In studying the literature, it is evident that the personality of the patients intoxicated by barbital has been overlooked. Much attention has been given to the general somatic changes caused by this drug, and only scant reference is made to the personality types. The mental make-up of the persons taking barbital is referred to by few observers. My own experience would lead me to believe that the vast majority of patients suffering from acute veronal intoxication belong to the manic-depressive group, while the largest number of chronic barbital patients belong to the emotionally unstable type of constitutional psychopathic inferiority group. Acute intoxication usually results from taking a large dose of the drug while in a state of extreme depression, occasionally with suicidal intent. Chronic barbital addiction results from repeated taking of the drug by an emotionally unstable person, in his inability to face reality because of the painful effect it might entail. Barbital more or less deadens their sensorium, and gives them a rather spurious feeling of well-being, removing from them all sense of duty and responsibility. Such persons frequently are alcoholics, and it is quite common to find barbital addiction in alcoholics. Excessive smoking is also common in these patients. Most of the barbital patients ask for cigarettes as soon as they regain consciousness.

The following are a few of the cases of barbital poisoning that have come under my observation in the psychopathic wards at Bellevue Hospital:

REPORT OF CASES

CASE 1.—A woman, aged 22, white, single, admitted Dec. 23, 1921, born in the West, had always been of an unstable make-up, and showed roaming tendencies. She taught physical training at school for a while, and later came to New York and became a dancer. Her partner on the stage was a man who was separated from his wife, and the patient became greatly attached to him. The patient had been worrying about the final outcome of their relationship; frequently she would lie awake nights. A friend gave her some barbital, and she used it every other night in order to get some sleep. On the evening preceding her admission to the hospital, the patient asked him to allow his wife to divorce him so that he might marry her. This he refused to do, and they quarreled. She left him, and the following morning she was found in a more or less stuporous condition. When aroused, she began to fight and scream at the top of her voice, in which condition she was brought to the psychopathic ward. She was well developed and well nourished. The heart and lungs were normal. The pulse was 70; respiration, 18; temperature, 99. There was a definite slurring to her speech. The pupils were equal, and widely dilated, but reacted very sluggishly. The eye-grounds were normal. The deep reflexes were normal in their responses. The abdominal reflexes were not elicited. The patient became quite stuporous and remained in a comatose state for three days. During this time she showed a definite nystagmus from side to side and a marked hippus. When she regained consciousness she became restless and irritable, and later became surly and ugly, insulting the nurses and physicians. Later she admitted that she had taken two vials of barbital tablets containing ten 5-grain tablets. Her condition gradually cleared, so that it was possible to allow her to go home on December 29.

CASE 2.—A man, aged 31, single, admitted Feb. 4, 1922, in a state of coma, had always been a heavy cigaret smoker, and for the past six years had been a heavy drinker. He had taken 110 grains of barbital. On admission he was quite lethargic; he had a vacant expression; the wrists and finger tips were cyanosed; the temperature was subnormal. For three days it was impossible to arouse him. On the fourth day he became very restless; his speech was thick and unintelligible. His tongue was coated; the bowels were constipated. The pupils reacted very sluggishly. There was definite vertical and lateral nystagmus. The deep reflexes were definitely diminished. On the sixth day he was able to speak more clearly, although at times his speech was still unintelligible. He was quite depressed and at times would burst into tears. He was ataxic in his gait. The urine on admission contained a trace of albumin and had many granular and epithelial casts. His condition gradually improved so that it was possible to discharge him, February 24. February 28 he was readmitted, having been found in a drug store after taking 50 grains (3.25 gm.) of barbital. On admission he was very stupid, drowsy, had a drawling speech, and the gait was definitely ataxic. The pupils were sluggish to light and in accommodation. The tongue was definitely coated; the bowels were constipated. His condition gradually improved so that it was possible to discharge him, March 4. He was readmitted March 7, in a comatose state. It was impossible to elicit any corneal, abdominal or knee reflexes. The pupils showed constant spontaneous contraction and dilatation. He slept for about thirty-six hours, and then regained consciousness. His speech was quite thick and unintelligible. Later he said he had been drinking for about eighteen years. He had seen himself going to school drunk. He used to work at everything, but lost everything because of drink. He had been a painter, steamfitter, elevator hand and shop hand. He had been arrested for drunkenness and for fighting many times. He now took 100 grains of barbital. The first time he took 130 grains; next time, 50 grains. He said that barbital affected the head very little; that it was the feet that went under one. It made one feel that one did not care; it made one forget the past, and the future never entered in. It kept deadening worries all the time. It made one feel good. The patient gradually improved so that it was possible to discharge him, March 15. He was readmitted, April 7, in a very restless, boisterous, ataxic state, and admitted having taken 40 grains of barbital. His condition this time gradually improved, and he was discharged, April 10.

CASE 3.—A man, aged 34, white, with a collegiate education, married, was admitted, Feb. 6, 1922, in a comatose condition. The respiration was rapid and shallow. The temperature was 102.8. The pulse was rapid (120). There were indefinite signs at the right base consisting of dulness and diminished breath sounds. There was a friction rub in the left axilla. The leukocyte count was 14,000, with 90 per cent. polymorphonuclears. The urine contained albumin and granular casts. The patient was comatose for two days, and on the fourth day he was able to talk. He admitted having taken 80 grains of barbital. On admission, the corneal and abdominal reflexes and knee jerks were absent. On the fourth day the reflexes returned. There was nystagmus in the lateral position, with sluggish pupillary reflexes. He was definitely ataxic. He then showed a definite hypomanic reaction. He was quite overactive and overtalkative. He was helpful in the ward; he was pleasant and agreeable. He then mentioned four former hospital admissions for similar conditions, having taken from 80 to 100 grains in different attacks. He mentioned a manic attack he had while in service in France. His condition gradually improved, and it was possible to discharge him, February 18.

CASE 4.—A woman, aged 25, white, single, actress, admitted, April 10, 1922, stated that she was in the show business. Her mother died eight months before after a prolonged illness. The patient had worried a good deal over her mother's condition. She then contracted an infection of the throat, which was complicated by a peritonsillar abscess. This weakened her considerably; she could not sleep; she was restless

and irritable. Six months before admission, a friend told her to take heroin to lessen the sense of fatigue. The patient then took "one eighth of a bottle a day." One month before admission she decided to get away from the heroin habit and she therefore discontinued using the drug. This was followed by a feeling of nervousness and tension which were too powerful for her to control. To counteract these distressing symptoms, she was advised by a druggist to take barbital. She would consume about 25 to 30 grains (1.6 to 2 gm.) of the drug in order to get sleep. For two days preceding her admission she took about 200 grains (13 gm.) of barbital. She then became dazed and staggered, and claimed to have seen snakes and all sorts of animals. She denied drinking for the past six months. During her first few days of residence in the hospital she was very ataxic; she showed slurring, thick speech and sluggishly reacting pupils; she wet and soiled herself. Mentally, she was rather unstable, irritable and quick-tempered. She showed definite memory and retention defect. She had no insight. Her condition gradually improved until it was possible to discharge her, April 14.

CASE 5.—A woman, aged 37, white, separated, who was admitted, May 12, 1922, was confused and untidy; she wet and soiled herself. Her speech was drawling and indistinct. The pupils showed irregularity and sluggish reaction to light and in accommodation; nystagmus was present. Mentally she was quite restless, complaining, and scolded the nurses and physicians. She was surly and irritable. At the end of four days she became more amenable to care and treatment, but she still was somewhat emotionally unstable, and quite restless and sleepless. On the fifth day she became much quieter; she gained considerable poise, and said she was now feeling more like her former self. She admitted having taken large amounts of barbital. She was discharged, May 21. She was readmitted, May 23. She appeared very confused and ataxic. She was restless, untidy, excited, irritable, would not remain in bed, and had to be restrained. She wet and soiled herself. She showed sluggishly reacting, widely dilated pupils, sluggish knee jerks, and a peculiar cyanotic appearance of the lips and finger tips. Her condition gradually improved. She was rather evasive, and would only state that she had taken barbital in order to forget her troubles. June 6, she was visited by her oldest sister. As soon as her visitor left, the patient became somewhat depressed; sat on her bed with her hands supporting her head, and began to scream, "Keep them away; keep them away." She beat her chest with her fists, and tore her hair. When seen, the patient appeared in a state of hysterical excitement. We appealed to her sense of decency, stating that she had probably been suffering from painful home situations and that she was now resorting to a childish procedure in order to dispose of her pent up and repressed emotional energy. This appeal seemed to impress her, and she became quiet. While making the evening rounds about four hours after her hysterical outbreak, I asked her whether there was something we might be able to do for her, and if she wanted to speak about her difficulties. She willingly accepted this offer and gave the following information:

She had been raised in a very wealthy family, prominent socially and politically. She was the third of a family of four daughters. Her two oldest sisters were at home and were unmarried. Her younger sister of 24 was her favorite, and this sister was of a lively and open make-up and of nonconventional standards. Her older sisters were very conventional, and their only interests were those of the church and of gossiping about births and marriages that had occurred in the village where they were living. The patient married at 18 years of age. When she matured she found that she could not tolerate her husband, and they separated at the end of about three years of an unhappy married life. The patient described herself as being of a happy, vivacious nature, and had to be constantly on the go, but always admired men and had always sought their company. She admitted drinking. At the age of 26 she was introduced to a man twenty years her senior. The man was prominent socially, very wealthy and of refined, intellectual tastes and interests. They soon became intimate. In order not to attract any attention, she went to business. They lived together happily for nine years. Two years ago this man's wife learned of his relationship to the patient. They had to separate, as disclosure of their relationship would mean the ruination of the man's social status and disgrace to her own people, who were ignorant of her friendship with the man. Following their separation, the patient became depressed. At first she took to drink; then became restless, and some one told her to take barbital in order to get sleep. She found that the drug deadened her feelings and made her forget her troubles. On at least four different occasions she had consumed 100 grains at a time. She was in a private sanatorium for treatment. Following her discharge from the hospital, May 22, she returned to her parents' home. Her oldest sister made an unkind remark to her which hurt the patient a good deal. She then took 150 grains of barbital to forget her troubles. She stated that the cause of her hysterical outbreak was the fact that she had overheard a nurse in the ward telling her sister of the patient's condition and possibly told her of the patient's past life. This resulted in an hysterical outbreak. The patient apparently felt very much better after discussing her difficulties, and she was finally discharged from the hospital.

COMMENT

In the management of these cases, it is important that the drug be eliminated as rapidly as possible. High colonic irrigation, catheterization and warm packs have proved valuable. Cardiac stimulants and oxygen inhalation have been found very useful in the more serious cases. The patient must be kept warm. Pulmonary complications must be anticipated and energetically combated.

The restriction of the sale of the drug on physicians' prescriptions only, and the use of its proper chemical term, diethylbarbituric acid, would materially diminish the number of poisoning cases.

202 New York Avenue, Brooklyn.

Clinical Notes, Suggestions, and New Instruments

RUPTURED SPLEEN WITH REPAIR AND RECOVERY

CHARLES W. DOUGHTIE, M.D., NORFOLK, VA.

History.—V. E. R., a man, aged 19, white, a granolithic worker, seen, Dec. 3, 1922, who had had the usual diseases of childhood, and no operations, whose family history was negative, complained of pain in the abdomen, accompanied by nausea, and pain in the left shoulder.

The present illness began about 5:30 p. m., December 3, while the patient was engaged in a game of football. He received a butting blow in the abdomen, which caused him to feel faint, nauseated, and to complain of pain in the abdomen and left shoulder. He dropped out of the game, lay down for a while, and later, with assistance, walked home. On reaching home, he vomited, then, after resting for a short time, he went to his supper, but drank only a cup of tea, which was retained. As his condition did not improve, Dr. Doles was called. He found the patient markedly shocked and complaining of severe pain in the abdomen and left shoulder. The temperature was 97; the pulse, 118, and respiration, 26. Suspecting a rupture of some viscus, Dr. Doles had the patient removed to the hospital.

Examination.—The patient was a well nourished lad, 6 feet, 3 inches (190 cm.) in height, weighing 163 pounds (74 kg.). He appeared shocked, and complained of pain in the abdomen and left shoulder. Inspection of the chest showed a fixation of the lower left chest, particularly below the eighth rib. Palpation and percussion were negative. On deep inspiration, a few moist râles were heard at the angle of the left scapula. The apex of the heart was in the sixth left interspace, one-half inch external to the midclavicular line. No murmur was detected, but the muscular element showed lack of tone. The heart action was pounding, and gave the

impression of an idling heart. The pulse was 118; the blood pressure, systolic, 118; diastolic, 68. The abdomen was flat: no masses were seen or felt. There was a general fixation of the abdominal muscles with hyperesthesia.

There was no edema of the ankles and no ulcerations. The reflexes were apparently normal.

The urine was negative. No red count was made. There were 15,000 white blood cells; small lymphocytes, 10 per cent.; large mononuclears, 6 per cent., and polymorphonuclears, 84 per cent.

A diagnosis of ruptured spleen with intra-abdominal hemorrhage was made, and operation was advised, but declined.

The following morning, December 4, the patient's general condition appeared improved. The temperature was 98; pulse, 95, and respiration, 26. However, there was a marked discharge from the nose. The abdomen presented the same fixation of the abdominal muscles, with dulness in the left hypochondrium extending downward to the left iliac fossa. The percussion note in the right iliac fossa was also that of dulness. When the patient was turned on his left side, the dulness in the right fossa disappeared; when he was turned on his right side, the dulness in the left fossa persisted. At no time did I doubt the correctness of my diagnosis, and operation was again advised, but four times it was declined.

At 8 p. m., an enema was given. Shortly afterward I saw the patient and found that he had undoubtedly had a second hemorrhage. Operation was again urged, and this time consented to.

Operation.—The patient went to the operating room at 9 p. m. The temperature was 98; the pulse, 120, and respiration, 28. Blood count showed, red blood cells, 4,100,000; leukocytes, 15,000; polymorphonuclears, 78 per cent.; small lymphocytes, 14 per cent.; large mononuclears, 7 per cent; transitionals, 1 per cent., and hemoglobin, 78 per cent. Three hundred cubic centimeters of 25 per cent. glucose was given intravenously. Operation was begun at 10:10 p. m., under ether anesthesia. The wound was closed at 10:57 p. m.

The abdomen was rather well filled with blood. The spleen, when brought into view, showed a rupture of the lower pole along the margin with an eversion of the margins. There was also a rupture at a right angle in the center of the concave surface to within three-quarters inch of the hilum. The spleen presented the appearance of having been broken off by the blow of a stout stick. There was one fair size spurter in the field. This was encircled with a ligature on a small round needle. The other bleeders were comparatively unimportant. Having cleared the wound of clots, and having excised enough of the ragged herniated portion to approximate accurately the two surfaces, four deep chromic sutures were placed and tied, so as to bring the widely everted margins together without undue pressure. The margins of the capsule were carefully sutured with No. 0 chromic catgut. The rent on the concave surface was carefully repaired. There was no oozing. The free blood in the abdominal cavity that did not obstruct vision was left undisturbed. The wound was closed without drainage. At midnight, the patient's pulse was 116; respiration, 24, and blood pressure, 160 systolic, and 80 diastolic.

December 5, the patient vomited greenish fluid at intervals and suffered with gas pains. The temperature was 100; pulse, 110, and respiration, 24.

December 6, the patient was slightly nauseated, but more comfortable. Blood count showed: erythrocytes, 3,770,000; leukocytes, 15,600; polymorphonuclears, 87 per cent.; small lymphocytes, 5 per cent.; large lymphocytes, 2 per cent.; mononuclears, 2 per cent., and transitionals, 4 per cent.

December 7, the nausea was relieved. The patient complained of pain in the left shoulder, and expectorated dark phlegm.

December 8, there was a rise in temperature to 102; the pulse was 116, and respiration, 30. There was a good deal of coughing, which was productive of dark streaked sputum. Dulness was noticed on percussion of the lower chest. There was a leukocytosis of 17,200.

December 9, there was a cough productive of blood stained sputum. The temperature was 100.4; the pulse, 90, and respiration, 30.

December 10, the wound was dressed. One suture had broken, and some blood serum was draining from the site. The violent coughing doubtless was responsible for the broken suture. The temperature was 99; the pulse, 90, and respiration, 32.

December 11, expectoration continued, but the patient was more comfortable.

December 12, the sutures were removed and the wound was clean except at the site of the broken suture, previously referred to.

From December 12 to December 19, the condition of the patient continued about the same, but a physical examination of the chest showed fluid in the left pleural cavity. The chest was aspirated, and 20 c.c. of brown, clear fluid was removed.

December 23, Dr. C. L. Harrell and Dr. H. M. Doles were asked to see the patient. Their opinions were the same and their report was as follows: "Left front from the fourth rib down tactile, and vocal fremitus absent. Back midscapula down flat note over entire area. Impression: large quantity of fluid, which we think should be drawn off."

The chest was aspirated, and 125 c.c. of brownish yellow fluid was removed.

December 25, the patient's condition justified his discharge from the hospital with instructions to report to my office.

Jan. 12, 1923, the patient's chest was again aspirated. This time we obtained approximately 1,000 c.c. of fluid.

January 27, examination of the chest was negative, except for evidence of a thickened pleura. Since that time the boy has been seen several times. His condition is gradually improving, and he has resumed his former work.

512 Taylor Building.

STRANGULATED FEMORAL HERNIA IN A WOMAN, AGED 107 YEARS

H. W. Vickers, M.D., Little Falls, N. Y.

This case is of interest solely because of the advanced age of the patient.

Mrs. D. F., a woman, aged 107, referred to me by Dr. Edgar Swift, Jordanville, N. Y., June 19, 1922, was suffering from a strangulated femoral hernia that could not be reduced.

The patient, born May 4, 1815, in the town of Stark, Herkimer County, N. Y., came from a healthy, long-lived race. Her father died at the age of 97; her mother, at the age of 76; a brother, at 95, and her husband at 80. Recently a nephew died at 87. She was married at the age of 19, and had borne six children, two of whom were living, one being over 83 years. She had always been well, a frugal eater, very calm and mild in disposition, contented and a great worker. The patient stated that until four years ago she had always cared for her garden, and made it a practice to plant every year a cabbage for each year of her age. She weighed about 100 pounds (45.4 kg.) and was 5 feet in height. She remembered events that happened when she was a child of 6 years, and took an interest in affairs of the present day. She read and sewed without glasses, and was quite deaf, owing to a grippal infection that occurred about three years before. She recently moved to the village of Jordanville, after living for eighty-nine years in one house.

When Dr. Swift suggested operating, the patient objected, saying, "I have had this complaint for over two score years, and it has always gone back before and why shouldn't it do the same now." She was given a little camphorated tincture of opium and the family was appraised of her condition. The physician was instructed to arrange for an operation at once, and I was called in to the case. It was decided not to remove the patient to a hospital, as it was late in the evening, the roads were rough and the distance was 12 or 13 miles. Miss Ada Rombough, assistant superintendent of the City Hospital at Little Falls, N. Y., accompanied me and assisted. We took along the necessary instruments and dressings. An operating room was arranged out of one of the living rooms, and an operating table improvised. Three large kerosene lamps set at a distance furnished fairly good light. The instruments were sterilized in a large pan, which was also

used for an instrument tray. When all was ready, Dr. Swift started the anesthetic (ether) with the patient in her bed. When she was partially under the anesthetic, she was carried to the operating room. While the anesthetic was being completed, the patient was prepared for the operation, which was done in the usual way. The femoral ring was closed by No. 1 chromicized catgut. The operation lasted about one-half hour, and the patient reacted from the anesthetic in a normal way.

On the following day, the patient got up and removed the dressings; on the third day, the physician found her out in another room sitting by the table eating her supper. The wound healed without any infection, and up to the present time it has not recurred.

ACUTE MASTOIDITIS WITHOUT AURAL DISCHARGE

CHARLES R. KING, M.D., TOLEDO, OHIO

This case is reported not as one of primary mastoiditis, but rather as an acute purulent mastoiditis having its origin in an acute purulent otitis media, and presenting some unusual features, the most interesting of which is the absence of aural discharge throughout the preoperative course of the disease.

It is difficult to picture in one's mind an acute suppuration within the middle ear, accompanied by suppurative mastoiditis with subperiosteal abscess, without a ruptured or incised drum head and aural discharge, and yet such cases do occur and have been reported.

REPORT OF CASE

C. B., a woman, aged 19, seen by me in consultation with her regular medical attendant, April 4, 1923, did not appear to be very ill, was ambulatory, and had been so from the beginning of her ailment, although she had been having a low, irregular elevation of temperature. Over the left mastoid process was a large, red, fluctuating swelling, which extended well upward under the scalp, and downward, but not quite to the tip. The auricle was slightly displaced forward. In other words, here was a typical subperiosteal abscess. The drum head was dull red; there was no light reflex present, and no bulging or perforation.

Examination of the right ear showed all landmarks present, with no disease apparent. The tonsils were twice the normal size and not active.

Five weeks prior to my examination, the patient had an acute bilateral tonsillitis, and two days later, earache in the left ear developed, continuing intermittently for three days. The tonsils then flared up again, and the earache returned in two or three days with greater severity, accompanied by pain in the left mastoid region. One week after the second onset of earache, she noticed some swelling over the left mastoid, and this, she says, varied in extent from day to day. During this time and until April 4, she suffered much earache, but there never was any aural discharge. She stated that at times she had a peculiar taste in her throat "as though it were blood or something."

A roentgenogram was taken at once, and it was reported that there was some cloudiness over the left mastoid with little or no cell destruction.

It was suggested to me that this might be a suppurative inflammation of one of the retro-auricular lymph nodes, but the history of the case and the clinical evidence seemed to justify the preoperative diagnosis of acute purulent mastoiditis, and the patient was sent to St. Vincent's Hospital for operation.

April 6, under ether anesthesia, by the regular mastoid incision, I opened up the affected part, which by this time was pointing in three or four places. The incision was followed by the immediate escape of about 4 ounces of yellowish green pus under pressure. The periosteum was retracted, and at first glance the mastoid cortex appeared normal. Closer inspection quickly revealed a small black spot of bone about 4 or 5 mm. behind the auditory canal. This spot was about 2 mm. in diameter, and was a cell full of necrotic tissue, which was curetted away; all adjacent cells were curetted free of granulation tissue with a small amount of thick pus. The antrum was found far posterior to the tympanum, and deeply situated. It was carefully cleared of necrotic tissue. The tip cells were thoroughly explored, but apparently the infection had been walled off before they could be successfully invaded. The mastoid wound was flushed out with a mixture of alcohol and hydrogen peroxid, an iodoform gauze drain inserted, and the wound closed in its upper half. The drum head was incised. The culture showed that the pneumococcus was the active infecting agent. The temperature, which on admission had been 101, dropped to normal the next day after operation and remained so.

On the fifth day, the middle ear was dry, and the wound looked healthy. The wound discharged moderately for two weeks, after which healing was very rapid, and the patient left the hospital, April 26. Healing was complete by May 14, and the patient was discharged with the advice to return in a few weeks for tonsillectomy, and this she has done.

COMMENT

The interesting feature of this case was that the patient complained of a peculiar taste in the throat and mouth for some time prior to operation. This symptom must have been associated with the variation in the size of the postauricular swelling, and was due to the escape of pus from the middle ear and eustachian tube. Following the operation, the patient insisted that she could taste alcohol in her throat, and this was not disputed.

The history indicates that the otitis media was secondary to acute tonsillitis; and the early serious involvement of the mastoid, and the peculiar course of the mastoiditis, show a clumsy effort on the part of Nature to rid the head of the infection before it could attack the brain or lateral sinus. This effort succeeded in establishing some drainage by way of the eustachian tube, and after the mastoid became involved, in localizing it to a certain extent, walling it off from the dura and sinus, and finding another point for drainage, or extension, rather, under the skin.

467 Spitzer Building.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

BUTESIN. — n-butyl-para-aminobenzoate. $C_6H_4NH_2.COO(C_4H_9)$.—The normal butyl ester of 4-aminobenzoic acid, $C_6H_4NH_2.COOH$.

Actions and Uses.—See General Article, Anesthetics, Local, Difficultly Soluble (New and Nonofficial Remedies, 1923, p. 41). The actions and uses of butesin are similar to those of benzocaine-N. N. R., but it is claimed to be more effective.

Dosage.—Butesin is used as a dusting powder, either pure or diluted. It may be used in the form of troches, ointment, suppositories or dissolved in a fatty oil. Its oil solutions may be sterilized by heat.

Manufactured by the Abbott Laboratories, Chicago. U. S. patent 1,440,652 (issued January 2, 1923; expires 1940). U. S. trademark applied for.

Butesin is a white, crystalline powder, odorless and tasteless. It is almost insoluble in water (about 1 in 7,000); soluble in dilute acids, alcohol, chloroform, ether and benzene; also soluble in fatty oils. Butesin is slowly hydrolysed when boiled with water. It melts at 55 to 57 C. and boils at 147 C. under 2 Mm. pressure. Butesin yields colorless solutions in alcohol and ether. The addition of silver nitrate solution to its alcoholic solution acidified with nitric acid produces no precipitate. A solution of butesin in diluted hydrochloric acid is not affected by saturation with hydrogen sulphide.

Add a few drops of sodium nitrite solution (1: 10) to 2 Cc. of a solution of butesin (1: 100) in very dilute hydrochloric acid and mix with 0.2 Gm. of betanaphthol in 10 Cc. of sodium hydroxide solution (10 per cent.). A scarlet red precipitate is given at once. To about 1 Cc. of a solution of butesin (1: 100) in very dilute hydrochloric acid, add a few drops of iodine solution, shake the mixture and allow to stand for 10 minutes with occasional agitation. A dark brown precipitate is formed which changes into large, reddish-brown prisms *(distinction from benzocaine which gives lustrous scales).*

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SATURDAY, NOVEMBER 3, 1923

THE PURIN COMPOUNDS IN THE BLOOD

In the human organism, uric acid represents the end-product of the metabolism of purin yielding compounds. The establishment of this fact itself was an important step in the development of physiologic chemistry, for it is only a few years since uric acid was still looked on as a derivative of protein. In the days of Liebig it was believed that, if the body had a rich supply of oxygen, nearly all the uric acid formed from the protein could be further oxidized, while, if the oxygen supply was deficient, uric acid was destroyed in much smaller proportion, and gout or some similar condition was likely to develop. The demonstration of the derivation of uric acid from purin precursors and the essential independence of purin metabolism from the disintegration of protein leading to urea has entirely altered the conceptions formerly held.

Uric acid occurs not only in the urine and in such unusual formations as tophi, but also in blood. The finding of uric acid in pathologic human blood dates back to the work of Garrod in 1848. With a truly outrageously inadequate method of analysis, Benedict [1] has said, this brilliant worker was able to obtain results of permanent value and to demonstrate for the first time that there is an accumulation of uric acid in the blood in gout and nephritis. But from the time of Garrod until the introduction of the Folin method, almost no progress was made, or even attempted, in this field of work.

Of late, thanks to useful microchemical methods, the study of uric acid in the blood has been pursued assiduously. Deviations from what may be regarded as a "normal" content can easily be ascertained. S. R. Benedict, in particular, has been responsible for the further demonstration that in various species uric acid exists chiefly in combination. The presence of considerable amounts bound to the pentose sugar ribose has been established [2] for beef blood, and the compound has also been found in human material. The problem of how the precursors of the excreted uric acid circulate is further complicated by the now established fact that purins other than the latter have been discovered in the blood. The latest study by Jackson [3] at the Boston City Hospital has revealed the presence of a nucleotid—a compound of adenin, pentose and phosphoric acid—in human blood in appreciable quantities. According to this investigator, while it seems certain that adenin nucleotid is by far the largest representative of this class in blood, it is not improbable that nucleotids of the other purins are also present in small amounts. The evidence at present available indicates that normal whole blood contains from 10 to 25 mg. of adenin nucleotid per hundred cubic centimeters. Perhaps the puzzling component of "undetermined nitrogen" so long recognized in the analysis of blood will presently be accounted for by the presence of comparatively simple purin complexes such as adenin nucleotid represents.

1. Benedict, S. R.: Uric Acid in Its Relations to Metabolism, Harvey Lectures **2**: 346, 1915-1916.
2. Davis, Alice R.; Newton, Eleanor B., and Benedict, S. R.: The Combined Uric Acid in Beef Blood, J. Biol. Chem. **54**: 595 (Nov.) 1922.
3. Jackson, H., Jr.: Studies in Nuclein Metabolism, I, Adenine Nucleotide in Human Blood, J. Biol. Chem. **57**: 121 (Aug.) 1923.

THE EFFECTS OF EXTREMES OF TEMPERATURE AND HUMIDITY

Man is associated with the atmosphere throughout his life. He breathes the air every minute of the day, and is more or less bathed by it. Accordingly, he has become adjusted to its chemical composition and physical properties under a variety of atmospheric conditions. Nevertheless, there are times when even to an organism so well adapted as is the animal body to its environment the air acquires properties that are commonly designated "bad." The explanations of what constitutes "badness" in the air have gradually undergone changes with the progress of scientific inquiry. It is not so long ago that malaria was ascribed to objectionable conditions of the atmosphere per se. Only a few years since, the occasional "badness" of inside air, as in crowded rooms or meeting places, was attributed to an accumulation of an organic poison exhaled from the lungs. Carbon dioxid, an eliminated product of respiration, has also been charged with responsibility for harmful contamination of the atmosphere by occurring in supposedly excessive amounts; but neither the hypothetic respiratory poison nor the ever present carbon dioxid has sustained its acquired reputation as the dangerous factor in bad air.

There are, of course, conditions in which a demontrable toxic component vitiates the atmosphere so far as its fitness for human respiration is concerned. Poisonous gases may escape in sufficient concentration to present a menace to man. An illustration of this was recently cited [4] with reference to the health hazard presented by the carbon monoxid contained in the exhaust gases of the modern automobile. The accidental escape of illuminating gas into closed rooms

4. The Health Hazard of the Automobile, editorial, J. A. M. A. **81**: 932 (Sept. 15) 1923.

sometimes furnishes another example. These are admittedly unusual contaminations of the atmosphere. It has been generally agreed in recent years that the "badness" of air in ordinary places is due to formerly unconsidered conditions; namely, improper temperature (which usually means a temperature too high), improper humidity, and lack of air movement.

The ventilation expert and the public both have been somewhat slow to adjust their standards and practices to the newer view. The studies of the New York State Commission on Ventilation indicate that overheated rooms are not only uncomfortable, but produce marked effects on the heat-regulating and circulatory systems of the body, and materially reduce the inclination of the occupants to do physical work. The most important effects of "bad air" are due to its high temperature, and the effects of even a slightly elevated room temperature, such as 75 F., are sufficiently clear and important to warrant careful precautions against overheating. The chemical changes in the breathed air of occupied rooms are of comparatively minor importance. Even with much higher temperatures, however, physiologic functions can proceed fairly satisfactorily, provided the relative humidity is not too high; for the elimination of surplus heat by evaporation from the body depends in considerable part on the content of water in the surrounding air. The New York commission found that the power to do either mental or physical work, measured by the quantity and quality of the product by subjects doing their utmost, is not at all diminished by a room temperature of 86 F. with 80 per cent. relative humidity. In the usual household environment there is, in fact, often a tendency for the indoor air to become unwholesome because of its excessive dryness; for this causes absorption of water from the body, especially from the mucous membranes.

When the humidity is sufficiently extreme to prevent the evaporation of perspiration on a hot day, depression of the body results. Movement of the air, by accelerating evaporation, tends to counteract this. There are situations, however, in which not merely one but all the environmental factors tend to be unduly unfavorable. This is true in the hot, deep metal mines. There the recent joint investigations of the Bureau of Mines and the Public Health Service [5] have shown that the untoward effects on man of almost saturated air with a temperature above 90 and below 98 F. are much less when the air is moving than when it is still. Further, the output of work that can be done is greater when the air is moving than when it is still, with this temperature and humidity. No beneficial effects were found by moving saturated air at 98.6 or 100 F., even at high velocities; and there was apparently some disadvantage. The limits of incompatibility with well-being are reached under such conditions.

5. Sayers, R. R., and Harrington, D.: Physiological Effects of High Temperatures and Humidities With and Without Air Movement, Pub. Health Rep. **38**: 1616 (July 20) 1923.

PARASITISM OF THE HEMOLYTIC STREPTOCOCCUS IN THE UPPER AIR PASSAGES

Certain types of pathogenic micro-organisms may have a widespread distribution in a community without giving evidence of their presence by any characteristic disease. Persons who have recovered from diphtheria, for example, may continue to carry the infectious agent of the disease even though they have acquired immunity. But there are also indications that persons may act as carriers for bacteria to which they have never been specially immunized, and which may, consequently, be a continual menace. Evidently there are times and conditions in which host and parasitic invader become adjusted to each other, so that there is neither an outbreak of disease nor a destruction of the parasite. Presently a change ensues whereby the infectious agent may die out or evidence of active infection may arise.

It is conceivable that an outbreak of harm under these circumstances may be due not only to a decreased resistance of the host but also to an enhancement of the virulence of the bacterial foe. Welch suggested long ago that the biologic adaptations may be more delicate and multiform than had been supposed. Just as the animal body may become more resistant to the offensive weapons of the invaders, so it is reasonable to assume that the bacterial body may also gradually develop increased resistance to the defensive mechanism of the host. In the latter event there would be the likelihood of an outbreak of disease.

The possibilities here at issue are presented by the irregular occurrence of epidemics of respiratory infections. It has been evident for some time that hemolytic streptococci associated with tonsillitis exist in a state of parasitism in the throats of seemingly healthy persons. The studies of Bloomfield and Felty [1] at the Johns Hopkins Hospital indicate that ordinarily the hemolytic streptococcus is strictly adapted to a local growth in foci of lymphadenoid tissue in the upper air passages, especially the tonsil. In such foci these bacteria may persist for long periods of time and in great numbers. They gain a lasting foothold there through some acute infection of the lymphadenoid tissue; but, in general, there is no evidence of a free growth on the mucous membranes when streptococcus disease is absent. Mere contact, even if close and prolonged, is not adequate to give rise to new carriers. It requires a radical change in the type of parasitism by which the micro-organisms are no longer confined to the local lymphadenoid foci like the tonsils before epidemic streptococcus disease occurs. The discovery of the precise causes of the modification of the normal habitat of the hemolytic streptococcus in the pharyngeal cavity is certain to mark an important step in advance.

1. Bloomfield, A. L., and Felty, A. R.: Definition of Hemolytic Streptococcus Parasitism in the Upper Air Passages of Healthy People, Arch. Int. Med. **32**: 386 (Sept.) 1923.

TRAUMATIC NEUROSES

Definitions of the term traumatic neurosis always contain the condition that organic lesions are absent. Nevertheless, ever since 1866, when Erichsen published his book "On Railway and Other Injuries of the Nervous System," opinion as to the nature of these disorders has been divided into two schools, emotional and commotional. Charcot and many others demonstrated that, in the great majority of cases at least, the symptoms are due to the mental attitude of the patient toward the whole situation in which he finds himself; the trauma is only the occasion or excuse for escaping from the situation, and the disorder is primarily emotional. The other school, in which Oppenheim was a prominent leader, maintains that, while many cases are emotional in origin, others, in spite of the absence of evidences of gross injury, must have some structural lesion, probably minute and as yet unrecognized. Great impetus was given to this controversy during the war. Mott, in England, examined the nervous tissues from men who had died instantly from, or soon after exposure to a shell explosion without evidence of gross bodily injury, and found multiple minute hemorrhages scattered through the nervous system, together with changes in the staining properties of the cells, especially of the Purkinje cells in the cerebellum. For a time this led to the suspicion that "shell shock" was a definite morbid entity. But the observation of cases with identical symptoms in persons who had not been subjected to the effects of high explosives or of trauma, together with the results obtained from clinical studies and from psychotherapy, gradually dispelled this view and led to the general acceptance of the emotional origin of the war neuroses. Oppenheim, however, still maintained his position, and evidence has gradually accumulated that certain post-traumatic syndromes, especially vasomotor and trophic disturbances, are persistent and quite intractable to psychotherapy.

Experimental and histologic studies have hitherto failed to discover any structural changes such as those hypothecated by Oppenheim. Schmaus, it is true, produced experimentally areas of progressive degeneration of the myelin sheaths in the spinal cords of animals by severe blows that produced no gross lesions. Such areas of "softening," however, could hardly occur in man without objective clinical signs that would at once exclude the case from the category of neuroses. Recently, Ingvar [1] has succeeded in producing minute physical alterations in nerve cells that, as he suggests, may have a direct bearing on this problem. By high-speed, prolonged centrifugation of the brains of animals immediately after removal from the body or while still within the recently decapitated head, the nucleolus is thrown to the distal end of the nucleus, the chromatophil substances are displaced distad, and the neurofibrils are loosened from the cell membrane and may collect in a mass in the center of the cell.

Ingvar suggests that the effects of centrifugal force resemble those of a blow applied suddenly when the head is free to move. The varying density of the different cell constituents results in variations in their relative displacement and thus causes severe damage to the cell. Apart from the great interest of these observations for studies of the living cell structure, a type of physical alteration is presented such as has been sought to explain the symptoms of commotion. In interpreting the observations for this purpose, however, it must be remembered that the centrifugal force used was steady, intense and prolonged. It may be questioned whether the sudden and momentary displacement from a blow to the head is comparable. Even should the comparability be granted, this will in no wise alter the interpretation that must continue to be placed on the vast majority of traumatic neuroses. It seems logical to conclude that none but the most severe head displacements could cause such physical distortions and that the clinical symptoms produced would ensue immediately on the receipt of the injury. The problem is of great social and medicolegal interest, and the greatest caution must be observed before accepting conclusions that would materially affect both prognosis and treatment.

1. Ingvar, Sven: Centrifugation of the Nervous System—A Method for Neurocytologic Study, Arch. Neurol. & Psychiat. **10**: 267 (Sept.) 1923.

Current Comment

KIDNEY FUNCTION IN THE ACUTE DISEASES OF CHILDHOOD

Information obtained from examination of the urine alone is no longer regarded as sufficient to establish the adequacy of the renal functions. The presence of albumin and casts in the urine does not necessarily indicate seriously impaired kidney function, nor is their absence a guarantee of a normally functioning kidney. As a recent writer [1] on the diagnosis of kidney defects has pointed out, inspection of the numerous data now available indicates that there is not always the expected parallelism between the anatomic and the functional conditions of this organ. Consequently, attention directed exclusively to one type of evidence may be quite misleading. This has lately been emphasized by the studies of Wilcox and Lyttle [2] at Bellevue Hospital on renal function in children. Serious impairment of their kidneys is supposed to be a rarity, for example, in the acute infections of early life. Tests undertaken during such disease have shown, however, that some retention of nitrogenous waste products may occur in many cases in which it was not suspected before the advent of modern diagnostic methods. Of the three substances determined, uric acid was above normal in a greater number of cases than were nonprotein nitrogen and creatinin. Wilcox and Lyttle regard these manifestations as simple impairment or depression of

1. Strauss, H.: Die Nephritiden, Berlin, 1920.
2. Wilcox, H. B., and Lyttle, J. D.: Kidney Function in Acute Disease, Am. J. Dis. Child. **26**: 195 (Sept.) 1923.

kidney function, though in some groups of cases the possibility of nephritis could not be ruled out. One is not justified in placing undue emphasis on such symptoms of acute infection. They do point, however, to the wisdom of more careful consideration of the kidneys in such conditions, and their routine protection from all unnecessary strain. By this, as Wilcox and Lyttle insist, in some cases prevention of impending kidney breakdown will thus be provided for; in others, treatment directed at the kidney will be instituted at an early rather than at a late date.

THE LANCET CENTENARY

On October 5, 1823, Thomas Wakley founded the London *Lancet;* as reported in our London letter, the periodical has just celebrated the completion of one hundred years of continuous publication. During the first ten years of its existence, the *Lancet* was a dueling ground for a series of encounters between its editors and certain members of the medical profession whom it was attacking. Wakley had constituted himself the defender of a group of practitioners who, he believed, were not being treated fairly. As a result, the *Lancet* was engaged in no less than ten legal actions during its first ten years, and six of these suits were for libel. Another feature of the *Lancet* was what purported to be verbatim reports of the lectures of many of the noted surgeons of the period. Here it became involved in disputes as to the ownership and right to profit by such material. The result of all these actions was that the *Lancet* was brought prominently to the attention of the public and the medical profession in a manner that inevitably assured it circulation and success. During its early years, the *Lancet* was instrumental also in guiding public opinion on a number of matters prominent before the public—such important problems as the Poor Law, the anatomy act, the adulteration and sophistication of food, and the conduct of the coroner's courts. It occurred to Thomas Wakley that he might accomplish still more in his field by a presentation of medical matters in parliament. Through the influence wielded by the *Lancet,* and with the aid of many friends in the lay press, he was able to make a successful campaign for a seat in the House of Commons. From that time, the *Lancet* had unusual powers as a medical publication. Wakley's journalism was individual and vital. Not only did he take advantage of well tried methods in lay journalism for improving his paper, but he was constantly developing new ideas for increasing interest and promoting circulation. When Thomas Wakley died, he was succeeded by his youngest son, James Wakley. Then came Thomas Henry Wakley, the founder's eldest son, and Thomas H. Wakley, Jr., his grandson. Until recently the *Lancet* has been continuously edited and owned by members of the Wakley family. The present editor is Sir Squire Sprigge, who assumed charge in 1908, and the company now owning the *Lancet* is the Hodder and Stoughton Company. The centennial of the *Lancet* is marked by a special issue of several hundred pages. Letters of congratulation came to it from great medical leaders throughout the world. In these congratulations the members of the American medical profession join heartily.

DUODENAL FUNCTION

The long debated assumption that the duodenum is an organ essential to life has been discussed editorially in THE JOURNAL. Some physiologists have asserted that the upper portion of the small intestine is as necessary for the organism as are the suprarenals or the parathyroids. Clinicians have been sufficiently impressed to attribute certain disorders in their patients to some disturbance in duodenal function. Bloodgood,[1] for example, has used the expression "physiologic death" in reference to the outcome of certain cases of duodenal dilatation assumed to be due to some disturbance of a hormone-producing function of the duodenum. Within the last few years it has been demonstrated in several American laboratories that animals can survive complete extirpation of this portion of the bowel.[2] The evidence gives no indication that the duodenal juice ordinarily contains any substance necessary for the functioning of the intestine lower down. Further evidence, if required, could be found in the latest report by Mann and Kawamura.[3] They removed the duodenum and maintained continuity of the gastro-intestinal tract by an end-to-end anastomosis of the jejunum to the stomach. The first portion of the jejunum thus assumed the position normally occupied by the duodenum. The common bile duct and pancreatic ducts were transplanted into this transposed portion of the jejunum at approximately the same distance from the pylorus and from each other as that at which they occurred normally. The animal remained in perfect health and maintained its normal weight for four years following removal of the duodenum, and there is no reason to believe that the duodenectomy would ever have affected the health of the animal, had it been allowed to live longer. The experiment therefore definitely proves, as Mann and Kawamura state, that in the dog the duodenum is not essential to life or health, and that whatever function it may have can be compensated for by the remainder of the intestinal tract. It is also shown that the transplantation of the bile and pancreatic ducts can be carried out successfully, so that the respective glands will remain virtually normal for a long time.

1. Bloodgood, J. C.: Dilatation of the Duodenum in Relation to Surgery of the Stomach and Colon, J. A. M. A. **59**: 117 (July 13) 1912.
2. Dragstedt, L. R.; Dragstedt, C. A.; McClintock, J. T., and Chase, C. S.: Extirpation of the Duodenum, Am. J. Physiol. **46**: 584 (Aug.) 1918. Grey, E. G.: Duodenectomy — Its Effect upon the Life of an Animal, Transplantation of the Pancreatic Duct, Surg., Gynec. & Obst. **28**: 36 (Jan.) 1919. Mann, F. C., and Kawamura, K.: An Experimental Study of the Effects of Duodenectomy, J. A. M. A. **73**: 878 (Sept. 20) 1919; Duodenectomy (An Experimental Study), Ann. Surg. **75**: 208 (Feb.) 1922. Moorhead, J. J., and Landes, H. E.: Duodenectomy: A New Method, J. A. M. A. **72**: 1127 (April 19) 1919.
3. Mann, F. C., and Kawamura, K.: Duodenectomy: Report of Experiment Four Years After Operation, J. Lab. & Clin. Med. **8**: 523 (May) 1923.

Undernutrition Manifestation of Tuberculosis.—It is not unlikely that some types of undernutrition are, instead of being a "pretuberculous" state, really minor manifestations of tuberculosis, and perhaps the only evidences of it. More comprehensive and searching studies may disclose this definitely, as clinical observation has long suggested it.—A. K. Krause: Rest and Other Things, p. 55.

Association News

THE JUDICIAL COUNCIL

Franklin W. Cregor, M.D., Indianapolis, has been appointed by President Wilbur to fill the vacancy on the Judical Council of the American Medical Association created by the election of Dr. J. H. J. Upham of Ohio to membership on the Board of Trustees. Dr. Cregor is now associate professor of dermatology in the Indiana University School of Medicine and is engaged in private practice in Indianapolis. He has long been an active member of the Indiana State Medical Association, and has served that society in various important assignments.

MEETING OF THE COUNCIL ON SCIENTIFIC ASSEMBLY

The regular semiannual meeting of the Council on Scientific Assembly will be held in Chicago, Dec. 21, 1923. Dr. J. Shelton Horsley, Richmond, Va., is chairman of this Council.

CONFERENCE OF SECTION SECRETARIES WITH THE COUNCIL ON SCIENTIFIC ASSEMBLY

The regular annual conference of the secretaries of the sections of the Scientific Assembly with the Council has been called for Dec. 22, 1923. The conference will be held at the headquarters of the American Medical Association in Chicago.

SUBSCRIPTION TO JOURNAL REDUCED

Attention is again called to the fact that the Board of Trustees of the American Medical Association has authorized the reduction of the annual Fellowship dues and subscription to THE JOURNAL to five dollars per annum, to take effect, January first, 1924.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Hospital Opened.—St. Luke's-on-the-Desert Hospital, Tucson, has been opened. Its capacity is twenty-five beds.

CALIFORNIA

Quack Fined.—The Board of Medical Examiners of the State of California report that Jack F. King, Los Angeles, was fined $500, October 13, on the charge of practicing medicine without a license. King paid the fine.

Physician Sentenced.—According to reports, Dr. J. E. Jolley, Los Angeles, was sentenced to one year in the county jail, October 20, when he pleaded guilty before Judge Crawford to violation of the Harrison Narcotic Law.

State Board of Medical Examiners.—The state board of medical examiners reelected officers, October 17, as follows: president, Dr. Percy T. Phillips, Santa Cruz; vice president, Dr. Harry V. Brown, Glendale, and secretary-treasurer, Dr. Charles B. Pinkham, San Francisco. Governor Richardson, Sacramento, has appointed Dr. Junius Harris, Sacramento, a member of the board.

Personal.—Dr. David Starr Jordan, chancellor emeritus of Stanford University, San Francisco, has been elected president of the Pacific Division of the American Association for the Advancement of Science.——Dr. Charles H. Halliday, Oakland, formerly in the employ of the French and Polish governments as a public health worker, has been appointed epidemiologist of the state board of health with headquarters at Berkeley.——Dr. Eugene H. Barbera has been appointed city physician of Oakland, to succeed Dr. John T. Kergan, who resigned.——Dr. William H. Eaton, Los Angeles, has been appointed city health officer of Santa Barbara to succeed Dr. Alva M. DeVilbiss who resigned.

GEORGIA

Tuberculosis Association Elects.—At the annual meeting of the Georgia Tuberculosis Association in Atlanta, October 11, Dr. Edwin W. Glidden, Alto, was elected president, and Dr. Thomas D. Walker, Jr., Macon, vice president.

IDAHO

General Hospital to Close.—The Idaho Falls General Hospital, conducted by Drs. Clifford M. Cline and Arthur R. Soderquist, will soon be discontinued, owing to the opening of the Latter Day Saint's Hospital in Idaho Falls.

ILLINOIS

Cook County Health Association.—At a meeting of county officials October 12, tentative plans were made for the organization of the Cook County Health Association, which will be effected at a meeting early in November. The association will cooperate with township officials and the state board of health. William F. Propper, supervisor of Thornton, was elected president of the organization.

Society News.—The Aesculapian Medical Society of the Wabash Valley composed of physicians of the cities of eastern Illinois and western Indiana held its annual business meeting in Paris, October 18. Dr. R. Malacher Combs, Terre Haute, Ind., was elected president of the society, and Dr. Herbert N. Rafferty, Robinson, secretary treasurer. The next meeting will be held at Danville in June.

State Medical Field Staff for Instruction of Health Officers.—District health superintendents of the state department of public health have been assigned to the task of personally instructing all local health officers in the proper discharge of their duties wherever indications point to this necessity. Local health officers who have assumed duty since January 1 are included in the list for personal conferences. It is felt that this is the most practical method for stimulating cooperation between state and local officials in public health service.

Chicago

Survey of Undernourished Children.—Drs. Martin M. Ritter, George C. Amerson and Emmett Keating were appointed a committee of three to study the care of undernourished children in the public schools, at a meeting of the Physician's Fellowship Club, October 19.

Portrait of Dr. Angell for Chicago.—The University of Chicago has received a portrait of president James Rowland Angell, of Yale University, New Haven, Conn., who was for twenty-five years professor of psychology at the University of Chicago and for nine years dean of the faculties.

Chicago Fakers.—It is reported that following the recent exposure of a St. Louis diploma mill, subpenas duces tecum were issued by the state's attorney, Chicago, for Peter J. Kopczynski, a chiropractor, Anne Hershey Abell, an osteopath, and P. C. Hughes, an insurance agent who are said to be implicated.

Society News.—The Chicago Medical Society gave a dinner in honor of Dr. Fred H. Albee, New York, at the Hamilton Club, October 31. Dr. Albee read a paper on "Industrial Surgery" before the society.——Dr. Russell M. Carman, Rochester, Minn., will read a paper on "Diaphragmatic Hernia" before the Chicago Roentgen Society, November 9.

Prof. Arthur Biedl to Give Dodson Lecture.—The second John M. Dodson lecture of the Alumni Association of Rush Medical College will be delivered by Prof. Arthur Biedl, University of Prague, in the amphitheater, Rush Medical College, on Friday, November 23, at 4:30 p. m. The subject will be "The Nervous and Endocrine Control of the Functions of the Alimentary Tract." The address is open to all physicians. On November 21, Professor Biedl will speak before the Chicago Medical Society and on November 26 before the Society of Internal Medicine.

Milk Regulations.—The Chicago Department of Health recently issued an order requiring that milk sold to the public on and after Nov. 15, 1923, by lunch rooms, restaurants, cafés and other eating places be served in the original containers, bottles, or receptacles of a similar character instead of by the glass as heretofore. A city ordinance has for some time

required that milk sold must contain not more than 88 per cent. of watery fluids, not less than 12 per cent. of total solids, or less than 3 per cent. of butter fat, and that pasteurized and skim milk shall not contain more than 50,000 bacteria per cubic centimeter from October 1 to May 1, and not more than 100,000 bacteria per cubic centimeter from May 2 to September 30. In a survey made during the last summer, 914 samples of milk were examined, and of these 451, approximately 50 per cent., were found below grade. The regulation requiring milk served in individual containers is intended to protect the public against substandard milk, and was promulgated after a thorough study of practices which obtain in Chicago and twelve other large cities.

INDIANA

Health Conference.—The eighth conference of the Indiana Society for Mental Hygiene will be held in Indianapolis, December 12. The meeting will be primarily for teachers, social workers, physicians, nurses and public officials. Prof. C. Macfie Campbell, Boston, will deliver an address.

Hospital Construction.—The contract has been awarded for the erection of the new tuberculosis sanatorium at Anderson. ——Construction work has been started on the $400,000 addition to Epworth Hospital, South Bend.——Two residences have recently been purchased by the Methodist Episcopal Hospital, Indianapolis, which will be remodeled for use as nurses' homes.——Wayne County Council has been asked to appropriate $50,000 to make improvements at the county tuberculosis hospital, Richmond. The gift of the 200-acre farm for the hospital was donated two years ago by Mrs. David Esteb.

IOWA

Anticancer Drive.—October 15-November 15 was set aside by the American Society for the Control of Cancer for a regional anticampaign (THE JOURNAL, August 25, p. 669) in the state of Iowa. Dr. William Jepson, Sioux City, chairman for the north Mississippi Valley is cooperating with the state medical society and the state tuberculosis association.

Hospital Construction.—Construction work will soon be started on the $100,000 addition to Mercy Hospital, Fort Dodge. This will double the capacity of the institution. The plans include a sun parlor the full length of the south side of both the new and the old buildings on each floor and a roof garden. New scientific equipment will also be installed.

KANSAS

New Hospital for Topeka.—The Security Benefit Association will erect a hospital at Topeka at an estimated cost of $200,000. Schmidt, Garden and Martin, Chicago, are the architects.

Chemistry Professor Honored.—The University of Kansas, the Kansas Academy of Science and the Kansas City section of the American Chemical Society gave an anniversary celebration, September 21, in honor of Edgar H. Summerfield Bailey, Ph.D., professor of chemistry, University of Kansas, in honor of the completion of his fortieth year of service at the university. Edward C. Franklin, Ph.D., president of the American Chemical Society, and Dr. Elmer V. McCollum, professor of biochemistry at Johns Hopkins University Medical School, Baltimore, former students of Professor Bailey, gave addresses.

LOUISIANA

Hospital School for Children.—In the Milliken Building at the Charity Hospital, New Orleans, a school has been established for the child patients. It is sponsored by the Orleans Parish School officials and the Parents' and Teachers' Council, and was started to help school children keep up with their studies while unable to attend regular school because of illness.

Government to Pay for Escaped Lepers.—Surgeon General Cummings announced, October 15, that the U. S. Public Health Service will pay for the care of lepers temporarily placed at Quarantine Station, New Orleans. This settles the controversy which has been going on for several weeks between the city, state and federal health authorities over the responsibility for the care of lepers who escape from the federal leprosarium at Carville and go to New Orleans (THE JOURNAL, September 29, p. 1119). Dr. John Callan, city health officer, was exonorated from all blame in the matter. Five lepers, two white and three colored, recently discovered in the city were immediately sent to Quarantine Station.

MAINE

Physician Aquitted.—Dr. Richard P. Black, Portland, who was recently indicted for the death of Mrs. Ilene York, alleged to have been caused by an illegal operation, was acquitted, October 6, after a three days' trial.

MARYLAND

Dean of Johns Hopkins Resigns.—Dr. J. Whitridge Williams, for the last thirteen years dean of the Johns Hopkins Medical School, has resigned in order to devote his entire time to the new women's clinic of the Johns Hopkins Hospital, of which he is director. Dr. Williams has been connected with the Johns Hopkins Hospital since 1889. In 1893 he became professor of obstetrics and in 1899, obstetrician-in-chief, which positions he still holds.

Personal.—Dr. James H. Mason Knox, Jr., Baltimore, director of the child hygiene bureau, state department of health, has been elected a member of the executive committee of the American Child Health Association.——Dr. Elizabeth Pissoort of Belgium has arrived at the Johns Hopkins Hospital to do graduate work in skin diseases. Dr. Pissoort has obtained one of the Hoover Exchange Scholarships offered by the Rockefeller Foundation.——Dr. John A. Evans addressed the Baltimore City Medical Society on "Osteitis Deformans" at a meeting held in Osler Hall, October 19.——Dr. Paul Preble, director of the new Administrative Health Practice Bureau now established at the School of Hygiene and Public Health, Johns Hopkins University, was the chief speaker at a public meeting of the Baltimore County Health Association, held at Pikesville, October 17.——Dr. Valcoulon L. Ellicott, first on an eligible list of five physicians, has been appointed epidemiologist to the Baltimore City Health Department. Dr. Ellicott is connected with the New York State Department of Health.

MASSACHUSETTS

Tufts Medical School.—Tufts College Medical School, Boston, opened its fall term with total registration of 515. A system of faculty advisers to students has been introduced. Among the changes on the faculty are the appointment of Dr. Martin J. English, assistant professor of pediatrics, and Dr. George Sykes, assistant professor of anatomy.

City Federation Offers Health Course.—Members of committees interested in public health work are invited to register for the free course given by the public health committee of the Boston City Federation in cooperation with the Boston Health League and sanctioned by the Suffolk County Medical Society. The course which began, October 31, will continue until December 5. Lectures, demonstrations, and visits to institutions make the course a comprehensive outline of all city health work.

Suspended Registrations.—At a meeting of the state board of registration in medicine, October 4, the certificate issued to Dr. Earl R. Devere, Millville, was suspended for one month on complaint of the son of a patient who died of cancer. The patient had been treated for six months at a cost of $475. The board construed the attitude and behavior of Dr. Devere as unprofessional conduct.——The certificate of Dr. Frederick N. McKenney, Boston, was suspended for one month for violation of the prohibition laws.

MICHIGAN

Smallpox Closes Schools.—Smallpox and scarlet fever have broken out in Eaton County. Schools and moving picture houses in Eaton Rapids have been closed owing to smallpox. Every home in the Follett School district, Bellevue, having children attending the school has been quarantined for ten days due to an outbreak of scarlet fever.

Hospital News.—Practitioners' clinics will be resumed at the University of Michigan Hospital, Ann Arbor, beginning November 14, and continuing every month until July, 1924.——A new building will be erected for the Christian Psychopathic Hospital, Grand Rapids, at a cost of about $25,000.——The new Pennock Hospital, Hastings, erected at a cost of $125,000 was recently opened. Funds for the building were donated by merchants of the city. This new concrete and brick structure has sixteen private rooms and four wards.

MISSOURI

Medical School Survey.—Dr. E. P. North, president of the state board of health announced, October 16, that a survey would be made of every medical school in the state to

determine whether any were granting certificates without the preparation required by law. This action was taken after the arrest of four Missouri physicians in connection with the issue of false diplomas (The Journal, October 27, p. 1448). Dr. Frederick C. Waite, Western Reserve University Medical School, Cleveland, has been requested to make the investigation.

MONTANA

Medical Examiner Appointed.—Dr. Howard W. Bateman, Choteau, has been appointed by Governor Dixon a member of the state board of medical examiners for a term ending, Sept. 26, 1930. Dr. Bateman has just completed the unexpired term of the late Dr. Patrick H. McCarthy of Butte.

NEW HAMPSHIRE

New England Society of Psychiatry.—The semiannual meeting of the New England Society of Psychiatry was held in Concord, October 3, the society being the guest of Dr. Charles H. Dolloff, superintendent of the Concord State Hospital. Dr. Douglas A. Thom, Boston, and Dr. Samuel Tartakoff, Taunton, Mass., gave addresses.

NEW JERSEY

Study of Workmen's Compensation.—The Governor has appointed Drs. Andrew Wallhauser, Newark, Martin Scamatolski, Bayonne, and George A. Hullett, Princeton University, members of a committee which will make a comprehensive study of workmen's compensation and prepare legislation which will carry out its recommendations.

NEW YORK

Hospital News.—Ground will be broken within a few weeks for a six story and basement structure for the Mary Immaculate Hospital at Jamaica, L. I. The new building will adjoin the present hospital.——A new county home and infirmary will be erected at Alden at an estimated cost of $1,500,000. Building is in charge of the county board of supervisors.

State Bond Issue for Hospitals.—Among proposed measures that will come before the voters of this state, November 6, is a $50,000,000 bond issue for state institutions, particularly those for the care of the insane. This money would not be immediately available, but would be distributed over a number of years. The press seems unanimous in supporting this measure. Dr. Sanger Brown of the New York State Commission for Mental Defectives estimates that there are at least 10,000 persons classified as mental defectives in this state, while existing institutions care for only about 6,382.

Personal.—Dr. Paul B. Brooks of Delmar, who has been connected with the state department of health since 1915, has been appointed deputy state health commissioner.——Dr. William L. Munson, Granville, district state health officer, has been appointed trustee of the Raybrook State Hospital for the Treatment of Incipient Pulmonary Tuberculosis.——Dr. Jonathan Pearson, Schenectady, recently examiner in the Raybrook Sanatorium, has been appointed acting director of the division of tuberculosis of the state department of health.——Dr. Robert E. Plunkett, Whitehall, has been appointed acting superintendent of tuberculosis clinics of the state department of health.——Drs. Frank B. Wheeler, Hudson, and Charles R. Skinner, Hudson, were elected president and secretary, respectively, of the Columbia County Medical Society, October 2. ——Prof. A. Biedl of the University of Prague will deliver the Harrington lecture at the University of Buffalo, November 10.

New York City

State Laryngological Society.—The fiftieth anniversary of the New York Laryngological Society will take place November 15, at the New York Academy of Medicine. There will be an exhibition representing the important contributions made in laryngology in the City of New York.

Anniversary Discourse.—The anniversary discourse of the New York Academy of Medicine will be delivered, November 1, by Dr. William S. Thayer, Baltimore, his subject being "Studies on Acute Bacterial Endocarditis." The program was arranged in cooperation with the Association for the Prevention and Relief of Heart Disease. At this meeting a vote will be taken on the question of the fifty million bond issue for state institutions for the insane, which is to be submitted to the people, November 6.

First Four-Year Class to Celebrate.—The Class of 1898, College of Physicians and Surgeons, Columbia University, New York, will celebrate its twenty-fifth anniversary with a banquet, December 8. This was the first four-year class to be graduated from this college. The arrangement committee for the dinner includes Dr. Charlton Wallace, chairman, Drs. Herman Schwarz, Malcolm Goodridge, Samuel J. Kopetsky, Herman R. Graeser, Howard Fox, Franklin A. Dorman, Charles F. Hunt, John J. Collins and Burton J. Lee.

To Build Medical Center.—Convinced that nothing will be gained by waiting longer for reduction in the cost of labor and material, the administrative board of the College of Physicians and Surgeons and the Presbyterian Hospital, will start construction work on their new medical center before the end of this year. The project, comprising all land between Broadway and the Hudson River from One Hundred and Sixty-Fifth to One Hundred and Sixty-Eighth streets, presented by Edward S. and Mrs. Stephen V. Harkness to Columbia University and the Presbyterian Hospital, will cost approximately $15,000,000, according to the plans. The base for the medical center covers about 21 acres.

Personal.—Dr. Francis H. Humphris, London, England, a World War veteran and roentgenologist, was guest of honor at the Army and Navy Club, New York, October 11.——Dr. Martin J. Echeverria has been appointed physician-in-chief at the New York Dispensary to succeed the late Dr. Trumbull W. Cleaveland.——Dr. L. Emmett Holt, now in China, and Dr. Philip Van Ingen were named first vice president and secretary, respectively, of the American Child Health Association at the annual meeting in Detroit, October 15-17. ——A testimonial dinner was tendered to Dr. William F. Honan, director of the department of surgery of the New York Homeopathic Medical College and Flower Hospital, at the Hotel Commodore, October 23, by 200 physicians.

City Tuberculosis Conference.—A conference was held by the New York Tuberculosis Association in cooperation with the city health department, the public welfare department, New York City, Bellevue and Allied Hospitals, the state department of health, the Association of Tuberculosis Clinics of Greater New York, the tuberculosis committee of the Brooklyn Bureau of Charities, the Milbank Memorial Fund, the National Tuberculosis Association and the Queensboro Tuberculosis Association, at the New York Academy of Medicine, October 25. Among the speakers were: Drs. David R. Lyman, superintendent, Gaylord Farm Sanatorium, Wallingford, Conn.; Samuel B. English, superintendent, New Jersey Sanatorium for Tuberculous Diseases, Glen Gardner, N. J.; Dr. Matthias Nicoll, Jr., state health commissioner, Albany; Dr. Lawrason Brown, Trudeau (N. Y.) Sanatorium; Oscar M. Schloss, professor of pediatrics, Cornell University Medical School, New York; Henry Kennon Dunham, professor of tuberculosis, Cincinnati Tuberculosis Sanatorium; Frank J. Monaghan, health commissioner of New York City, and Eugene L. Opie, professor of experimental pathology, University of Pennsylvania, Philadelphia.

Additions to Sanitary Code.—The report of the law division of the New York City Department of Health shows among others the following additions to the sanitary code in 1922:

1. The maintenance, operation, or conduct of a roentgen-ray laboratory without a permit issued by the board of health is prohibited.
2. The use of cigar cutters designed for common use is prohibited.
3. All physicians, nurses, midwives and other persons in attendance on confinement cases are required to instil in the eyes of new-born children a 1 per cent. solution of nitrate of silver, or an equally effective agent to prevent the development of ophthalmia neonatorum.

For the first time the department of health brought criminal actions against persons breaking quarantine, civil actions alone having been instituted previously. Penalties ranging from $100 to $250 were imposed, and warnings given that prison sentences would be given for future offenses. Several appeals were taken from decisions rendered by the courts and those by the board of health, but no reversals of judgment or opinion were obtained, and "the jurisdiction, power, and authority of the board of health remain unimpaired."

NORTH CAROLINA

Hospital News.—A new forty-two bed building under the management of the State Sanatorium for the Treatment of Tuberculosis, Raleigh, was opened, October 11. The new building, which is for negro patients, is similar to the building occupied by white patients and is situated about one mile from the main sanatorium. Dr. J. W. Walker, Asheville, is

physician-in-charge of the new institution.——The children's addition to the Rex Hospital, Raleigh, was formally opened, October 7. This ward, the gift of W. H. Williamson, Raleigh, as a memorial to his wife, adds thirty-five beds to the hospital.——The Guildford County Tuberculosis Sanatorium, Greensboro, is nearing completion. The sixty-bed building, with equipment and furniture cost $150,000. The Cone family donated $30,000 toward the equipment as a memorial to Caesar Cone.

OHIO

Medical Building Sold.—The sale of the Ohio State University Medical Science Building for $60,000 to the White Cross Hospital Association, Columbus, was announced, October 12, by the university board of trustees. All university equipment will be moved to the medical building now being constructed on the campus.

Society News.—At the annual meeting of the Academy of Medicine of Cleveland, recently, Dr. John B. Morgan was elected president, and H. Van Y. Caldwell, secretary.——Dr. John V. Hartman, Findlay, was elected president of the Northwestern Ohio Medical Association at the annual meeting in Findlay, October 9. Dr. Norris W. Gillette, Toledo, was elected secretary and Dr. John R. Johnson, Lima, treasurer.——At a meeting of the section of pathology and experimental medicine of the Toledo Academy of Medicine, November 9, a demonstration in the diagnosis and treatment of syphilis and gonococcus infection will be given with the aid of exhibits from the Annual Meeting of the American Medical Association at San Francisco.

OKLAHOMA

Personal.—Dr. Marion W. Buchanan, Watonga, has been appointed health officer of Blaine County to succeed Dr. William W. Gill, who is moving to Enid.——Dr. Joseph D. Warrick, Cashion, has been appointed resident physician at the State Institution for the Feebleminded, Enid.——Dr. George A. Waters, Pawnee, has been appointed county health officer to succeed Dr. Felix T. Gastineau who resigned to join the staff of the Eastern Oklahoma Hospital for the Insane at Vinita.

PENNSYLVANIA

Hospital News.—The new Muncy Valley Hospital, Muncy, opened its doors for the inspection of the public, September 19.——Commissioners of Delaware County have purchased the Isaac Scott homestead in Concord Township for a tuberculosis hospital. The property consists of 97 acres, a twenty room house and other buildings. The commissioners plan to remodel the house and build later.——At the seventy-fifth anniversary of Mercy Hospital, Pittsburgh, September 24, Dr. Alfred Stengel, Philadelphia, gave a medical clinic and Dr. John J. Buchanan delivered the X. O. Werder Memorial address.

Philadelphia

Public Health Lectures.—A series of ten free lectures on public health problems will be given under the auspices of the School of Hygiene and Public Health in the lecture room of the Laboratory of Hygiene, Saturday mornings, beginning November 3.

Personal.—Dr. Edward E. Montgomery, emeritus professor of gynecology of the Jefferson Medical College, who sails for South America, November 10, will be guest of honor at a dinner given by the Ohio Society at the Adelphia Hotel, November 2.

Second Course of Insulin Instruction.—On account of the large number of applications for the first course open to physicians to study the use of insulin in the treatment of diabetes at the University of Pennsylvania, it was found necessary to give a second course, which will start November 5, and be given as the previous course, Monday, Tuesday, Thursday and Friday from 2 to 5.

Italians Found Scholarship.—A $5,000 scholarship has been established by the Italian residents of Philadelphia at the Women's Medical College of Pennsylvania, Philadelphia, for the benefit of one of their nationality. Miss Helen M. Angelucci, Philadelphia, was chosen the first to enter for the study of medicine under the scholarship, which was named in honor of Mrs. Benjamin Miller of Germantown.

Health Drive in Factories.—The Philadelphia Health Council and Tuberculosis Committee have started a campaign to conduct free examinations and to secure medical assistance in factories of the city, it was announced, October 13. Physical examinations in plants which do not own their own clinics will be started at once on a wholesale scale financed by the Christmas Tuberculosis Seal Funds. Dr. Mervyn R. Taylor, in charge of the examination of men, Dr. Marnetta E. Vogt, in charge of women, and two nurses, are employed by the health council for industrial work.

RHODE ISLAND

New Laboratory Opened.—On the occasion of the dedication of the Hesse Laboratory of Chemistry at Brown University, Providence, October 10, the degree of doctor of science was conferred on Prof. James W. McBain of the University of Bristol, England, and the degree of doctor of laws was conferred on President James R. Angell of Yale University, New Haven, Conn. Secretary of State Charles E. Hughes made the chief address at the banquet.

SOUTH DAKOTA

Annual Medical Clinic.—Mitchell physicians and surgeons will hold their third annual clinic, November 6-7, at the same time as the annual meeting of the Mitchell District Medical Association. There will be medical and surgical clinics at St. Joseph's Hospital and the Methodist State Hospital.

TEXAS

Southern Texas Surgical Society.—At the fifty-fourth annual meeting of the South Texas Surgical Society in Houston, October 10-12, Dr. George H. Lee, Galveston, was elected president; Dr. C. O. Bryan, Center, vice president, and Dr. Willard R. Cooke, Galveston, secretary-treasurer, Dr. Samuel M. D. Clark, New Orleans, and Dr. Curtice Rosser, Dallas, read papers.

VERMONT

State Society Election.—At the one hundred and tenth annual meeting of the Vermont State Medical Society at Bennington, October 11-12, held under the presidency of Dr. John A. Stevenson, Chester, the following officers were elected for the ensuing year: president, Dr. Frank E. Farmer, St. Johnsbury; vice president, Dr. Eugene A. Stanley, Waterbury; treasurer, Dr. David Marvin, Essex Junction (reelected), and secretary, Dr. William G. Ricker, St. Johnsbury (reelected). The next meeting will be held at Burlington, Oct. 9-10, 1924.

WISCONSIN

Personal.—Dr. Roland S. Cron, Milwaukee, has been added to the University Extension Division for graduate medical instruction. Dr. Cron was formerly assistant professor of obstetrics and gynecology at the University of Michigan Medical School, Ann Arbor, Mich.——Drs. Alexander B. Magnus, neuropsychiatrist, Boston, Mass.; Bertha T. Haessler, pediatrician, Chicago, and Sadie Myers Shellow, Ph.D., psychologist, Smith College, Northampton, Mass., have been added to the staff of the Milwaukee County Dispensary.——A banquet was tendered to Dr. and Mrs. Filip Forsbeck, Milwaukee, in honor of their silver wedding anniversary, September 19.——Dr. Hans Finsterer, Vienna, conducted clinics in Milwaukee, October 16, at St. Mary's Hospital and at Marquette University Medical School. A banquet was given Dr. Finsterer October 18; 200 physicians were present.

PHILIPPINE ISLANDS

Hospital News.—Bacolod is one of the first towns in the Philippine Islands to open a hospital exclusively for children. Money for the institution was obtained by popular subscription. Dr. Vicente Locsin is in charge of the institution.——Through the efforts of Prof. Jose Albert, acting dean and chief of clinics at the University of the Philippines College of Medicine and Surgery, Manila, lectures on special medical topics are being periodically delivered before the resident and intern staff of the Philippine General Hospital by members of the faculty of the university and other physicians.

CANADA

Public Health News.—At a recent meeting of the board of health of Simcoe, Ont., it was decided to close all the schools in the vicinity on account of the prevalence of scarlet fever.——A free medical clinic for veterans of the World War and their families has been established in Toronto by the Western Toronto Veterans' Association. Clinics will be held once a

week, and will be in charge of Drs. Sterling L. Spicer, William S. Aitchison and John A. Tuck.

Personal.—Dr. John Ronald Currie, professor of preventive medicine, Queens University Faculty of Medicine, Kingston, Ont., has been appointed Henry Mechan professor of public health at the University of Glasgow, Scotland.——Dr. Charles C. J. O. Hastings, medical officer of health, Toronto, Ont., was awarded the degree of doctor of science at a special convocation at the University of Syracuse (N. Y.), recently. ——Dr. William Edward Gallie, Toronto, has been appointed Hunterian professor and lecturer at the Royal College of Surgeons, London, England, for April, 1924; his subject will be "Living Sutures."——Dr. John F. Argue, Ottawa, president of the Ontario Medical Association, gave an address at the recent meeting of District 3 of the Ontario Medical Association in Owen Sound.——Dr. John G. MacDougall, Halifax, N. S., a vice president of the Canadian Medical Association, delivered an address before the Clinical Congress of Surgeons, in Chicago, October 21.

Social Hygiene Report.—A report of the medical committee of the Canadian Social Hygiene Council on the standardization of the diagnosis and treatment of venereal disease has just been published by the department of public health at Ottawa. The report represents the work of a committee of thirty-five prominent physicians, with Dr. Edmund E. King, Toronto, chairman. A copy will be sent to every practicing physician in the country. The report covers: medical research and laboratory questions, with subsections on the licensing of men doing Wassermann tests and the standardization of the Wassermann test; diagnostic tests to demonstrate *Spirochaeta pallida;* significance of the Wassermann reaction; negative Wassermann reaction; Wassermann tests as evidence of cure in the treatment of syphilis; relative value of arsenicals and nonarsenicals; eligibility for marriage; minimum requirements of treatment; treatment of syphilis; hereditary syphilis; early preventive treatment; gonorrhea, treatment, and complications and standard of cure; urethroscopy, blood examination; gonorrhea in the adult female and in children with subsections on treatment, and complications, and other phases of venereal disease. This report will be followed by another one on the same subject, prepared especially for use in all training schools for nurses throughout Canada.

GENERAL

American College of Surgeons' Election.—Dr. Charles H. Mayo, Rochester, Minn., was elected president of the American College of Surgeons at the annual meeting in Chicago, October 25; Dr. Ernest A. Sommer, Portland, Ore., first vice president; Dr. Frederick N. G. Starr, Toronto, Canada, second vice president, and Dr. Charles E. Kahlke, Chicago, treasurer.

Directory of Neurologists and Psychiatrists.—The National Committee for Mental Hygiene is compiling a directory of all physicians in the United States who are practicing neurology or psychiatry, with autobiographic information concerning each, as far as possible. This information is designed to meet the demand for the service of neuropsychiatrists in different communities.

National Anesthesia Research Society.—At the annual meeting of the Society in Chicago, October 22-24, the following officers were elected for the ensuing year: president, W. I. Jones, D.D.S., Columbus, Ohio; vice presidents, Drs. John H. Evans, Buffalo, and Arthur E. Guedel, Indianapolis, and secretary-treasurer, Dr. Frank H. McMechan, Avon Lake, Ohio (reelected).

Industrial Physicians Elect.—At the eighth annual meeting of the American Association of Industrial Physicians and Surgeons in Buffalo, October 1-3, the following officers were elected: president, Dr. Loyal A. Shoudy, Bethlehem, Pa.; vice presidents, Drs. Donald B. Lowe, Akron, Ohio, and William Alfred Sawyer, Rochester, N. Y., and secretary-treasurer, Dr. Arthur G. Cranch, Cleveland. Dr. George M. Price read a paper on "Physical Examination of 50,000 Garment Workers."

Directory of City Health Officers.—A directory of city health officers in cities of the United States having a population of 10,000 or more is published in the U. S. *Public Health Reports* of Oct. 19, 1923. The name, city, state and official titles are given with information as to which are "whole-time officers." For this purpose, a "whole-time" officer is defined as "one who does not engage in the practice of medicine or in any other business, but devotes all his time to official duties."

Breweries and Beverages.—Production of cereal beverages by so-called "breweries" this year shows a decrease of almost 27,000,000 gallons below last year, it is stated at Prohibition Headquarters. There are 542 breweries manufacturing cereal beverages under permits, but permits have been denied or revoked in 228 instances. Prior to prohibition there was an annual production of 900,000,000 gallons of real beer, while the total output of breweries the past year, near bear and otherwise, was 189,000,000.

Druggists and Prohibition.—At the forty ninth annual convention of the National Wholesale Druggists Association in Cleveland, October 8-11, it was recommended that congressional aid be sought since their business has come into considerable disrepute since the government forced them to undertake the distribution of liquor for medicinal purposes. The delegates voted for a uniform narcotic drug law in all states, claiming that the Harrison Narcotic Law is weakened by conflicting legislation in many states.

National Social Hygiene Conference.—The annual National Social Hygiene Conference will be held in St. Louis, November 5-7, under the joint auspices of the American Social Hygiene Association and the Missouri Social Hygiene Association. Protective, legal, educational, recreational and medical measures for social hygiene will be discussed by Drs. Frank H. Ewerhardt, president of the state social hygiene association; Surg.-Gen. Hugh S. Cumming, Washington, D. C.; William F. Snow, general director of the American Social Hygiene Association, and Donald R. Hooker, Johns Hopkins University Medical School, Baltimore.

Nobel Prize in Medicine.—The council of the Karolinska Institute, Stockholm, has awarded the 1923 Nobel Prize in Medicine to Dr. Frederick G. Banting, London, Canada, and Dr. J. J. R. MacLeod, Toronto, for their discovery of insulin. They will receive $20,000 each.——The 1922 Nobel Prize in Medicine has been awarded, half to Prof. Archibald Hill, University College, London, England, for discoveries in the physiology of muscles, and half to Prof. Otto Mayerhof, University of Kiel, Germany, for research concerning oxidation and utilization of lactic acid in muscle. The 1921 prize in medicine was not awarded but added to the special medical fund (The Journal, Nov. 25, 1922, p. 1857). The 1922 prize was reserved until this year.

National Health Council.—The *Monthly Digest* of the National Health Council will be enlarged to eight pages at the New Year and will include a section on national health legislation.——"Working for Dear Life," a one reel film, is now complete and ready for distribution. It was produced by the Metropolitan Life Insurance Company on recommendation of the National Health Council and will be distributed free except for transportation charges.——Twenty new booklets on health for the public, published by the National Health Council will be issued about December 1. Some of them are: "The Baby," by Dr. Richard A. Bolt, Washington, D. C.; "Cancer," by Dr. Francis Carter Wood, New York; "The Heart," by Dr. Theodore S. Hart, New York, and "Love and Marriage," by Thomas W. Galloway, Ph.D., New York.

Prize Essays in Chemistry.—Arrangements have been made by the American Chemical Society to take charge of a prize essay contest, established to stimulate interest among high school students in the development of chemistry in the United States. Six prizes of $20 are to be awarded in each state and scholarships to Yale and Vassar as well as other universities will be given for the six best essays in the United States. These scolarships will include tuition for four years and $500 annually in cash. In order to aid students in preparation of the essays a set of five books, including Slosson "Creative Chemistry" and the Vallery-Radot "Life of Pasteur" is being sent to every accredited school in the country. The contest has also the approval of the Commissioner of Education of the United States. In addition to the national committee, separate committees will be appointed in each state to have charge of the contest.

Bequests and Donations.—The following bequests and donations have recently been announced:

Japanese Earthquake Relief Fund, $10,448,702, raised by the American Red Cross.

Abbott Hospital, Minneapolis, $500,000, under the will of O. C. Wyman of Minneapolis, and $250,000 for the Abbott Children's Clinic of the hospital, by T. B. Janney.

Avon, Ill., for the erection of a hospital, the principal of the $500,000 estate of the late Clara Saunders.

Van Wert (Ohio) County Hospital, $100,000, by the will of William Jones.

Grace Hospital and the Children's Hospital of Michigan, Detroit, and the Cottage Hospital, Grossepoint, stocks, bonds and cash to the value of $91,045, from the estate of Elizabeth A. McMillan.

Northwestern Hospital, Minneapolis, $20,000, by Mr. Waldo.

Staten Island (N. Y.) Hospital, $10,000, by the will of William G. Willcox.

Memorial Hospital, Matoon, Ill., $5,000, by Mrs. Florence H. Kistler of Denver.

Jane M. Case Hospital, Delaware, Ohio, $2,000, by the will of Mrs. Sophia W. White.

Mercedes (Texas) General Hospital, two lots at Ebony Park on which to erect a new building, by William Lingenbruck, formerly of Mercedes.

Mooresville, N. C., the large residence of Mr. and Mrs. Samuel A. Laurance for a hospital.

New East Mississippi Charity Hospital, Meridian, Miss., the furnishings for one entire ward, by the Meridian Exchange Club, and another by A. J. Lyon and William Lerner of that city.

International Promotion of Child Welfare.—The regulation of infant rearing centers, improvement of day nurseries, school hygiene, and the repatriation of juvenile delinquents were among the subjects discussed at the second ordinary session of the International Association for the Promotion of Child Welfare held at Geneva, July 28-30, 1923. The following resolutions were adopted:

1. Regulation of Infant Rearing Centers.—Because of the difficulty in supervising the care of infants placed out promiscuously, it was recommended that "rearing centers" be established, directed by qualified medical officers.

2. Improvement of Crèches.—(*a*) All day nurseries should be under the direction of a physician; (*b*) they should have separate rooms for the cradles, for the linen, for disinfecting purposes and for isolating patients; and (*c*) they should be open to the pupils of puericulture schools.

3. School Hygiene.—There should be close collaboration between the teacher, the school physician and the school nurse. The teacher should have a knowledge of the fundamental rules of hygiene. Each child should undergo a yearly examination, records should be kept and proper action should be taken as indicated by the examination. From a prophylactic point of view, the attention of the public authorities is called (*a*) to the importance of the medical examination from the standpoint of the teacher and (*b*) to the importance of dental hygiene and treatment.

The improved draft of this convention provides for the repatriation of minors of foreign nationality by the contracting states, with particular reference to minors without means of protection or support, and escaped delinquents, who have been taken from the authority of their parents or guardians. In every case the minor is handed over by virture of a decision duly given by the authority of the state of which he is a native. Provisions were made for the ratification of the convention, and for denouncement of the convention by any signatory state. Ratification comes into operation one month from the date of deposit of certificate of ratification.

FOREIGN

German Hospitals Closed.—During 1922 forty-five hospitals were closed in Prussia owing to financial stress, according to reports, including nine private hospitals with 1,049 beds in Berlin alone.

Bolivia Passes Eugenics Law.—A law requiring medical certificates for marriage, and prohibiting the marriage of persons suffering from tuberculosis or other infectious diseases was passed by the Bolivian chamber of deputies at La Paz, October 28.

Centenary of the Morison Lectures.—The centennial course of the Morison lectures on mental diseases and disorders of the nervous system, founded in 1823, was delivered by Dr. Alexander Blackhall-Morison, October 15, 16 and 17, in the Royal College of Physicians, Edinburgh.

Hospital News.—The new 30,000,000 franc hospital at Jette, Belgium, was recently opened. The king and queen attended the dedication ceremonies.——The Red Cross ship *Viking* has been fitted for a hospital to relieve the lack of hospital facilities in northern Norway. The ship contains a modern operating room, an isolation ward and forty-one beds, and a detention room.

Asylum for Children with Sequelae of Epidemic Encephalitis.—The Swiss Psychiatric Society has voted in favor of the necessity for an institution where children suffering from the sequelae of epidemic encephalitis can be given proper care and training. Dr. Jörger, Waldhaus, Masans bei Chur, is compiling data on the subject to ascertain the extent of the need for such an institution.

South African University News.—The Johannesburg town council has donated $100,000 to the University of Johannesburg Medical School, South Africa, and $25,000 to the Victoria Hospital.——Bids have been received for the erection of the new medical school at Grotte Schuur, near Cape Town, South Africa, at an approximate cost of $500,000.——Professor Mackie of the Cape Town University Medical School has been appointed professor of bacteriology at the University of Edinburgh, Scotland.

Medical News from China.—A storm of protest is being raised by Chinese physicians, according to the *China Medical Journal,* against the decision of the authorities to have all Chinese medical practitioners and herb shops registered with the Bureau for the Suppression of Drugs. The physicians and herbalists have threatened to strike unless the order is rescinded immediately.——The municipal council of Shanghai has opened a free clinic for the treatment of foreign seamen and indigent male foreigners with venereal disease.

Personal.—Prof. S. Recasens brought back with him from Argentina a gold plaque presented by the medical faculty of the University of Buenos Aires to Prof. Ramón y Cajal. The plaque was entrusted to him with much ceremony at the time a portrait of Cajal was unveiled in the university hall with addresses on the work of Cajal. At the latter's request, the plaque was delivered to him informally. Dr. Recasens was obliged to shorten his trip, it is said, on account of a fractured malleolus.——Dr. Max Thorek, Chicago, delivered an address on "Endocrine Function and Gland Grafting" at the Academy of Medicine at Rome, October 13.

Society News.—The Berlin Medical Society has closed its library owing to financial stress.——The French Society of Orthopedics met in Paris, October 12. The chief subjects of discussion were: "Pes Cavus," Dr. Laroyenne, Lyons; "Cysts of Bone," Dr. Roederer, Paris, and "Congenital Elevation of the Scapula," Dr. Delchef, Brussels.——The Medico-Chirurgical Society of Bologna, founded by Francesco Orioli in 1823, will celebrate its centenary in December.——The opening meeting of the Royal Society of Tropical Medicine, October 18, was preceded by a demonstration of the development of the malaria parasite in the mosquito. The president, Rear Admiral Sir Percy Bassett-Smith, delivered the inaugural address.

Government Services

Major Nichols Returns to Army Medical School

Major Henry J. Nichols, M. C., U. S. Army, has been appointed director of the laboratories of the Army Medical School, Washington, D. C.

Army Medical School Moves

The army medical school, Washington, is being moved from its downtown location to the new buildings erected by the government at the Walter Reed General Hospital. This is part of a comprehensive plan to establish an army medical center. The army veterinary school and the army nurses' school will also be transferred to the new center.

Army Medical Corps Examination

The Army Medical Corps will hold an examination at various stations throughout the country, Jan. 21, 1924. Successful applicants will be commissioned in the grade of first lieutenant. The medical corps of the army is now about thirty-six officers short of its quota.

Shortage of Naval Medical Officers

Lieuts. Wendall H. Perry, Walter J. Spencer and Albert H. Faber of the navy medical corps, resigned within the week of October 20, reducing the strength of the corps to 751 commissioned officers. Even with the reduction in the strength and appropriations for the navy there is now a shortage of forty-nine officers below the allowance by Congress.

Cabinet Discusses Reorganization

The Harding plan for reorganization of the federal departments of the government is receiving the attention of President Coolidge and has been the subject of discussion at recent meetings of the Cabinet. It is made known at the White House that the President does not favor that part of the plan which would consolidate the War and Navy Departments into a Department of National Defense. It has been intimated that the President has not reached a decision regarding the proposal to create a new department to be known as the Department of Public Welfare, in which would be included the Public Health Service and several of the bureaus whose functions are of a medical nature. It is apparent that the original plan as prepared by Walter F. Brown for the Harding administration will be subjected to numerous changes before being presented to Congress by President Coolidge.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Oct. 12, 1923.

National Congress of Physical Education

The National Congress of Physical Education, which has just been held at Bordeaux, under the chairmanship of Prof. C. Sigalas, dean of the medical faculty of the University of Bordeaux, was of interest for the reason that consideration was given to the much neglected medical side of physical culture. The congress was divided into three sections: physiology, physical education and sport in general.

The Physiology of Physical Exercise

Dr. Maurice Boigey, an army physician, discussed exhaustively the effects of quantity and quality of exercise from the standpoint of respiratory exchange. He first referred to the estimations of energy expended made by measuring the loss of heat with the calorimetric apparatus of Atwater, Benedict, Cathcart and their co-workers, and then discussed simpler methods that measure the intensity and rate of exchange by determining the oxygen consumed and the carbon dioxid eliminated. With this method Boigey has studied the expenditure of energy during rest and during various forms of exercise, in subjects with and without athletic training, in walking, running, swimming, rugby football, rowing, pedaling on an ergographic bicycle, and bicycle racing. His researches show that the variations in carbon dioxid output parallel the intensity of the work, and afford an index of the quality of the muscular machine. For a given amount of work, the carbon dioxid eliminated is greater if the subject has received no previous training. In other words, the trained subject works more economically; his physiologic expenditure measured in terms of combustion is less than that of the man who is not trained. For a given exercise or game, the subject has reached the optimum of training when his physiologic expenditure is at a minimum.

The mechanism of shortness of breath in the runner or other athlete deserves particular study. The dyspnea is not closely correlated with the oxygen consumed, the carbon dioxid eliminated or the pulmonary ventilation. The stimulation of the bulbar respiratory centers, with which the dyspnea is associated, is related not only to the carbon dioxid content of the blood but also to products of incomplete oxidation liberated by the muscles under conditions of great effort. The most important of these products is lactic acid, which acts as a poison to the respiratory centers and gives an added effect to that of the carbon dioxid. Elimination of such acid bodies is slower than that of carbon dioxid. This explains why the dyspnea persists after the work is finished, and in spite of the fact that the percentage of carbon dioxid in the blood returns to normal after a few seconds. According to H. Magne, all that is necessary to diminish greatly the dyspnea is gradually to accustom the respiratory center to acid excitation. Some athletes make a practice of every now and then holding their breath as long as possible while working. Exercises of this kind tend to increase the resistance of the nervous centers to carbon dioxid, and are consequently of great advantage in athletic work. Magne has suggested that race horses might be trained to breathe mixtures of air with increasing percentages of carbon dioxid. In this way they would be immunized against the effects of acid intoxication of the respiratory centers, and the appearance of dyspnea during work would be postponed. Boigey raised the question whether this method of respiratory training might not be tried on human subjects.

Physiologic Classification of Sports

Boigey has endeavored to classify the various sports according to the expenditure of energy, measured by the respiratory exchange that each requires. Such a classification can be only approximate; it is not so much the form of movement or the time required for its accomplishment that determines the intensity of the respiratory exchange, but rather the speed with which the muscular action is effected, together with the resistance to be overcome. With these reservations, we may consider the general findings that Boigey has reached:

One hundred yard swimming races seem to require the most intense respiratory exchange. The 100 yard dash causes also elimination of much carbon dioxid; less, however, than the swimming races. Wrestling, long distance running and English boxing make essentially similar physiologic demands. French boxing, rowing, rope climbing, and rugby football constitute a group of exercises that cause the elimination of similar amounts of carbon dioxid, definitely less, however, than the last group. Tennis, bicycling, association football and punchball form another group somewhat lower in the scale of energy expenditure.

For an adult, forty-five minutes of gymnastic drill, such as is described in the army manual of physical education, is equivalent to the energy expenditure of a game of volley ball or a line march with a sixty pound load of the same duration.

Hypertrophy of the Heart

From time to time, sport and athletics have been charged with causing hypertrophy of the heart. To what extent is this true? Chaillet-Bert pointed out that the heart will react to training like the biceps muscle; its walls will become thicker and stronger. In order to deliver a larger volume of blood at each contraction, the heart will also become dilated. But this dilatation is active and not passive or pathologic; it can occur without danger because the walls are hypertrophied and are elastic; they, therefore, permit a return to former size when training is finished. This preliminary hypertrophy has been rightly termed "providential hypertrophy," as it protects from danger. But, while it is true that the heart, especially the left ventricle, may dilate without danger, this is not true for the valves. When the heart becomes dilated during training the inelastic valve cusps are drawn too far apart and do not readily retract again. Slight insufficiency results, and may give rise to a murmur. In a trained athlete such a murmur is a normal phenomenon, and it disappears when training is abandoned. On the other hand, if the heart is called on to make a supreme effort without previous training, the danger is considerable, for the walls, not having become previously hypertrophied, will become distended, just as does a weak abdominal wall, and may not be able to resume their former state. There will then be pathologic dilatation, which must be distinguished from the physiologic dilatation that occurs in the heart of the trained athlete.

Respiration and Circulation in Physical Culture

Dr. Chailley-Bert, collaborator of the late Professor Langlois, called attention to the fallacy of trying to judge lung capacity by external measurements (superior and inferior chest circumference). Such measurements take no account of the work of probably the most important muscle—the diaphragm. The chest measurements may be lamentably poor and the pulmonary ventilation good, or vice versa. In one case the diaphragm moves freely; in the other, this muscle is practically blocked. The spirometer gives fairly good results when the subject has learned to use it. While the spirometer measures vital capacity, it fails to differentiate between two other essential elements: the tidal air (the air that passes in and out in breathing) and pulmonary ventilation (the quantity of air breathed each minute). Many

athletes have an excellent vital capacity, yet get out of breath quickly. This appears, at first, incomprehensible, but closer examination will reveal that the tidal air is inadequate and, in consequence, pulmonary ventilation is poor. Such persons are shallow breathers; they have good lungs, but do not know how to use them. With proper training, they may become completely transformed.

Muscular work affects the circulatory system in two ways: by accelerating the rate to meet the needs and by increasing the volume of blood carried by each heart beat. The maximal physiologic limit of 160 beats a minute may be greatly exceeded during periods of great effort. In the trained athlete, the return to a normal rate takes place in a few minutes after moderate exercise. But the situation is quite different when a race is hotly contested, as when a cross-country run ends in a sprint. Formidable demands are then made on the whole organism. The pulse may reach 240 and the return to normal be long delayed. The organism is loaded with toxins, and an hour or even longer may be needed for their elimination. The same effects are produced by long distance races, marathons or six-day bicycle races. The pulse rate may exceed 200, and the return to rest conditions requires a long time. Here, other organs also are involved. The kidneys and the liver are subjected to severe strain, and these organs must be in perfect condition.

War Reminiscences of Professor Lejars

Dr. F. Lejars, professor of clinical medicine at the Faculté de médecine of Paris, has just published (Masson et Cie, Paris) an interesting and instructive book entitled, "Un hôpital militaire à Paris, pendant la guerre." The hospital in question is the Hôpital Villemin, Paris, in which, between Aug. 2, 1914, and June 6, 1919, 30,546 soldiers were treated: 18,290 medical, and 12,296 surgical cases (6,429 wounded at the front, 5,867 wounded behind the lines or presenting surgical affections). Besides his surgical experience, Lejars, as chief physician of this hospital, had a wide administrative experience, and his reflections, which are the outgrowth of this twofold experience, deserve serious consideration.

Lejars emphasizes the need of close cooperation between regular army physicians and the supplementary civilian physicians who are mobilized in time of war. His personal experience is typical of the conditions that existed. As a civilian surgeon, he had, before the war, taken part in so-called "periods of instruction" during which civilian physicians were supposed to become somewhat familiar with military affairs; he admits that he learned little, with the consequence that, when he was suddenly invested with military functions, he found himself utterly ignorant of the practical operation of a military hospital.

In time of war, civilian physicians are mobilized and placed under the orders of the chiefs of the army medical corps. After demobilization, all collaboration at once ceases, and the breach becomes as wide as ever. This condition of affairs is both sad and anomalous. Since the medical profession, as a whole, must participate in war, it should be allowed to participate, to a certain extent, in the preparations for war. At the beginning of the recent war, there were only 1,707 physicians and surgeons on the skeleton staff of the army medical corps, and 19,474 civilian physicians and surgeons were mobilized to fill the complement. Is nothing to be gained from this long period of cooperation? Lejars expresses surprise that, when demobilization took place, hospital chiefs and leading attending physicians were not asked to submit reports and recommendations on their observations in time of war. Most of these physicians, during the period that followed the armistice, would gladly have consented to draft such a document, and these documents would have proved to be of the greatest value.

Speaking of trained nurses, Lejars states that, after entering the military service, he observed frequently the difference in appearance, cleanliness and functioning of sanitary units provided with trained nurses as compared with those that were not so provided. He holds that the sterilization and preparation of surgical dressings, preparations for operations, the care and supervision of men with wounds and after operations, are essentially woman's work; but the women must be trained, must have had practical experience, and must be devoted to duty in the military sense of the word—without reserve, hesitation or question—with a willingness to "serve" and a happiness in "serving." He regards it as the highest duty of the Red Cross to train as many women as possible, both practically and in the discipline that belongs to the military service.

Death of Dr. François Helme

Dr. François Helme, formerly a collaborator of the *Presse médicale*, died recently at the age of 70. Early in his career, he specialized in otorhinolaryngology; he took up medical journalism, and was noted more for the qualities of his style than the content of his articles. Not being well grounded in scientific questions, he concerned himself more with professional questions. He contributed also a column of medical news for the general public to one of the daily papers.

LONDON

(From Our Regular Correspondent)

Oct. 15, 1923.

Typhoid Due to Contaminated Fish

Outbreaks of typhoid due to eating shellfish taken from estuaries polluted with the sewage of towns are now well recognized. The health officer for London, in his last report, points out another way in which typhoid may arise from sewage pollution. He shows that for sixteen years there was a very high death rate in London from typhoid, a lower level for the period 1885-1901, then a steep decline to the present rate, and a disappearance of the autumnal outbreaks. He finds that one of the main causes of typhoid is fish, which have been responsible for more than a dozen outbreaks in London or its neighborhood. The fish are immature plaice which are fried and sold ungutted, because of their small size. Efforts have been made by the fish trade to prevent the sale of fish under a certain size, and these immature plaice have gone out of favor with the friers. But from the autumn of 1921 onward there has been some evidence of increase in the amount of small plaice sold in London. Action has been taken by the International Council of Fisheries to procure an international agreement to prevent all fishing on the "nursery grounds" where these fish are obtained.

The Panel Crisis

The great struggle between the panel physicians and the government has begun. The Insurance Acts Committee of the British Medical Association has sent to the ministry of health a long letter in which the terms given in my last letter are rejected. The committee complains that the minister, instead of regarding the insurance system as a matter affecting the public health of the nation, appears to have mainly directed his attention to the commercial question of the lowest sum for which medical attendance can be obtained for insured persons. The committee views the system as set up not merely for attendance on certain wage earners when ill but to promote the national health by preventive as well as curative methods, by facilitating research into the beginnings of disease and by making investigations and reports on health matters. For this it is necessary to attract and retain every type of physician, from the new recruit to the experienced and successful family physician. A rate of

remuneration which would exclude the latter would deprive the service of valuable members. The committee disputes the minister's contention that the present capitation fee is more remunerative than private practice. It admits that clubs are frequently established at rates below that of the insurance service, but this is because of difficulty in paying the usual private rates when there is no state aid. To the minister's argument that the reduced capitation fee now in force must have been satisfactory since the number of entrants into the service increased after it was accepted, the committee replies that the increase was probably due to physicians who had left the army and returned to general practice. Moreover, as long as the panel system exists, physicians in industrial areas must join it. As to the comparison made by the minister with the remuneration of civil servants, the committee gives figures to show that the panel physicians' postwar rise of remuneration never reached the height which that of the civil servants did, and the new proposal will leave it lower. Moreover, the physician is at a great disadvantage compared with the civil servant in making adjustments of his expenses and ways of life, and the civil servants' pension has been overlooked in stating the minister's case.

Since the beginning of the working of the Insurance Act, a considerable reduction has taken place in the claims for sickness benefit, indicating an improvement in the health of the industrial classes. This the minister attributes to a number of factors—improvement in the administrative methods of the friendly societies, economic causes, such as the great demand for labor during the war. The reduction during the war, he argues, cannot have been due to the efficiency of the medical service, for the shortage of physicians in the country rendered the maintenance of even a minimum service difficult. The committee agrees that many factors combined to produce the result, but thinks that the chief factor was the ability of a large section of the population to take advantage of medical advice at an early stage of an illness without fear of contracting a physician's bill. The committee views with alarm the hint that if improvements in medical education and skill or the extension of preventive medicine reduce the number of individual items of service rendered, this should justify reduction in the pay of those instrumental in thus conducing to the health of the insured population. The committee holds that the proper capitation fee is to be arrived at by taking the $2.75 fixed in 1920 by arbitration and calculating the sum to which that would correspond at the present cost of living. This would be about $2.50.

The minister of health has not yet answered this letter, but there is little reason to suppose that he will depart from his offer. The feeling in official circles is that for the panel physicians in large towns the offer is sufficient. But there is one point on which some concession may be made. The committee drew attention to the position of rural physicians whose insured patients are few and scattered over a far wider area than in towns. It is recognized that the rural physicians have special claims for consideration, and it is expected that the minister will indicate his willingness to inquire further into their case and see whether something more can be done for them on the basis of a mileage allowance or increase of the capitation fee. On the whole, the lay press is opposed to the physicians. It says that as other workers have submitted "with more or less grace" to reductions in the inevitable reaction following the inflation of prices due to the war, physicians should do likewise. It is true that such reductions have taken place; but they have been submitted to with very little grace. They have been and still are resisted whenever a trade combination is strong enough to do so. Indeed, the panel struggle is only an example of widespread industrial conflict produced by the enormous financial disturbance following the war. A mass meeting of London panel physicians amounting to 650 was held yesterday. With only five dissentients, a resolution was carried declaring that the remuneration offered by the minister is inadequate and urging support in every possible way of the Insurance Acts Committee of the British Medical Association to obtain an increased offer. It was pointed out that the public should be given to understand that there was no intention to "strike" in the ordinary sense. If the physicians resigned from the panel service it would only mean that the patients would be attended as private patients. Those who could not afford to pay ordinary fees would be attended at reduced ones, and those who could pay nothing would be attended free of charge. Similar resolutions were passed at meetings at Liverpool and other places. On the other hand, the representatives of the friendly societies maintain that the minister's offer is too high and that the fee should revert to the prewar one. A conference of representatives of all the societies is to be held in London. It is anticipated that an emphatic protest will be made against the minister's proposals and that the societies will pledge themselves to oppose any legislation to give them effect.

The minister is in the unfortunate position of a judge or arbitrator between two contending parties bitterly opposed to each other. He has endeavored to solve the problem by taking a middle course and has failed to satisfy either party. It may be anticipated that whatever he does, this will be the result. The root of the trouble is that the panel system is a socialistic scheme copied from Germany by Mr. Lloyd George and taken up with undue enthusiasm. Though there are many socialists in this country and though we have had to endure in recent years a good deal of socialistic legislation, the temperament of the English people is not socialistic but individualistic, and they do not readily take to the state regulation of such a personal thing as medical attendance. Hence a considerable proportion of the profession will not have anything to do with the panel system, and also a number of those entitled to service under it prefer to pay private medical attendants, although already paying for attendance under the act. The subsidy provided by the state, on the other hand, is a strong force in reconciling people to the system. For the insured there is the famous (or the opposite, according to political opponents) argument of Mr. Lloyd George, "ninepence for fourpence." By this he meant that while making the insured contribute 8 cents a week he provided them with an insurance which cost 18 cents. For the physicians the act had the advantages of abolishing dispensing, collection of debts and the making of bad debts, and above all insuring payment for a class of patients which paid little or nothing before. That the incomes of physicians have, on the whole, been considerably increased by the act is beyond doubt. But their work has also been increased, and the question of the proper rate of payment still remains.

In all controversies on the act, the accusation of very perfunctory attendance by physicians is made. That there is some ground for this cannot be disputed, but the extent of the evil is very difficult to assess. It is pointed out on the side of the physicians that the number of complaints is remarkably small, in view of the millions of persons treated. On the other side, the rejoinder is made that the patients put up with a good deal before making, if ever, any complaint. Perhaps the greatest defect is that patients with little or nothing the matter—nothing for which they would come if they had to pay—can come as often as they like to the physician and waste his time. It might be thought that all he has to do is to give them any simple directions that may be necessary and get rid of them. But there exists a robust faith in drugs among the English people, particularly in the working classes, and the physician will not sacrifice his popularity by refusing to prescribe. These people do not

deserve or require more than perfunctory attention, but unfortunately its practice may easily spread beyond them, partly for the very reason that they waste time required for real illness. On the other hand, it is claimed that such free access to the physician enables him to treat disease at the beginning—a thing often previously impossible in persons who avoid taking advice because of the expense.

The Centenary of the Lancet

The *Lancet* has begun the celebration of the centenary of its existence by the publication of a special number in which the story of its foundation and early struggles is told once again. The first issue, a small octavo, appeared Oct. 5, 1823. The editor, Thomas Wakley, a recently qualified young physician, had no literary experience, position or influence of any kind. There were at the time several established medical periodicals, but no weekly one. Wakley was animated by a burning hatered of the gross abuses that existed in the hospitals and medical corporations. He could write plain and forceful English. He vigorously denounced the small and privileged class of hospital physicians who controlled medical teaching and admission to the profession. For the large fees they extracted from students they gave only the most perfunctory teaching; they held their positions when age had rendered them incapable, and appointed their successors by nepotism. They even tried to prevent the publication of their lectures, an innovation in those days. Wakley's attacks were vigorous, often to the extent of scurrility, and led to numerous libel actions. But he bore down all opposition and brought about reform of all the abuses. After this stormy beginning, the *Lancet* settled down to a career of eminent respectability and usefulness. It became the leading medical journal of this country. For the bitter hostility of the leaders of the profession, it exchanged their unanimous support and approval. This is shown by the numerous messages of congratulation which it has received on completing its centenary. Such is the whirligig of time.

Poisoning Due to a Thunderstorm

The inquest has just been concluded on a man who lost his life under unprecedented circumstances. On the night of July 9-10, a thunderstorm of great violence broke over London and continued for many hours. A healthy man, aged 27, was filling sacks with metal dross at a foundry while the storm was in progress. He was taken ill next day and complained of internal pains, while his skin gradually became copper colored. The view was taken by his physician that death was due to poisoning by arseniuretted hydrogen (hydrogen arsenid), which might have been generated from the metal dross. This was confirmed by the finding of arsenic in the dross and also arsenous oxid in the viscera. At the inquest, Mr. Alfred Munday, chief metallurgist to the foundry, said that the sacks were thought to be in a dry place, but that this extraordinary storm caused them to get wet. He had gone out of his way to consult some of the world's most eminent experts on the subject, but none of them had heard of a similar case. A foundryman who was working in the same shed as the deceased gave evidence. He was also taken ill next day. He began to fall about, had abdominal pain on the right side, and turned a yellow and copper color. He was admitted to St. Thomas' Hospital, where his chart was marked "trade poisoning." He was 8 yards away from the man who died, but was not doing the same work. The coroner found that death was due to poisoning by arseniuretted hydrogen.

No evidence was given as to the exact manner in which the arseniuretted hydrogen was generated. I am indebted to a mineralogist, Dr. Alfred Brammall, mineralogist and lecturer at the School of Mines, South Kensington, for the following commentary on the evidence. Many copper ores are essentially copper arsenids or sulpharsenids. In the ordinary course of metallurgical treatment, both the arsenic and the sulphur should be oxidized and volatized, but it is possible that appreciable traces of these substances might remain. It is difficult, however, to see how the addition of water could produce any chemical reaction that would liberate arseniuretted hydrogen. But if the copper chanced to be "earthed" and conducted lightning from girders or otherwise downward, chemical action would be considerably quickened and a reaction might occur. By the electrolysis of water, nascent hydrogen might be generated, and on combining with the traces of arsenic present the very deadly arseniuretted hydrogen might be generated. But the difficulty is, how came it about that the copper dross contained sufficient arsenic for the generation of a poisonous quantity of arseniuretted hydrogen?

HOLLAND

(From Our Regular Correspondent)

Oct. 7, 1923.

Smallpox Vaccination

According to statistics published in the recent census report for the Netherlands (1920), there appears to be at present 7 per cent. of the population that is not vaccinated against smallpox. Thirty per cent. may be considered immune, and 63 per cent. have acquired partial immunity. In a recent letter I mentioned that vaccination is compulsory only for school children. Revaccination is not common except in the army. In the Dutch East Indies, on the other hand, the regulations are more strict and the whole population is revaccinated every eight years.

The Crusade Against Alcoholism

The commission for combating alcoholism in the Dutch East Indies was appointed in 1918; its first task was to inquire into and, when possible, to approve the enforcement of all recent local legislation. The scope and operation of the prohibition law of the United States have also been studied. After numerous investigations, the commission has decided to suppress only excesses, endeavoring to create, at the same time, a public sentiment against the abuse of alcoholic beverages. It was thought unwise to pass a prohibition act applicable only to the indigenous population. The best and the least troublesome means of solving the question, it was held, would be to raise the price of alcohol beyond the reach of the general population and to prohibit the sale of spirituous beverages to children under 16 years of age.

Experimental Tar Cancer

The international conference for the experimental study of cancer met at Amsterdam under the chairmanship of P. Rotgens and decided on the formation of a permanent society for effective coordination of all research work on experimental cancer. Studies by Bang, Rentschländer and Dulmon on the histogenesis of tar cancer and certain divergences between the opinions of the Danes and the Netherlanders deserve mention.

The Danes regard every papilloma as a malignant growth, even though all the characteristics are benign. The Netherlanders, on the contrary, recognize the difference between a malignant and a benign tumor. Numerous comprehensive studies have been published by Rainy, Waterman, Block and others.

Personal Adaptability and the Industrial Schools

Many modern technical or industrial schools do not admit students to the various courses of instruction until they have been examined by a physician and their probable aptitude for a given trade or vocation has been established. This medical examination may be given, at present, by any physi-

cian. But it is becoming progressively more obvious that industrial medicine must specialize if better selections are to be made, not only in avoiding the recommendation of a trade or calling that is incompatible with the individual make-up, but also in preventing many accidents among workmen. It has been noted that accidents occur most frequently among those who are not adapted to their work. For this double reason—individual and social—it is of the greatest importance that better principles for selecting candidates for the industrial schools be established. With this object in view, the executive committee of the Nederlandsche Maatschappij tot Bevordering der Geneeskunst has addressed a communication to the minister of public instruction and sciences requesting that the statutes pertaining to technical and industrial instruction be remodeled. The main item is the selection of physicians with special training in industrial medicine for the task of selecting entrants for the technical schools.

Mortality from Endonasal Operations

In connection with a death from meningitis following an operation for nasal polypi, H. Burger of the Netherlandic Society of Otorhinolaryngology has outlined precautions that should be taken to lessen the risks from postoperative complications. Not only must the indications for the operation be precise, but the most rigorous technic must be carefully adhered to. Intervention in cases of acute infection must be avoided. He recommends tamponage in all endonasal affections, and in the case of drainage of suppurative foci advises extending the operation far enough to open the last infected focus.

The Qualification of Specialists

Following a campaign launched for the purpose of establishing the status of medical specialists, the Netherlandic Ophthalmologic Society has instituted an inquiry among its members. Under present conditions, numerous abuses arise from the fact that a medical diploma confers on every physician the right, without special preparation, to style himself a specialist in any branch of medicine he may choose. The questionnaire sent to all members of the Ophthalmologic Society takes up various aspects of the problem and asks: Shall the right of the physician to style himself a specialist be conceded and preserved? Is it advisable to require the sanction of some controlling body that would determine the qualifications of the would-be specialist? If the need of a controlling body is accepted, should its authority be exercised in a legal manner under the supervision of the state authorities, or should the medical associations be the sole judges? Should the basis of sanction be the ability to pass a satisfactory examination before a special board, or should sanction be based on satisfactory work performed for a given period in a recognized official clinical service?

The referendum took up also other questions of more general nature; for instance, as to whether it was necessary, in preparation for a special field of work, for a student to take the medical course required for the general practitioner, or whether it would be advantageous to allow a variation from the general course from the start, and to permit selection of special studies directed toward the particular branch of medicine to which he intended to devote himself.

The Ophthalmologic Society, as a whole, declared itself in favor of some modification of existing conditions, looking toward a more efficient control of specialization in medicine. The most practical solution, or at least the one that seemed to meet with the most general approval, was a stipulation requiring a physician who desires to take up a specialty to spend at least two years as an assistant in that field of the hospital service. Before adopting formal conclusions, the society decided to get in touch with other societies, with the object of securing a united front as to the changes needed.

Spontaneous Cure of Pulmonary Echinococcosis

Dr. De Wilde has reported to the Society of Electrology and Radiology a case of spontaneous cure of an echinococcus cyst of the lung. It was the case of a man in whom the roentgenographic examination had revealed a clearly circumscribed lesion at the base of the right lung. Puncture brought forth a colorless fluid, containing no cells or albumin. One-half hour after the puncture, a frank urticaria developed. The Weinberg test proved positive. Three months later, a second roentgenographic examination showed that a marked reduction in the volume of the cyst had occurred. Four months afterward, the patient vomited a foul-smelling fluid containing many false membranes. A third roentgenographic examination made at this time discovered the fact that the shadow perceived previously at the base of the right lung had almost disappeared. Something over a month later, it was found that the patient presented no further morbid symptoms. In this connection, also Drs. Hertzberger and Keyser stated that such spontaneous cures were not infrequent.

BERLIN

(From Our Regular Correspondent)

Oct. 6, 1923.

Radium: Distribution, Cost and Manufacture

The subject of radium presents considerable interest to physicians in general and to American physicians in particular. A chemical engineer recently published an article on radium, from which I take these excerpts: Although radium is found in many parts of the world (for example, in Bohemia, Portugal, Australia and England), the United States has been until recently the chief producer. It is estimated that at present there is in use in the United States 150 gm. of radium, worth approximately $20,000,000, around 90 per cent. of which was derived from the carnotite deposits of Colorado. This American radium ore contains about 2 per cent. uranium oxid and is found interstratified with the rocks, from which it is extracted by diamond drills. It is sorted by hand and is transported by mule teams to a distant railway. Since the deposits of radium ore are widely scattered, and about 1 kg. of acid is required to work 1 kg. of ore, it is not economical to extract the radium where the ore is found. Collection and transportation of the ore are attended with difficulties, and the chemical processes are complicated; from 200 to 400 tons of radium ore must be worked over to secure 1 gm. of radium. Radium is a product of the decomposition of uranium, and radium ores contain about 1 part of radium to 3,200,000 parts of uranium.

Important discoveries of radium-bearing deposits have been made in Katanga province of the Belgian Congo, and the ore contains a much higher percentage of radium than the American carnotite. The Congo radium ore has to be transported about 2,000 miles down the Congo River and across the Atlantic to Antwerp. This is more economical than working the ore in the interior of Africa. In spite of obstacles, the Belgian radium can be sold more cheaply than the American product. In consequence, many American mines have been obliged to close down, and the price of radium has dropped to $70 per milligram.

In extracting radium, the ore is first ground and then leached. The solution is treated with sulphuric acid to precipitate the insoluble radium-barium sulphate. The precipitate is then changed into the soluble carbonate, and the resulting solution is converted into bromid and afterward into chlorid. Radium is always associated with barium, and, in order to separate the radium chlorid from the barium chlorid, advantage is taken of the fact that in saturated solutions the former is less soluble and crystallizes more readily than the latter. About 2,200 separate crystallizations are required in order to produce radium chlorid of 95 per cent.

purity. Over the troughs containing radium solutions, large ventilators are constantly in action, to drive off emanations and prevent precipitation of radium in the workroom. It is not dangerous to handle freshly precipitated radium sulphate, as this preparation does not begin to break down until from three to four days after it is precipitated. Workmen who continually handle radium salts develop, after a time, a condition of anemia, and it may be necessary to send them away, for a time, to recuperate.

Personal

Prof. F. Martius, for many years director of the University Clinic in Rostock, died in October at the age of 73. He was appointed staff physician in Gerhardt's clinic and a university instructor in 1887, became assistant professor and director of the medical policlinic in Rostock in 1891, and in 1892, after the death of Thierfelder, director of the medical clinic. Martius is best known for his interpretation of modern constitutional pathology. In his autobiography, published in the beginning of this year, he says, "In the theory of pathognostic hereditary transmission, I think I may rightly claim to have been a pathfinder and pioneer worker." He first expressed his views in 1889 in an address "Krankheitsursachen und Krankheitsanlagen," and he has supported and developed them since in many articles and addresses. His paper on the subject before the Congress of Internal Medicine, in 1905, was especially noteworthy. His other researches have been in the fields of diseases of the heart, stomach and nervous system. His so-called marking method, proposed in 1888, constitutes an original method of examination in the diagnosis of heart disease. His researches on the quantitative determination of the gastric contents have been embodied in a monograph, "Die Magensäure des Menschen," published in collaboration with Lüttke in 1892. The wide extent of his literary activity is evidenced in his autobiography, which lists sixty-eight articles and treatises. Martius possessed a high type of intellect and was distinguished for his critical abilities. His pleasing manner procured him many friends, but his frank defense of his views also brought him many vigorous opponents. At the end of his career he had the satisfaction of knowing that many of his new views had been accepted.

Marriages

EDWARD PIERCE LENTZ SHOPE, Morristown, N. J., to Miss Elizabeth Louise Healy of Narberth, Pa., September 8.

DONALD SCOTT VAN NOSTRAND, Binghamton, N. Y., to Miss Camille Maria Lucia of Ridgewood, October 15.

FRANKLIN CHAMBERS MCLEAN, Chicago, to DR. HELEN VINCENT of Boston, at Peking, China, recently.

CLEON ABRAHAM NAFE, Indianapolis, to Miss Eunice Katherine Shouse of Lexington, Ky., October 20.

WILLIAM NEWTON HUGHES, Manton, R. I., to Miss Pauline A. Barrows of Providence, September 8.

R. EARLE SMITH, Grand Rapids, Mich., to Miss Celia Netzorg of Ithaca, at Chicago, September 16.

DENNIS MICHAEL O'DONNELL to Miss Florence H. Clark, both of Ortonville, Minn., in September.

VINTON ARTHUR BACON to Miss Esther Charlotte Richmann, both of Casper, Wyo., September 27.

HARRY D. BENWELL to Miss Zoe M. Collins, both of Grand Forks, N. D., in September.

FRANK PETER FRISCH, Gibbon, Minn., to Miss Palma Nelson of Fairfax, in September.

FREMONT ALISTER CUMMINS to Miss Dorothy Cassill, both of Los Angeles, recently.

KARL B. RIEGER, Apple River, Ill., to Miss Lillian B. Hall of Chicago, October 6.

SAMUEL PALEG to Miss Jeanette Rubin, Both of New York City, October 21.

Deaths

Boris Sidis, Portsmouth, N. H.; Medical School of Harvard University, Boston, 1908; at one time associate psychologist and psychopathologist to the New York Pathological Institute, and the New York State hospitals; director of the Psychopathologic Hospital and psychopathologic laboratory of the New York Infirmary for Women and Children; proprietor of the Sidis Psychotherapeutic Institute; formerly associate editor of *Archives of Neurology and Psychopathology* and the *Journal of Abnormal Psychology;* author of "Psychology of Suggestion," "Philistine and Genius," "Experimental Study of Sleep," and other works; aged 55; died suddenly, October 23.

Lay Gordon Burroughs ⊕ Collinsville, Ill.; University of Maryland School of Medicine, Baltimore, 1906; city health officer; past president of the Madison County Medical Society; president of the board of education; served in the M. C., U. S. Army, during the World War; aged 43; died, October 7, at the Good Samaritan Hospital, Zanesville, Ohio, of a skull fracture received in an automobile accident.

Merritt O. Badger, Branford, Conn.; Medical Department of the University of the City of New York, 1882; spent thirty years in South America; formerly surgeon to the Guatemala Central and Pan-American railroads; appointed by the Rockefeller Foundation to head its yellow fever work in Guatemala in 1915; aged 64; died, September 23, of heart disease.

Paul Stuart Hunter, Denver; University of Colorado School of Medicine, Denver, 1904; served as chief interpreter for the M. C., U. S. Army, Relief Expedition during the Boxer War in China; member and at one time secretary of the Colorado State Board of Health; aged 46; died, October 20, at St. Luke's Hospital, of pneumonia, following an operation.

Aubrey Francis Higgins, Sacramento, Calif.; University of Pennsylvania School of Medicine, Philadelphia, 1895; member of the California Medical Association; served in the M. C., U. S. Army, during the World War; aged 49; died, October 17, at the home of his sister in Oakland, from a self-inflicted bullet wound while suffering from ill health.

James Seth Cooley, Mineola, N. Y.; Medical Department of the University of the City of New York, 1877; member of the Medical Society of the State of New York; for thirty-one years secretary of the Medical Society of the County of Nassau; member of the board of education; aged 78; died suddenly, October 20, at Albany.

Sidney Dix Foster ⊕ Toledo, Ohio; Medical College of Ohio, Cincinnati, 1900; formerly on the staff of the Maternity Hospital; served in the M. C., U. S. Army, in France, during the World War, with the rank of captain; aged 50; died, October 13, at the Flower Hospital, following an operation on the gallbladder.

Charles Moran Atchison ⊕ Lieutenant, M. C., U. S. Navy, San Francisco; Tufts College Medical School, Boston, 1908; served during the World War in the transport service; formerly a practitioner in Massachusetts; aged 40; died, September 27, at the Naval Hospital, Vallejo, Calif., of gastro-enteritis.

Henry Gaither Perry ⊕ Montgomery, Ala.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1887; treasurer, 1906-1911, and secretary since 1911 of the Medical Association of the State of Alabama; registrar of vital statistics of the state board of health; aged 63; died suddenly, October 9, of heart disease.

Peter Ralph Egan ⊕ Major, M. C., U. S. Army, retired, New York; Medical Department of Columbia College, New York, 1880; Spanish-American War veteran; aged 68; died, October 1. Dr. Egan entered the regular army as assistant surgeon in 1882, and was retired for physical disability, April 2, 1906.

Clifton Allen Thomas ⊕ Fredonia, Kan.; Kansas City (Mo.) Medical College, 1905; past president and secretary of the Wilson County Medical Society; served in the M. C., U. S. Army, in Siberia, during the World War; aged 43; died, October 10, at Albany, Ore., of tuberculosis.

Benjamin A. Griffith, Swan Creek, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1878; member of

⊕ Indicates "Fellow" of the American Medical Association.

the Illinois State Medical Society; Civil War veteran; formerly postmaster of Monmouth; aged 79; died, October 10, from the effects of a fall.

Silas Youree Alexander, Shreveport, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1903; member of the Louisiana State Medical Society; aged 42; died, September 25, following an operation for intestinal obstruction.

Jacob Clark McCreary, Louisville, Ky.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1902; aged 60; died, October 8, at St. Anthony's Infirmary, following an operation on the gallbladder.

Charles Addison Hayes ✠ Chippewa Falls, Wis.; Rush Medical College, Chicago, 1877; for many years president of the school board and physician to the Chippewa County Asylum for Chronic Insane; aged 72; died, October 12.

Elmore Ellsworth Grant, Houston, Texas; University of Louisville (Ky.) Medical Department, 1890; president of the board of education; aged 62; died, October 12, at St. Joseph's Infirmary, following a long illness.

Whiting Sweeting Worden, Yokohama, Japan; Syracuse (N. Y.) University College of Medicine, 1886; resident physician to the American consulate at Yokohama; aged 65; was killed in the recent earthquake.

Julius Egbert Griswold, Rockyhill, Conn.; Medical Department of the University of the City of New York, 1880; member of the Connecticut State Medical Society; aged 68; died, October 5, of senility.

James William Thomas ✠ Seattle; Willamette University Medical Department, Salem, Ore., 1902; Jefferson Medical College of Philadelphia, 1903; aged 55; died, October 7, following an operation.

James Joseph Fitzgerald, New York; Fordham University School of Medicine, New York, 1913; served in the M. C., U. S. Army, during the World War; aged 32; died, October 16, of pneumonia.

Oscar Waldo Roberts, Springfield, Mass.; Boston University School of Medicine, Boston, 1879; formerly on the staff of the Hampden Homeopathic Hospital; aged 74; died, October 16, of pneumonia.

Arthur Cowton Heffenger ✠ Lieutenant, M. C., U. S. Navy, retired, Portsmouth, N. H.; University of Maryland School of Medicine, Baltimore, 1875; aged 70; died, October 16, following a long illness.

Elias Davis Gordon, Brooklyn; Eclectic Medical College of the City of New York, 1902; on the staff of the Beth Moses Hospital, where he died, October 18, aged 47, following an operation.

Bert A. Gooding, Fort Collins, Colo.; College of Physicians and Surgeons, Keokuk, Iowa, 1887; member of the Colorado State Medical Society; aged 58; died, October 11, of cerebral hemorrhage.

Benjamin Foster Fyke, Springfield, Tenn.; Medical Department University of Nashville, Tenn., 1877; member of the Tennessee State Medical Association; aged 68; died, October 22.

Fordyce Grinnell, Pasadena, Calif.; Miami Medical College, Cincinnati, 1873; member of the California Medical Association; aged 79; died, October 5, at Newhall, of senility.

Robert James McMurray, Sebring, Fla.; Medical College of Ohio, Cincinnati, 1878; Chicago Medical College, 1885; formerly a practitioner in Illinois; aged 70; died, October 7.

William J. R. Thonssen ✠ Washington, D. C.; Howard University School of Medicine, Washington, 1888; also a Methodist minister; aged 72; died, October 14, of myocarditis.

James E. Elliott, Bozeman, Mont.; Medical Department University of Indianapolis, Ind., 1904; member of the Medical Association of Montana; aged 40; died, October 3.

Ira L. Turman, Cynthiana, Ind.; University of Louisville (Ky.) Medical Department, 1894; member of the Indiana State Medical Association; aged 54; died, September 14.

Henry Clay Burnum, Trussville, Ala.; Baltimore (Md.) Medical College, 1893; member of the Medical Association of the State of Alabama; aged 54; died, October 11.

Columbus Few, Hendersonville, N. C.; University of Maryland School of Medicine, Baltimore, 1875; Confederate veteran; aged 75; died, October 3, of senility.

Abraham P. Parker, Kirklin, Ind.; Kentucky School of Medicine, Louisville, 1893; member of the Indiana State Medical Association; aged 68; died, September 5.

George Washington Earle, Hermansville, Mich.; University of Buffalo Department of Medicine, 1872; aged 74; died, October 10, following a long illness.

Asbury Lane Jarratt, Batesville, Miss.; Medical Department University of Louisiana, New Orleans, 1861; Confederate veteran; aged 88; died, October 11.

Schiller B. Poland, Gray, Ga.; Atlanta (Ga.) Medical College, 1887; member of the Medical Association of Georgia; aged 62; died, October 8, at Macon.

Albert Edward Dean, Brocton, N. Y.; University of Buffalo Department of Medicine, 1895; formerly health officer of Portland, aged 53; died, October 13.

Jacob Frank Howe, Brooklyn; Medical Department of Columbia College, New York, 1871; aged 75; died, October 18, of heart disease and bronchitis.

William J. Pohrer, St. Louis; St. Louis Medical College, 1884; aged 63; died suddenly, October 11, of heart disease, while testifying in a damage suit.

Byrd B. Barnett, Holladay, Tenn.; Vanderbilt University Medical Department, Nashville, 1882; aged 71; died, October 3, of acute articular rheumatism.

William Buchanan Burke, Danville, Ky.; Missouri Medical College, St. Louis, 1867; Civil War veteran; aged 78; died, August 21, of arteriosclerosis.

Hugh Hamilton ✠ Harrisburg, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1871; aged 86; died, October 7, of senility.

Edward Byron Silsby ✠ Rockland, Me.; Medical School of Maine, Portland, 1882; proprietor of the Silsby Hospital; aged 70; died, October 14.

Louis Lichtschein ✠ New York; Bellevue Hospital Medical College, New York, 1885; aged 65; died, October 18, of carcinoma of the omentum.

Matthew F. Lorman, Philadelphia; Jefferson Medical College of Philadelphia, 1880; Civil War veteran; aged 80; died, October 13, of senility.

L. Edward Johnson, Cambridge, Md.; Long Island College Hospital, Brooklyn, 1864; Civil War veteran; aged 87; died, October 3, of senility.

William Whittington, Dinuba, Calif.; Missouri Medical College, St. Louis, 1880; aged 70; died, October 12, of diabetes mellitus.

Lorenzo Dow Jackson, Hammond, Ind.; Physio-Medical College of Indiana, Indianapolis, 1889; aged 74; died suddenly, October 20.

Phillip H. Oyler, Los Angeles; Louisville (Ky.) Medical College, 1878; formerly a practitioner in Illinois; aged 77; died, October 15.

James Madison Crawford, Asheville, N. C.; Atlanta (Ga.) Medical College, 1884; aged 69; died, October 7, at his home in Weaverville.

Henry Gregory, Laurel, Ind. (licensed, Indiana, 1897); formerly city health officer; aged 71; died, September 2, of heart disease.

Gustav J. Zulch, Denver; Jefferson Medical College of Philadelphia, 1882; aged 69; died, October 20, of cerebral hemorrhage.

William J. Wheeler, Commerce, Texas; Atlanta (Ga.) Medical College, 1890; aged 55; died, October 5, following a long illness.

William Shattuck, Coal Grove, Ohio; Columbus (Ohio) Medical College, 1882; aged 70; died, October 2, following a long illness.

L. Samuel Manson, New York; Medical Department of Columbia College, New York, 1884; aged 59; died, October 8.

Mark Bell Penick, Kinderhook, Ill.; Eclectic Medical Institute, Cincinnati, 1865; aged 89; died, October 3, of senility.

Frank A. Chitwood, Connersville, Ind. (licensed, Indiana, 1899); aged 76; died, September 14, of senility.

Robert J. O'Reilly ✠ St. Louis; St. Louis Medical College, 1868; aged 78; died, October 5, of senility.

J. M. Hodges ✠ Detroit; Detroit College of Medicine and Surgery, 1910; aged 37; died, October 4.

The Propaganda for Reform

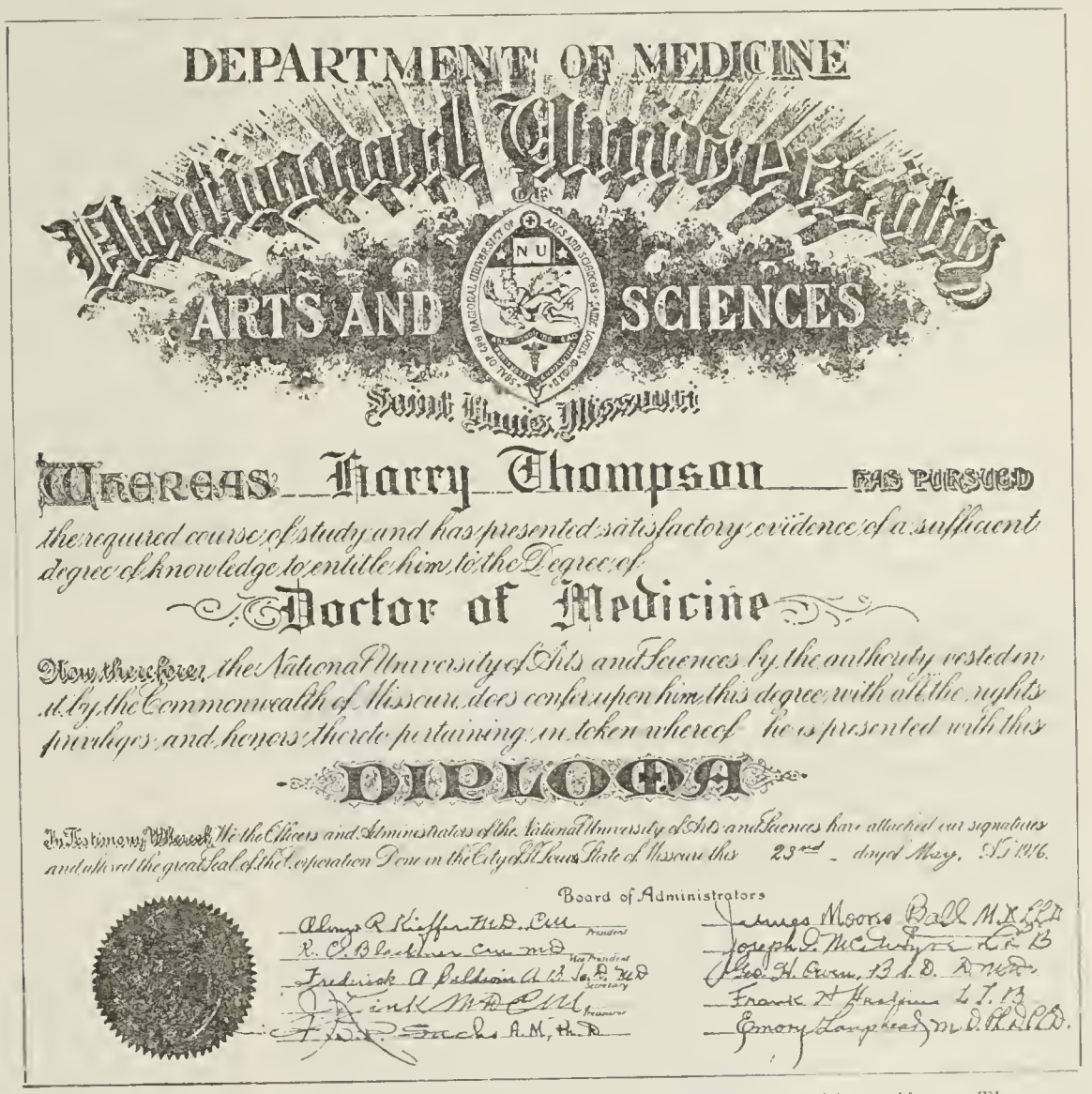
IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

MORE DIPLOMA MILLS

The St. Louis Star Unearths a Traffic in Fraudulent Medical Diplomas, Chiropractic Diplomas and High School Certificates

Between August 6 and October 15 of the present year a reporter on the St. Louis *Star* purchased a spurious high school certificate, which, under the seal of the Department of Public Schools of Missouri set forth that he had passed an examination before Prof. W. P. Sachs on April 13, 14 and 15, 1914 (note the year), and was entitled to an official certificate from the State Superintendent of Public Instruction. During the same period of time the same young man purchased a medical diploma setting forth that the "Department of Medicine of the National University of Arts and Sciences," St. Louis, Mo., had conferred on him the degree of "Doctor of Medicine," as he had pursued the "required course of study" and had "presented satisfactory evidence of a sufficient degree of knowledge to entitle him to a degree." This diploma was dated May 23, 1916. (The institution in question went out of existence in 1918.) During the same period the *Star* man also obtained a chiropractic diploma declaring that the "Progressive College of Chiropractic, Chicago," had conferred on him the degree of "Doctor of Chiropractic" as he had "successfully completed the course of instruction as prescribed by this institution" and had "passed all examinations in the required subjects pertaining to the philosophy, art and science of chiropractic.

The investigation made by the St. Louis *Star* was carried out by a member of that paper's editorial staff, Mr. Harry Thompson Brundige, at the cost of approximately $3,000. Mr. Brundige, under his first two names, "Harry Thompson," had conferred on him the degree of "Doctor of Medicine." Of the money expended, the paper states that $1,200 went to Dr. Ralph A. Voigt of Kansas City, Mo. Other men involved in the deal are, according to the *Star*, Dr. Robert Adcox of St. Louis and Dr. D. R. Alexander, Dean of the Kansas City University of Medicine and Surgery, Kansas City, Mo. All were arrested October 15, except Sachs, who was not at home when the St. Louis paper presented to the state and federal prosecuting authorities evidence of this traffic in fraudulent diplomas and certificates.



DEPARTMENT OF MEDICINE

National University

OF

ARTS AND SCIENCES

Saint Louis Missouri

Whereas Harry Thompson HAS PURSUED

the required course of study and has presented satisfactory evidence of a sufficient degree of knowledge to entitle him to the Degree of

Doctor of Medicine

Now therefore, the National University of Arts and Sciences by the authority vested in it by the Commonwealth of Missouri, does confer upon him this degree with all the rights privileges and honors thereto pertaining, in token whereof he is presented with this

DIPLOMA

In Testimony Whereof, We the Officers and Administrators of the National University of Arts and Sciences have attached our signatures and affixed the great Seal of the Corporation Done in the City of St. Louis State of Missouri this 23rd day of May, A.D. 1916.

Board of Administrators

Photographic reproduction of the diploma alleged to have been sold to Harry Thompson Brundige, who posed as "Harry Thompson." It is claimed that this diploma was purchased from Dr. Ralph A. Voigt of Kansas City, Mo., in September, 1923. Note that the date of graduation is given as May 23, 1916. The National University of Arts and Sciences went out of existence in 1918.

The story of Harry Thompson Brundige, giving in detail the methods he used in obtaining, first, the fraudulent high school credits and, later, the equally fraudulent medical diploma and state license makes reading that is as interesting as it is depressing.

MR. BRUNDIGE GETS HIS ASSIGNMENT

On August 6 Mr. Brundige was summoned by his managing editor and told of the existence of a medical diploma mill with which Dr. Robert Adcox of St. Louis was believed to be connected. Mr. Brundige was told to leave the *Star*, get a job as a salesman, calling on trade in and around St. Louis. Within a few hours Mr. "Thompson," obtained a job as coal salesman. He posed as a man who had recently come to St. Louis from Springfield, Mo. He rented rooms two doors west of Dr. Robert Adcox's residence and, on August 13, moved into his new lodging. While sitting on his front porch watching the letter-carrier coming up the street, he saw Dr. Adcox standing on his porch as the carrier arrived. He asked the postman if there was a doctor in the neighborhood who could treat a sore throat that he was suffering from. The mail man pointed to Adcox who was still on the porch. Thompson walked over and introduced himself and while Adcox stated that he had retired from practice, with a little urging, he was persuaded to treat Thompson and suggested that he call the day following.

On the day of his second visit, Thompson suggested that a physician had a pretty easy time of it. Adcox agreed and became more chummy. The following day, after some desultory conversation, Adcox is said to have asked Thompson how he would like to become a doctor. Thompson replied that he would like to be a doctor but that he was almost thirty years old and couldn't start school at his age and furthermore, that he hadn't even finished high school. Adcox was reported to have told him that it wasn't necessary to go to school to get a diploma and asked him how much money he had saved. Thompson replied that he had about a thousand dollars, whereupon Adcox is said to have told him that, if he was willing "to spend it to become a doctor," he was "as good as a doctor right now." He is said to have told Thompson to get ready to go to Kansas City with him the next day.

THOMPSON GOES TO KANSAS CITY

Other members of the staff of the St. Louis *Star* had been notified to "shadow" Thompson and Adcox on their Kansas City trip. When they reached Kansas City, Adcox took Thompson to the Minor Building, 309 East 10th St., where Dr. Ralph A. Voigt occupies a suite of nine rooms.

After Adcox and Voigt had been closeted alone for about an hour Thompson was called in and questioned by Voigt. But let us quote from Thompson's own story:

"So you want to be a doctor?" Voigt inquired
"That's what I came here for," I answered.
"Do you know anything about medicine?"
"Not a thing."
"Did you graduate from high school?"
"I did not."
"Well, let's see. The first thing to do is to get you a high school diploma. Then I think we'd better get you three years' credits from a medical school and let you do your senior year at Alex's."
"What do you mean by credits?"
"A certified copy of the three years work you did in a good medical school—of course you didn't really go, but the school records will be fixed to show that you did."
"What do you mean by going the senior year at Alex's?"
"I mean that Dr. D. R. Alexander, dean of the Kansas City College of Medicine and Surgery will enroll you for your senior year after we get the credits for you. Then after eight months at school you'll get your diploma and be a full fledged doctor."
"Can't I get by without going to school?"
"Well, inasmuch as you don't know anything about medicine you ought to put in a few months of study before trying your wings. But we'll see."

Dr. Voigt then began figuring the cost on a bit of scratch paper.
"How much money have you?" he inquired.
"How much will I need?"
"Well, figuring roughly, about $1,000. But I'll let you know later. However, if you want me to get busy you will have to make a deposit. Can you let me have something down today?"

I counted my money and asked Dr. Adcox, who had announced his intention of returning to St. Louis on the noon train, how much he would need to get back. He said it would take about $15, which sum I gave him. I then offered Dr. Voigt a deposit of $50.

"It isn't much, but I'll take it," he said. "But you will have to send me $600 more before I can start work. Can you get that much for me by Monday?"

I promised to give him the money not later than Tuesday, August 21.
"Send it by certified check," he instructed.

CERTIFIED CHECKS ARE DANGEROUS

On Monday, August 20, Thompson opened a checking account with a St. Louis bank depositing $800 in currency. He then made out a check for $600, payable to Dr. Ralph A. Voigt and signed Harry Thompson and had the check certified. The check was photographed in the office of the *Star*



Some of the evidence in the medical diploma mill fraud seized by the authorities in a raid on the home of William P. Sachs. Three of the seals shown are of defunct colleges, one is of the Board of Education of Washington County, Mo., and one of the Department of Public Schools of Missouri. At the lower right is a stack of blank official certificates of the State Superintendent of Education attesting proficiency in high school subjects.

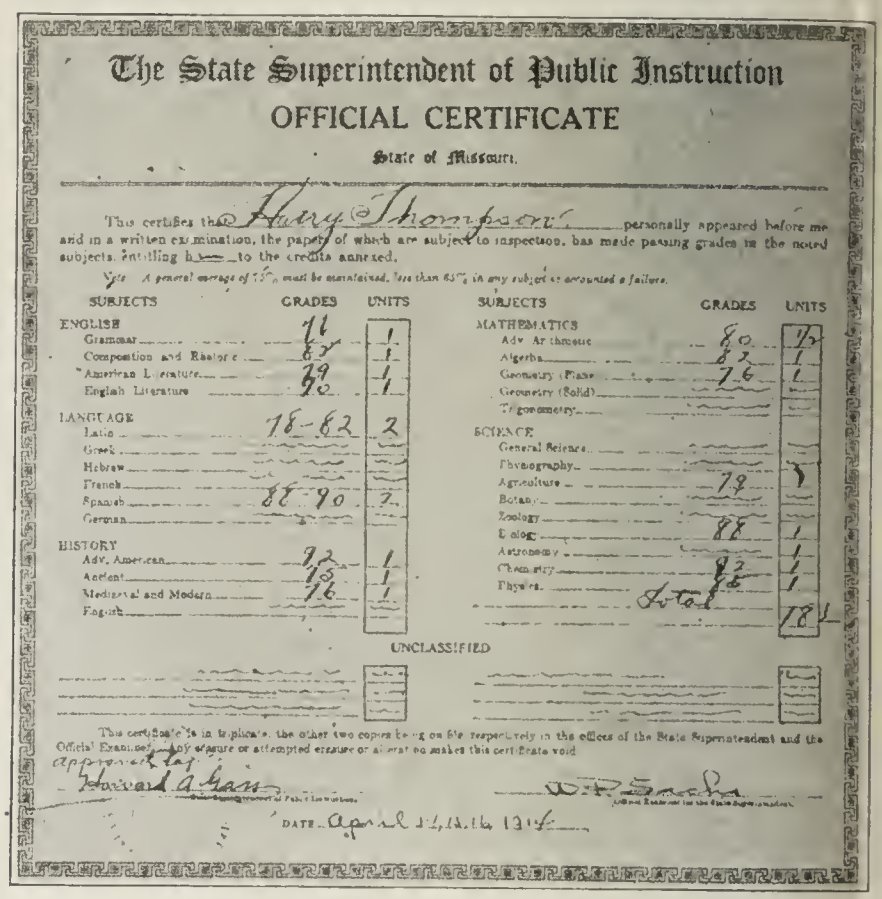
and Thompson went in person to Kansas City to hand it to Voigt instead of mailing it to him. Thompson arrived in Kansas City August 21, met Voigt at his office and handed in the check. Voigt is said to have protested at receiving a certified check instead of a cashier's check. To quote again:

"Why give me this kind of a check?" he demanded sharply.
"You told me to have it certified," I stated, innocently.
"I didn't mean this kind of certification—why didn't you get a cashier's draft made out to bearer. Now I've got to indorse this darned thing. I don't like it."

I apologized and offered to take the check back and get the kind he wanted, but he must have concluded that $600 in the hand was worth more than a promise for that sum, so he retained it.

"I've been very busy getting lined up for you," Dr. Voigt related. "I have taken steps to get a high school certificate, which will arrive shortly, and I have written to a former official of the Baltimore College of Physicians and Surgeons, which is now closed, to place your name in the records as having attended classes in 1914, 1915 and 1916, and to send me a certified copy of your credits for those years.

"It will take about two weeks to get them. The Kansas City College of Medicine and Surgery will open two weeks from today and I have made arrangements with Dr. Alexander, the dean, to enroll you for your senior year. I want you to drive out to the college with me and meet him."



The State Superintendent of Public Instruction

OFFICIAL CERTIFICATE

State of Missouri.

This certifies that Harry Thompson personally appeared before me and in a written examination, the papers of which are subject to inspection, has made passing grades in the noted subjects, entitling h— to the credits annexed.

Note. A general average of 75% must be maintained, less than 65% in any subject is accounted a failure.

SUBJECTS	GRADES	UNITS	SUBJECTS	GRADES	UNITS
ENGLISH			MATHEMATICS		
Grammar	71	1	Adv. Arithmetic	80	1/2
Composition and Rhetoric	65	1	Algebra	82	1
American Literature	79	1	Geometry (Plane)	76	1
English Literature	92	1	Geometry (Solid)		
LANGUAGE			Trigonometry		
Latin	78-82	2	SCIENCE		
Greek			General Science		
Hebrew			Physiography		
French			Agriculture	79	1
Spanish	88-90	2	Botany		
German			Zoology		
HISTORY			Biology	88	1
Adv. American	92	1	Astronomy		
Ancient	75	1	Chemistry	92	1
Mediæval and Modern	76	1	Physics	75	1
English			Total		18 1/2

UNCLASSIFIED

This certificate is in triplicate, the other two copies being on file respectively in the offices of the State Superintendent and the Official Examiner. Any erasure or attempted erasure or alteration makes this certificate void.

approved by Howard A Gass

W P Sachs

DATE April 21, 1916

Photographic reproduction of a spurious high school credit certificate alleged to have been sold by Dr. Ralph A. Voigt of Kansas City, Mo., to a reporter for the St. Louis *Star*. Voigt is said to have obtained the certificate from Professor William P. Sachs, former State Examiner of Public Schools in Missouri, and Sachs is alleged to have confessed to the fraud.

They drove out to see Dr. Alexander but the doctor was ill and they were unable to see him. Voigt is then said to have disclosed to Thompson many details regarding the operations of the diploma mill.

After returning to St. Louis Thompson reports receiving the following cryptic letter from Dr. Voigt:

Dear Thompson: Your letter at hand and was glad to hear from you. I have not had a reply to your matter as yet, though I expect it at any time. I have taken the liberty to make a change in the arrangements and know that you will be better satisfied with my judgment. Instead of going to the east for the stock, consisting of three shares, I have gone to the west coast for completed stock, so you can have less trouble and be better off. I will send you a wire as soon as it arrives and you can get here whenever you see fit to come. Unless you are at leisure at present I would not pass up your job at this time, as it is your best time, but hold on until I notify you and I am sure you will be better off.

Thompson replied immediately as follows:

Dear Doctor: Received your letter and was surely pleased to note that you are going to get a diploma for me instead of the three years' credits. The way you wrote about stock was very clever; but I caught on at once. I can hardly wait for that telegram telling me you have everything. Don't forget the high school diploma. How will the diploma thing work out? Will I have to go to school or will you get me the license to practice without going to school? I am very much interested and would like to know. I bought the book you told me about and am studying it religiously. Business is good and I will stick it out here until you wire me.

THREE HUNDRED DOLLARS MORE NEEDED

Thompson then relates how, on September 4, he received a telegram from Voigt reading: "Change in plan makes it necessary for 300 more. Wire it at once Western Union." Later in the day Adcox is said to have got in touch with Thompson and told him that he, too, had received a telegram

from Voigt asking him to see Thompson. The telegram to Adcox, which was signed "Ralph" read:

"Alex agrees to issue final paper on Pacific for honorable cause two fifty. Can arrange through personal friends sit in Arkansas and complete Thompson. Wire him today 300. Had no reply. Advise him Alex building addition and needs cash and ready to go at once."

Thompson said he then asked Adcox to explain this message:

"By Alex, he means Dr. Alexander of Kansas City College of Medicine and Surgery. By final paper, he means a diploma, of course. Ralph's telegram means that Dr. Alexander has agreed to give you a diploma, based on the credits obtained for you by Ralph from the college on the Pacific Coast, but that he want's $250 for doing so. Ralph means that he will go to Arkansas with the diploma and take the state medical board examinations in your name.

"He also wants me to tell you that Dr. Alexander is getting ready to build an addition to his college and needs cash. The reference to 'honorable cause' is just one of Ralph's little jokes. Do you understand, Harry, my boy? It means that you are about to have the degree of doctor of medicine conferred upon you."

STATE LICENSE IS EXTRA

After this explanation, Thompson says he asked Adcox to give him this telegram so that he might answer Dr. Voigt and that Adcox did so after clipping his name and address from the message. The day following Thompson sent $300 by Western Union telegram to Dr. Voigt. He reports that on September 11 he received a special delivery letter from Voigt stating that he had not yet received the diploma to turn over to Thompson but expected it at any time. Voigt is said to have stated further that, so far as the cost was concerned, what he had paid was all that would be necessary for the diploma, but that getting a state license would be an added expense and that he would take this up with Thompson at the next meeting.

THE "RINGER CLASS" AND THE "SUCKER MACHINE"

On September 22 Thompson received a telegram from Voigt telling him to come on to Kansas City and that the "final document" would be ready "at any time." Thompson reached Kansas City the following morning and went direct to Voigt's office. At 10 a. m. Voigt arrived. Again quoting:

"Well, doctor, I see you arrived on schedule," he [Voigt] said. "I'm looking for your diploma in every mail, haven't seen it yet. That bird in California certainly works slow, but he's certain and the stuff he puts out is A-1. Dr. Alexander has promised to issue another diploma to back up the California degree and as soon as I get them I'm going down to Arkansas to take the state board examination and get you a license. In the meantime, I think you ought to go out to Dr. Alexander's and take a few months so as to have a background for your work. You can hang out your shingle as a chiropractor or an electro specialist and use one of my offices. You can catch enough suckers to pay your expenses while you are getting a couple of months' study. I think you ought to start in out there tomorrow."

"But how can I go to school until you get the diploma proving my previous medical study?"

"Dr. Alex don't care; he'll take my word for it that I'll produce your paper in the next week or two."

I did not want to go to school and told Voigt I did not care to.

"It is too big a chance," I insisted. "The first time a professor asked me a question I'd betray my ignorance of all things pertaining to medicine."

"Why, you idiot," Voigt answered, "they won't ask you any questions; you'll be in the ringer class. The professors will put you on the list with the others who are there to listen and not to answer questions."

I then told Voigt that I would not go to school—that he had agreed to get me a diploma and a state license and to sell me a sucker machine—an electric apparatus used in "treating" sick men and women. Voigt manufactures these machines, which are patterned after the E. R. A. boxes—the "Electronic Reactions of Abrams."

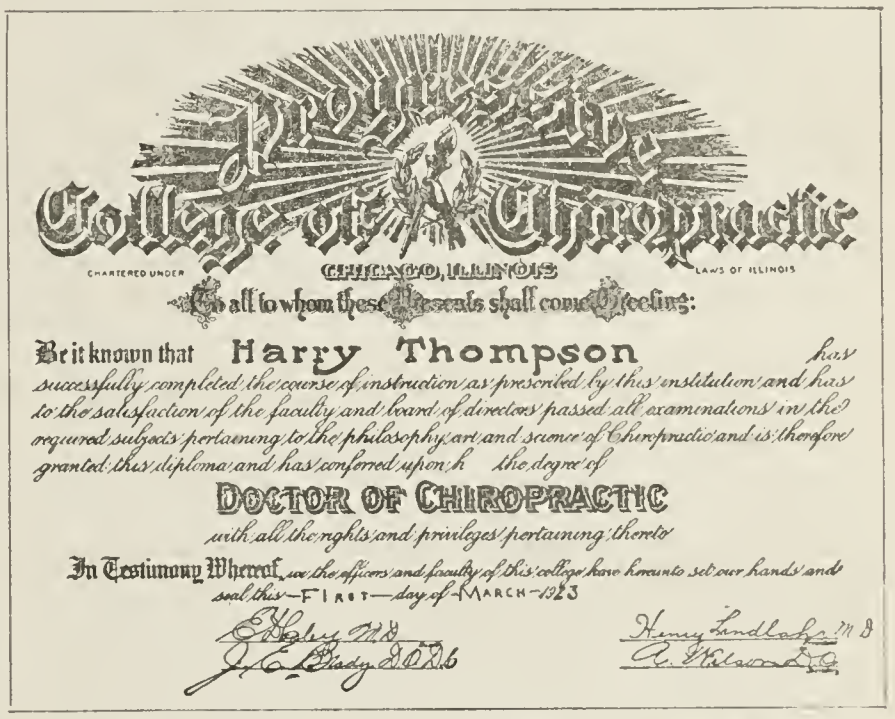
THE DIPLOMA AND LICENSE ARRIVE

Voigt is said to have declared that he didn't care whether Thompson went to school or not and that it really didn't make any difference. As the diploma still failed to materialize Thompson persistently and scientifically tried to make himself a nuisance. He succeeded and, on September 29, Voigt announced, according to the story, that if the diploma did not arrive by October 1, he, Voigt, would go to St. Louis and get it. It had not arrived on that date and Voigt went to St. Louis. On October 3, the story goes, he returned with the diploma which he gave to Thompson and he exhibited a license, issued by the State of Tennessee on which the name of Harry Thompson appeared. The name of the person to whom the license had been issued had been erased and the name "Harry Thompson" written in. It was a crude piece of work and Thompson demurred. Voigt is said to have agreed that it was a "rotten job" and to have told Thompson to go ahead and get his location and by the time he was ready to commence business he, Voigt, would have another license for him.

BECOMING A CHIROPRACTOR

While Harry Thompson was in the process of procuring a high school certificate, a medical diploma and a state license to practice medicine, he took a flier in chiropractic. To obtain fake chiropractic diplomas is less onerous and less expensive.

Thompson tells how Dr. Adcox arranged for him to take the chiropractic "course." The story runs, that, on the occasion of his first visit to the office of Dr. Ralph A. Voigt of Kansas City, Voigt suggested that he become a chiropractor, as it would enable him to "hang out a shingle and catch a lot of suckers" while he was waiting for the slower machinery of the medical diploma mill to grind out his fake credentials. Voigt is also said to have told Thompson that after he received his medical diploma he could "work the chiropractic racket along with the sucker machine" the latter being the expressive description of the "Electronic Reactions of Abrams" fakery. Thompson protested that he knew nothing about "spinal adjustments," but, apparently Dr. Voigt considered his ignorance in this direction no barrier. "You can learn all you have to know about chiropractic," Voigt is alleged to have said, "in a couple of hours." As a matter of fact, Dr. Voigt slightly underestimated the time. Actually, Harry Thompson's course of instruction in chiropractic took exactly two hours and twenty-two minutes.



Progressive College of Chiropractic

CHARTERED UNDER LAWS OF ILLINOIS

CHICAGO, ILLINOIS

To all to whom these presents shall come Greeting:

Be it known that Harry Thompson has successfully completed the course of instruction as prescribed by this institution and has to the satisfaction of the faculty and board of directors passed all examinations in the required subjects pertaining to the philosophy, art and science of Chiropractic and is therefore granted this diploma and has conferred upon h the degree of

DOCTOR OF CHIROPRACTIC

with all the rights and privileges pertaining thereto

In Testimony Whereof, we the officers and faculty of this college have hereunto set our hands and seal this FIRST day of MARCH 1923

Henry Lindlahr M D

Photographic reproduction of a diploma purporting to be issued by the "Progressive College of Chiropractic" of Chicago, run by Henry Lindlahr and said to have been sold to a reporter for the St. Louis *Star* by Dr. Ralph A. Voigt of Kansas City, Mo.

Thompson says that he asked Voigt how much it was going to cost him to become a chiropractor. To quote:

"Well," Dr. Voigt answered, "I can get you fixed up with a good diploma for about $25. A friend of mine will be glad to do that for me, and inasmuch as you are going the whole route, I'll let you down easy."

"How much will the instruction cost?" I asked, turning to Dr. Adcox.

"About the same amount, I guess," he answered.

On Thompson's return to St. Louis, Adcox is said to have told him that he, Adcox, had arranged for Thompson to be instructed in chiropractic "by a deputy sheriff assigned to duty in one of the circuit courts and who practiced chiropractic on the side." Thompson demurred at taking instruction from a deputy sheriff as he was afraid that the man might possibly recognize him as a newspaper reporter. Adcox then, according to the story, called "Dr." Florence F. Baars on the telephone and this conversation is said to have ensued:

"Florence," he said,, "this is Doc. Ad. I've got a friend here who wants to do chiropractics while he goes to school. No, he don't know anything about them. But I want you and Dr. Strecker to give him a course that will enable him to get by. You know, he don't care any-

thing about the origin of nerves or the intervertebral foramina or the anatomy—all he wants to know is how to give the patients their thumps and get the money. Sure he's all right. Yes, I'll send him over at 2 o'clock this afternoon."

CHIROPRACTIC IN THREE EASY LESSONS

Thompson tells how he went to "Dr." Baars' house and explained that he wanted to become a chiropractor and asked how long it would take. The woman is said to have told him three or four days and that it would cost $25. He was told to call at 7 o'clock that evening for his first lesson. At that hour Thompson states that he was introduced to F. L. Strecker and after giving Baars a check for $25, the first lesson got under way. It lasted one hour and five minutes. On leaving, Thompson was given a leaflet entitled "The Science of Chiropractic Explained" and told to memorize it so that he could discuss it impressively with patients.

He took his second lesson the following evening. This lesson lasted fifty-five minutes. Before leaving, Thompson stated that Baars supplied him (for $2.50) with a little book explaining what vertebræ to adjust for various diseases and Strecker is said to have told him that with the aid of this book he could "treat anybody for anything." Mr. Thompson's third and final "course of instruction" in chiropractic lasted exactly twenty-two minutes and the course was completed. Strecker is then said to have told Thompson that he had a book on technique which would illustrate every known "adjustment." Thompson gave him a check for $12 to pay for it.

After completing his course in chiropractic, Thompson again called on Adcox. Quoting further:

Dr. Adcox congratulated me on my "graduation" and told me to have Dr. Voigt send along my chiropractic diploma, stating that he could get the questions to be asked by a state examining board which licenses chiropractors in advance of the examination and that he would write the answers and let me take the examination. Later, however, he told me not to bother with getting a license, as it is not needed in Missouri. He advised me to get a location and open an office and "get some practice" while awaiting word from Dr. Voigt that my medical diploma had arrived.

Thompson then tells how he wrote to Voigt informing that gentleman that he was now a "doctor of chiropractic" and would be able to put "D. C." after his name just as soon as Voigt would "shoot along that diploma you promised me." He explained further that he wished to start doing a little chiropractic stuff in St. Louis while he was waiting for the medical diploma. In reply to this letter, Thompson reports that he received word from Voigt telling him that he thought it was a mistake to start practicing as a chiropractor in St. Louis and that, as he believed he should put in a little time in Alexander's institution ("Kansas City College of Medicine and Surgery") he might just as well start chiropracting in Kansas City.

A few days later, while he was still waiting for the chiropractic diploma, Thompson reports that Strecker got in touch with him and told him that he had a good "adjusting table" which he, Thompson, could use in his chiropractic work and which Strecker would sell for $22.50. He is said to have been told further that "Dr." Baars had a spinal chart that she no longer needed and would sell for $2.50. That evening he went to the house of Baars and Strecker and purchased the table and chart. A few days later Thompson reports that he received a telegram from Dr. Voigt telling him to come to Kansas City and that upon his arrival there he learned that the chiropractic diploma was ready. To quote:

Dr. Voigt said the diploma was out at the Kansas City College of Medicine and Surgery, and we drove out there. I saw him go into the building, saw him shake hands with Dr. D. R. Alexander, secretary, and saw Dr. Alexander hand him a paper which resembled the diploma, after it had been rolled. He returned to his automobile and handed me the diploma.

"Don't unroll it," he said.

We drove back downtown. As I got out of the automobile in front of my hotel, Dr. Voigt took the diploma.

"Better let me keep it for you tonight," he said.

I offered no objection, and he took it. The next morning he returned it. After handing it to me he gave me a notation, in his handwriting, in green ink, on stationery of the Hotel Garde of New Haven, Conn., sheets of which he had in his office. It read:

"If any correspondence is necessary write to Dr. E. D. Conley personally, who will take charge. Date of graduation March 1, 1923."

"I got the diploma from Conley," Dr. Voigt said, "and he'll take care of you if anybody asks any questions."

Mr. Thompson brings out in his story the fact that the total cost of the instruction, the diploma, the chart, books and the adjusting table to turn out a complete chiropractor was $89.50. As already stated, the chiropractic diploma bears the name "Progressive College of Chiropractic, Chicago, Ill." A concern of this name is one of the multitudinous activities of one Henry Lindlahr who operates, in addition, a so-called sanitarium devoted to various quasi-medical fads. Lindlahr is a graduate of the "National Medical University of Chicago," a low-grade "sundown" institution, now out of existence, and not recognized by most of the states in the Union when it was in existence. The diploma that Thompson got bore the signature of E. D. Conley, M.D., Dean; Henry Lindlahr, M.D., President; A. Wilson, Secretary, and J. E. Brady, after whose name appears the mystic letters "D.C., N.D." According to a statement from Lindlahr, published in the *Star*, all of the signatures on the diploma, except that of E. D. Conley, are "rank forgeries."

Correspondence

CONDITIONS IN THE INDIAN MEDICAL SERVICE

To the Editor:—The recent correspondence on the subject of the treatment of the American Indians prompts me to add a few personal observations that may be of interest to the profession, and aid somewhat in placing the situation in a position for betterment. Unquestionably there are two sides to the question as to the condition of the Indians under governmental care. The letters of Dr. Benson and of the Secretary of the Interior are of historical value, but those of Dr. Darey and Mr. Hoffman relate to conditions as they now are, and would seem to be of greater value in that they point to immediate needs.

An extensive experience covering a number of years with trachoma among the American Indians convinces me that, with the exception of those near the very large cities, they have failed to receive adequate attention so far as this disease is concerned.

Contrasted with the work done by the United States Public Health Service in the various rural sections among other individuals not directly under governmental care, the work of the Indian Service does not make a good showing. My most recent observations cover the Blackfeet Reservation, where, through the courtesy of the surgeons in charge, I was permitted to investigate the conditions and examine the patients. The prevalence of trachoma in this section is best expressed by the statistics supplied me by the surgeons in charge, although there was no difficulty in verifying these figures by personal observation. Its incidence would seem to be greater than that indicated by the figures given.

Thus, in the settlement north of Two-Medicine River, out of 517 persons there were 154 cases, or 30 per cent., while in the settlement south of Two-Medicine River, out of 441 persons, there were 105 cases, or 23 per cent. In the Holy Family Mission School, out of 95 children, there were 38 cases, or 40 per cent., while at Cutbank Boarding School 54 cases were found out of 115 persons examined, or 47 per cent. Now, any way the situation is viewed, the existence of 351 cases of trachoma out of a group of 1,168 persons is an occasion for alarm. Should the *Leviathan* come into the port of New York with 351 cases of trachoma, the various health authorities would begin to show considerable industry in eradicating it rather than give an historical review of their manifold activities dating back to 1888.

While my observations cover a limited area, and necessarily do not serve as an indictment for the entire service, the very fact of its being limited geographically reflects on the

efficiency of the department in not having availed itself of the advantages of these limitations to eradicate the conditions that exist. It therefore arouses the speculation that it is no more or no less efficient in the other reservations. It would seem that the health matters pertaining to the several governmental activities should be standardized, and if possible placed under one administration, perhaps the Public Health Service. There is no good reason why the Indians should be permitted to go blind in the presence of known methods of prevention. Here in this settlement there were already twenty-nine blind in one eye, eight blind in both eyes, and nine practically blind. Surely our pride in our past accomplishments gives these poor creatures very little consolation. No matter what the department has done in the past, it is not sufficient for the present. If nothing short of reorganization and greater appropriations will bring about a betterment, then it is time Congress was aroused to the necessary means. Certain it is that satisfaction with the present method of handling of the conditions will not remove the menace of the disease. There is no doubt, as Dr. Benson states, that under the present conditions the surgeons in the Indian Service must be imbued with the missionary spirit; but the advisability of relying on chance to bring such individuals to work in the service is questionable. The work will be well done only when the remuneration is sufficient to place the service on the same plane as other medical agencies. In a service in which the return is inadequate, it is always difficult to maintain discipline. This criticism is made with a view to obtaining speed in the reorganization of the Indian Service and not to hamper it by fault-finding; but the opportunity to suggest omitting the "history" in correcting the errors of the service cannot be ignored. The possibilities of 351 active cases of trachoma are appalling, and justify endless discussion.

L. Webster Fox, M.D., Philadelphia.

"FRACTURES OF THE NECK OF THE FEMUR"

To the Editor:—The paper by Dr. Campbell in The Journal, October 20, is a most important contribution to the propaganda for reform, of which the first essential is an absolute repudiation of the traditional teaching still supported by many of the textbooks, namely, that fracture of the neck of the femur is an exception to all the injuries of its class, in that its effective treatment as a fracture is both dangerous and futile.

The purpose of this letter is, however, to call attention to what in the author's mind is evidently a minor point. He states that in the treatment of intracapsular fracture the abduction method "as described by Whitman has been employed as a routine . . . with addition, recently, of artificial impaction as advocated by Cotton, which is regulated by a series of roentgenograms on the operating table."

It may be recalled that Dr. Cotton based his operation on the statement that an intracapsular fracture never united unless it was impacted; consequently, that artificial impaction offered the only hope of repair. According to Dr. Cotton's directions, the fragments having been apposed, the trochanter was "malleted until something gave," indicating apparently penetration. A plaster spica was then applied to protect the impaction.

It has long since been demonstrated that intracapsular fractures unite in the majority of cases if apposition and fixation are assured, and Dr. Campbell's recent results can scarcely be better than those he reported in the *Annals of Surgery* in 1919. It is evident also that artificial impaction in his hands is simply an adjunct to the abduction treatment; but he leaves one in doubt as to the manner in which it is applied and as to its actual effects.

If, as one might assume, he mallets the trochanter until "something gives," does he think that in a subcapital fracture the fragile neck penetrates the compact substance of the head, or, in a central fracture, that two cylinders of equal area may be forced into each other? Is it not probable that in this instance the less resistant posterior wall will give way, with consequent lateral distortion and separation of the cancellous structure on which repair depends? And, in any event, would not crushing violence lessen the nutrition and favor subsequent absorption of tissue, formerly supposed to be an inevitable sequence of this injury?

Dr. Campbell is aware that the mechanism of the abduction method is most effective in fresh fractures, when the neck is of normal length, so that capsular tension may aline the fragments and force them into a resistant contact. If one were then to mallet the trochanter until "something gave," would not the neck be shortened, either by crushing or by distortion, and thus lessen the security already attained?

Roentgenograms taken on the operating table and afterward through the plaster spica are of value as demonstrating the attainment and maintenance of the opportunity for functional repair assured by the fixation of the fragments in normal relation, and what more, it may be asked, could be shown after artificial impaction except a shortened neck?

I have had no experience with artificial impaction in any form; but, from a theoretical standpoint, I conclude that as an adjunct to the abduction treatment its value is in proportion to its physical ineffectiveness. From this standpoint it is objectionable because it adds a speculative element to a definite, effective and demonstrable application of surgical principles.

Royal Whitman, M.D., New York.

"THE STATUS OF BLOOD TRANSFUSION"

To the Editor:—In an editorial on the status of blood transfusion (The Journal, September 29, p. 1114), discussing the citrate method of blood transfusion, it is stated that "the added chemical also develops anticomplementary properties in the plasma, and reduces the phagocytic and opsonic powers of the blood. These facts would naturally argue against the use of the citrate method in the general infections when a resistance action is sought. The corpuscles are said to become more friable—a result particularly undesirable in combating certain forms of anemia."

These statements as to the action of sodium citrate on the blood are based on a paper by Unger (The Deleterious Effect of Sodium Citrate Employed in Blood Transfusion, The Journal, Dec. 31, 1921, p. 2107).

In order to correct the erroneous impression created by the editorial, as if this deleterious action of sodium citrate on the various constituents of the blood were a fact, I will quote the following paragraphs from my recent paper (Chills Following Transfusion of Blood, The Journal, 1923, p. 247) in which I discuss Unger's experiments:

> It was clear, without further experiments, that Unger's conclusions concerning the inhibitory action of sodium citrate on the leukocytes were erroneous; for in the Wright opsonic index determination, in which the phagocytic activity of the leukocytes is to be measured, leukocytes are collected in from 1.5 to 2 per cent. sodium citrate solution. This is ten times as strong as the percentage of sodium citrate used in transfusion.
>
> The other two points claimed by Unger have been disproved by the recent work of Mellon, Hastings and Casey (Observations on the Effect of Sodium Citrate on the Blood, The Journal, Nov. 11, 1922, p. 1678). They state that the results of their experiments are, in the main, "diametrically opposed to those of Unger." They found no anticomplementary power in citrated plasma, and no deleterious effect either on the red or on the white blood cells.

Richard Lewisohn, M.D., New York.

Club for the Blind.—A club for the blind has recently been established in Budapest, Hungary, containing a library of more than 2,000 works. There are also billiard rooms and chess rooms.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

IMMUNITY IN TYPHOID FEVER

To the Editor:—A well known author has made the statement in his latest book that the person who has had a case of typhoid fever is immune from that disease thereafter. He also makes the statement that there is no such thing as walking typhoid fever. I wish you would give me your opinion as to whether he has any backing for making such statements, and whether or not the finding of a positive Widal reaction, in the very light cases, would mean that they had typhoid infection instead of what he says is paratyphoid. I am well aware that typhoid fever is getting to be rather a rare disease, especially in this part of the country, but I practiced several years in Texas where at that time it was very common. The immunity which he mentions did not seem to exist there. I do not want you to think that I confused typhoid with malaria, although we had both to a great extent.

————————, M.D., Kansas.

Answer.—The bald statement that a person who has had typhoid fever is immune to typhoid fever thereafter is not in harmony with clinical experience. There is no doubt that more than one attack of typhoid fever may occur in the same person; but this is an unusual occurrence, and the general statement that one attack leaves behind it immunity holds true in most cases. It ought to be borne in mind that immunity is probably never wholly absolute; there is no anti-infectious immunity so strong that persons once susceptible to a given infection may not succumb again to overwhelming doses of infectious material or suffer depressions of resistance.

So-called walking cases of typhoid fever have been observed to occur under conditions that leave no doubt as to the possibility that persons may walk about with typical, full fledged typhoid fever. Such persons have died suddenly from hemorrhage or other complications, and the postmortem examination by competent authorities has revealed well developed, typical intestinal and other lesions characteristic of typhoid fever.

Whether a positive reaction of agglutination in a given case is due to infection with typhoid or paratyphoid bacilli must be determined by appropriate special tests with each of these bacilli. On account of the relations of the members of the typhoid-paratyphoid group of bacilli, so-called group reaction or agglutination may occur that may be misleading unless special precautions are used.

GONORRHEAL ORCHIEPIDIDYMITIS

To the Editor:—1. Does gonorrheal orchiepididymitis always produce sterility? 2. Is orchiepididymitis caused by imperviousness (obstruction) of the epididymis or by atrophy of the testis? 3. Is there some method for obtaining the reappearance of spermatozoa in the semen of those that have been affected with orchiepididymitis?

M.D., Mexico.

Answer.—1. In the United States, gonorrheal orchiepididymitis is unusual, the infection being commonly limited to the epididymis. In the Canal Zone, extension to the testis, orchiepididymitis, seems frequent, according to U. S. hospital reports from that region; probably this is true in other warm regions also. Orchiepididymitis does not always produce sterility.

2. When sterility is produced, this may be due either to occlusion of the genital duct (epididymis or vas), or to atrophy of the testis, or to both. The remedial procedure, effective in a minority of cases, is this: Through an incision 2 cm. long through the skin of the outer side of the scrotum just above the epididymis, the vas deferens and the globus major are exposed. The wall of the latter is picked up by toothed forceps and incised; a milky fluid, containing spermatozoa, should escape. If this fluid contains no spermatozoa, the operation is abandoned. If sperms are found, a short incision is made into the lumen of the vas, through which 5 c.c. of methylene blue solution (1:20,000) is gently injected toward the body. If the urine passed immediately thereafter is blue, the patency of the vas is established. The edges of the incision in the globus major and in the vas are then united by fine silk sutures, and the skin wound closed. Details of this procedure, Martin's operation, are found in all modern textbooks on urology.

3. Restoration of the sperm-producing function of the testis has not been achieved by medication or other treatment.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Arkansas: Little Rock, November 13-14. Sec., Dr. J. W. Walker, Fayetteville.

Connecticut: Hartford, November 13-14. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.

Connecticut: New Haven, November 13-14. Sec. Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport.

Connecticut: New Haven, November 13. Sec., Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

Louisiana: New Orleans, December 13-15. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

Maine: Portland, November 13-14. Sec., Dr. Adam P. Leighton, Jr., 192 State Street, Portland.

Nebraska: Lincoln, November 6-8. Supt., J. D. Case, Lincoln.

Nevada: Carson City, November 5. Sec., Dr. Simeon L. Lee, Carson City.

North Carolina: Chapel Hill, December 4. Sec., Dr. Kemp P. B. Bonner, Raleigh.

Texas: Dallas, November 20-22. Sec., Dr. T. J. Crowe, Dallas County Bank Bldg., Dallas.

Virginia: Richmond, December 11-14. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

REPORT OF THE SIXTEENTH EXAMINATION OF THE NATIONAL BOARD OF MEDICAL EXAMINERS

The sixteenth examination of the National Board of Medical Examiners was held in thirty-six Class A medical schools, and three training camps of the U. S. Army, June 25, 26 and 27, 1923, in Part I, which comprises written examinations in each of the six fundamental medical sciences. The subjects of the examination and the relative value of each were: anatomy, 100; physiology, 75; materia medica and pharmacology, 75; pathology, 75; physiologic chemistry, 50, and bacteriology, 50, making a total of 425 counts for this part.

Part I

A candidate taking Part I must earn at least 75 per cent. of this total. The number of counts earned in any subject depends directly on the ratings of the answered papers. Falling below 65 per cent. in two subjects, or below 50 in one subject, constitutes a failure.

A candidate is allowed to take an incomplete examination, omitting one of the subjects if the instruction in this subject is not completed in the medical school of attendance by the end of the second year. Two Hundred and fifty-one appeared for examination in Part I; of these, 164 passed, forty-six failed, and forty-one took an incomplete examination.

PASSED, PART I

Names and Medical Schools	Year of Grad.
Ammarell, John Samuel, Univ. of Pennsylvania Medical School	1922
Anderson, Ernest Raymond, Rush Medical College	1924
Anderson, Samuel A., Johns Hopkins Medical School	1923
Armstrong, John Wilbur, University of Vermont Medical School	1924
Baron, Sadi Muriel, Woman's Medical College	1924
Baty, James Marvin, Harvard Medical School	1925
Bemis, George Gordon, Harvard Medical School	1922
Bird, Clare Edward, Harvard Medical School	1923
Bogen, Emil, University of Cincinnati School of Medicine	1923
Bond, Robert Emerson, University of Illinois College of Medicine	1925
Bothe, Albert Edward, Long Island College of Medicine	1919
Brown, Howard Bryden, Dartmouth Medical College	1925
Buckman, Lewis Taylor, Univ. of Pennsylvania Medical School	1922
Burisch, John Livingston, Harvard Medical School	1923
Burroughs, Travis Pollard, Harvard Medical School	1925
Calhoun, Abner W., Harvard Medical School	1923
Cantarow, Abraham, Jefferson Medical College	1924
Capper, Aaron, Jefferson Medical College	1924
Cates, Samuel Clark, University of Pennsylvania Medical School	1924
Cattanach, Lachlan McA., Johns Hopkins Medical School	1925
Coburn, Alvin F., Johns Hopkins Medical School	1925
Coburn, John Wesley, Yale Medical School	1925
Cloud, Albert Williams, Harvard Medical School	1925
Cone, William Vernon, University of Iowa College of Medicine	1922
Cooper, Linn Fenimore, Harvard Medical School	1925
Crowell, Caroline, University of Pennsylvania Medical School	1925
Crump, Jean, Woman's Medical College	1923
Daniels, Francis Raphael, University of Buffalo Medical College	1924
Daniels, George Eaton, Harvard Medical School	1923
Delaney, George Anthony, Creighton University Medical College	1925
Dolan, Bernard James, University of Buffalo Medical College	1924
Dolan, James Edward, University of Buffalo Medical College	1924
Dudley, Leon Herbert Martin, Syracuse Univ. School of Medicine	1925
Duff, Ella Ishbel, Woman's Medical College	1923
Dunn, Laurence B., Harvard Medical School	1925
Easby, Mary Hoskins, Woman's Medical College	1924
Eisaman, Josiah Reamer, Jr., Harvard Medical School	1921
Evarts, Helen W., Johns Hopkins Medical School	1922

Ferris, Henry Whiting, Yale Medical School....1925
Finger, Louis, University of Buffalo Medical College....1924
Fisher, Robbin E., University of Oregon Medical School....1925
Fomon, Samuel, University of Illinois College of Medicine....1906
Forster, Walter Livingstone, Univ. of North Dakota Med. School...1925
Frederickson, Clyde Harold, Univ. of Minnesota Medical School....1924
Fry, Selvia Oscar, University of Cincinnati Medical School....1922
George, William Wellington, Georgetown Univ. School of Medicine..1921
Gilliland, Mary Leata, Rush Medical College....1925
Glassberg, Bertrand Y., Washington University School of Medicine..1925
Goldberg, Hyman Bernard, Tufts Medical College....1925
Goode, John Vivian, Johns Hopkins Medical School....1925
Gregg, Ralph, Harvard Medical School....1925
Griswold, Rettig Arnold, Univ. of Louisville Medical Department...1925
Guild, Harriet Griggs, Johns Hopkins Medical School....1925
Hackman, Pearl Estella, Woman's Medical College....1924
Harvey, Harold D., College of Physicians and Surgeons, Columbia..1925
Henry, Ralph Howard, University of Pennsylvania Medical School..1924
Higbee, Daniel Riggs, Harvard Medical School....1923
Howard, Nelson Jacob, Johns Hopkins Medical School....1925
Hulka, Jaroslav H., University of Prague....1917
Hulsey, Simeon Hardin, University of Texas Medical School....1925
Inches, Charles Patrick, Harvard Medical School....1923
Jarvis, Beryl Winston, Syracuse University School of Medicine....1925
Johnson, Harold Edward, Rush Medical College....1922
Johnson, Norman Percy, Harvard Medical School....1923
Kappes, Louise Osborn, University of Michigan Medical School....1924
Kellogg, John Francis, Jr., Harvard Medical School....1925
Kelly, Edmund Joseph, Jr., Creighton University Medical College..1925
Kestel, John L., Ceighton University Medical College....1924
Klopp, John William, University of Pennsylvania Medical School..1925
Knight, Floyd LaFayette, Univ. of Virginia, Dept. of Medicine....1924
Knott, James I., Washington University School of Medicine....1925
Knowlton, Isabel, Tufts Medical College....1924
Kretzler, Harry Hamlin, University of Nebraska Medical School....1923
Kyle, Ernest Ide, Harvard Medical School....1925
Lawrence, John Vincent, Rush Medical College....1921
Lawson, Theodore Carey, Harvard Medical School....1923
Lewis, James Poland, University of Pennsylvania Medical School..1924
Linton, James Reginald, Harvard Medical School....1925
Linton, Robert R., Harvard Medical School....1925
Lukens, Francis D. W., Univ. of Pennsylvania Medical School....1925
Lyon, Julian Milton, Harvard Medical School....1923
MacCormack, Donald M., Univ. of Illinois College of Medicine....1925
Macdonald, Carolyn, Rush Medical School....1924
Macdonald, Maxwell Eugene, Harvard Medical School....1921
McClure, William Lionel, Harvard Medical School....1923
McHenry, Lawrence Chester, Harvard Medical School....1925
McLaughlin, Juanita Shaffner, Woman's Medical College....1923
McLean, Arthur John, Johns Hopkins Medical School....1925
Mahorney, Howard Raymond, Univ. of Pennsylvania Med. School..1925
Meals, Robert Woodruff, Univ. of Illinois College of Medicine....1924
Mehring, Percy Leroy, Univ. of Pennsylvania Medical School....1923
Miles, George Stanley, Harvard Medical School....1923
Miller, Ralph Kennedy, Harvard Medical School....1925
Milliken, Neil, Harvard Medical School....1924
Mora, Jacob Morton, University of Illinois College of Medicine....1924
Moore, Thomas Benjamin, Univ. of Minnesota Medical School....1924
Moyer, John Sanford, University of Pittsburgh Medical School....1921
Muendel, Edward August, Univ. of Pennsylvania Medical School..1923
Nemours, Paul Roland, Washington Univ. School of Medicine....1925
Norton, Richard Copeland, Yale Medical School....1925
Norwood, Vernon Hyatt, Johns Hopkins Medical School....1925
Obuchowski, Henry Thomas, Tufts Medical College....1925
Owen, Thelma Viola, Woman's Medical College....1924
Palmer, Robert S., Harvard Medical School....1925
Parks, Floyd Roswell, Harvard Medical School....1925
Pearse, Herman Elwyn, Jr., Harvard Medical School....1925
Peirson, Edward Lawrence, Jr., Harvard Medical School....1925
Perkins, Arthur, Harvard Medical School....1923
Pernokis, Evans William, Harvard Medical School....1923
Peterson, Evan Adolph, Rush Medical College....1924
Phillips, Kenneth, Rush Medical College....1925
Pike, Maurice Mitchell, Harvard Medical School....1925
Polk, Florence, University of Pennsylvania Medical School....1924
Potts, Willis John, Rush Medical College....1923
Powis, Ethel M., University of Pennsylvania Medical School....1924
Pugh, Herbert Lamont, Univ. of Virginia Dept. of Medicine....1923
Quaintance, Paul A., Rush Medical College....1923
Raymer, John George, Harvard Medical School....1925
Reed, Faith Wilson, Woman's Medical College....1924
Reitsma, Helen Webb, Johns Hopkins Medical School....1925
Reynolds, Edwin Drew, Harvard Medical School....1923
Reynolds, Gardner Shaw, Univ. of Minnesota Medical School....1924
Riba, Leander William, Univ. of North Dakota Medical School....1924
Rioch, David McKenzie, Johns Hopkins Medical School....1924
Roberts, Sumner Mead, Harvard Medical School....1925
Rogers, Robert Page, Harvard Medical School....1925
Rosenblatt, Millard S., Harvard Medical School....1925
Rothman, Philip, Johns Hopkins Medical School....1925
Sa'di, Lufti M., University of Beirut....1920
Salinger, Robert, Johns Hopkins Medical School....1925
Salladay, Isaiah Reed, Rush Medical College....1925
Schneck, Robert Jacob, Harvard Medical School....1925
Shapiro, Sherman L., University of Illinois College of Medicine....1924
Sharp, Ezra Abraham, Johns Hopkins Medical School....1925
Shinabery, Lawrence, Jefferson Medical College....1924
Simmons, James Greenleaf, Harvard Medical School....1923
Simpson, Miriam Elizabeth, Johns Hopkins Medical School....1922
Smejkal, Frank J., University of Illinois College of Medicine....1924
Sophian, Lawrence Henry, Harvard Medical School....1925
Souther, Susan Page, Johns Hopkins Medical School....1922
Spittler, Feliz A., Creighton University Medical School....1924
Strange, James McLaren, Harvard Medical School....1925
Stroy, Herbert E., University of Nebraska Medical School....1923
Temkin, Judith, Woman's Medical College....1924
Thelander, Huldah E., University of Minnesota Medical School....1924
Thompson, Frederick G., Harvard Medical School....1923
Thompson, Gersham J., Washington Univ. School of Medicine....1925
Tiede, Joseph W., Harvard Medical School....1925
Tiffany, Mary Neosholeta, Rush Medical College....1922
Vanderburgh, Alexander, N. Y. and Bellevue Univ. Med. School...1923
Vaughan, Arkell M., Rush Medical College....1925
Vories, Ruth E., University of Colorado Medical School....1924
Waddell, Kenneth C., Albany Medical College....1925
Waltz, Roswell S., University of Oregon Medical School....1925
Wargensteen, Owen Harding, University of Minnesota....1922
Warren, Charles William, Syracuse University Medical School....1924
White, Gilbert William, Univ. of Pennsylvania Medical School....1924
Whiting, Walter B., Harvard Medical School....1923
Whittier, Alice A. S., Yale Medical School....1925
Wilkinson, Arthur Paul, Johns Hopkins Medical School....1923
Wishard, William Miles, Jr., Harvard Medical School....1924
Wolff, Harold George, Harvard Medical School....1923
Wonders, Max Eugene, University of Nebraska Medical School....1924
Worob, Sarah E., Woman's Medical College....1924

FAILED

University of Buffalo Medical School....1924, 1
University of Colorado Medical School....1924, 1
University of Columbia College of Physicians and Surgeons....1925, 1
Dartmouth Medical School....1925, 6
Hahnemann Medical College....1924, 1
Harvard Medical School....1923, 2
University of Indiana School of Medicine....1925, 2
Johns Hopkins Medical School....1922, 1; 1925, 3; total, 4
University of Louisville Medical School....1925, 2
University of Nebraska Medical School....1924, 1
University of North Dakota Medical School....1925, 1
University of Oklahoma School of Medicine....1925, 1
University of Oregon Medical School....1922, 1
University of Pennsylvania Medical School....1922, 1
Rush Medical College....1918, 1; 1923, 1; 1924, 1; 1925, 1; total, 4
Syracuse University School of Medicine....1925, 5
Tufts Medical College....1923, 1; 1925, 2; total, 3
Tulane University School of Medicine....1925, 1
Woman's Medical College....1921, 1
Yale Medical School....1924, 1; 1925, 3; total, 4

Part II

Part II of the examination was held in thirty of the medical schools mentioned above, June 28 and 29, 1923. This was also a written examination in the following subjects and with the relative values assigned: medicine, 75; surgery, 75; obstetrics and gynecology, 50, and public health, 25, making a total of 225 counts for this part.

A candidate taking Part II must earn at least 75 per cent. of this total. The number of counts earned in any subject depends directly on the rating of the answered papers. Falling below 65 per cent. in two subjects, or below 50 in one subject, constitutes a failure.

One hundred and twelve candidates appeared for examination in Part II. Of these, ninety-nine passed, twelve failed and one took an incomplete examination.

PASSED, PART II

Names and Medical Schools	Year of Grad.
Alyea, Edwin Pascal, Johns Hopkins Medical School	1923
Anderson, Samuel A., Johns Hopkins Medical School	1923
Askey, John Martin, University of Pennsylvania Medical School	1923
Bemis, George Gorden, Harvard Medical School	1922
Bercovitz, Zacharias, Rush Medical College	1923
Bird, Clare Edward, Harvard Medical School	1923
Bogen, Emil, University of Cincinnati School of Medicine	1923
Bortz, Edward Leroy, Harvard Medical School	1923
Bronson, Margaret Lathrope, Johns Hopkins Medical School	1922
Burisch, John Livingston, Harvard Medical School	1923
Cadman, Robert B., University of Pennsylvania Medical School	1923
Calhoun, Abner W., Harvard Medical School	1923
Chadman, M. Gregory, University of Pennsylvania Medical School	1921
Chambers, Silas Eldrige, University of Virginia Medical Dept.	1923
Chandlee, Gertrude Jackson, Tufts Medical College	1921
Cheney, Garnett, Harvard Medical School	1922
Closson, Esther Marjorie, Woman's Medical College	1923
Coppock, Orion Otto, Emory University School of Medicine	1923
Cummings, Clarence W., Univ. of Pennsylvania Medical School	1923
Curtis, Lawrence, Univ. of Pennsylvania Medical School	1923
Dustin, Cecil Calvert, Harvard Medical School	1923
Eisaman, Josiah Reamer, Jr., Harvard Medical School	1921
Evarts, Helen W., Johns Hopkins Medical School	1922
Farra, Ann Elizabeth, Woman's Medical College	1923
Faulkner, Robert Lee, Johns Hopkins Medical School	1923
Fitz-hugh, Thomas, Jr., Univ. of Pensylvania Medical School	1920
Flothow, Paul George, Univ. of Pennsylvania Medical School	1923
Fomon, Samuel, University of Illinois College of Medicine	1906
Ford, Henry G., Vanderbilt University College of Medicine	1923
Frank, Ruth Jean, Woman's Medical College	1923
Fry, Selvia Oscar, University of Cincinnati Medical School	1922
George, William Wellington, Georgetown Univ. School of Medicine	1921
Goforth, John Lawrence, Johns Hopkins Medical School	1923
Greisheimer, Esther Maud, Tufts Medical College	1922
Grogan, Roy Lee, Rush Medical College	1923
Harris, Stanley Edwards, Univ. of Pennsylvania Medical School	1923
Harvey, John, Jr., Univ. of Pennsylvania Medical School	1920
Heberling, John Atherton, Univ. of Pennsylvania Medical School	1923
Herrman, Albert E., Harvard Medical School	1923
Higbee, Daniel Riggs, Harvard Medical School	1923
Hulka, Jaroslav H., University of Prague	1917
Inches, Charles Patrick, Harvard Medical School	1923
Johnson, Norman Percy, Harvard Medical School	1923
Keeler, Harold Raudenbush, Univ. of Pennsylvania Med. School	1921
Kilborne, Norman Joseph, Rush Medical College	1923
Kretzler, Harry Hamlin, University of Nebraska Medical School	1923
Lawson, Theodore Carey, Harvard Medical School	1923
Lyon, Julian Milton, Harvard Medical School	1923
McClellan, Walter Stuart, Harvard Medical School	1923
McClure, William Lionel, Harvard Medical School	1923
Macdonald, Maxwell Eugene, Harvard Medical School	1921
McKay, Robert Witherspoon, Johns Hopkins Medical School	1923
Macnaughton, Elizabeth, Cornell Medical School	1922
Magee, Russell Stuart, Hahnemann Medical College	1922

Manning, Helen Marion, Woman's Medical College....1922
Mehring, Percy Leroy, Univ. of Pennsylvania Medical School....1923
Meredith, Evert Waitman, Johns Hopkins Medical School....1923
Merselis, John Gaston, Johns Hopkins Medical School....1923
Miles, George Stanley, Harvard Medical School....1923
Moyer, John Sanford, University of Pittsburgh Medical School....1921
Muncie, James Ernest, Vanderbilt Univ. School of Medicine....1923
Mutschmann, Paul Nathaniel, Univ. of Iowa College of Medicine....1922
Nelson, Esther Serida, Rush Medical School....1923
Neuswanger, Chris Harold, Harvard Medical School....1923
Ohlson, Albine Victor, Univ. of Pennsylvania Medical School....1922
Parker, Herman Richard, Syracuse University School of Medicine..1923
Perkins, Arthur, Harvard Medical School....1923
Pernokis, Evans William, Harvard Medical School....1923
Potts, Willis John, Rush Medical College....1923
Pugh, Herbert Lamont, University of Virginia Medical Dept....1923
Rambo, Victor, Univ. of Pennsylvania MedicalSchool....1921
Reynolds, Edward Drew, Harvard Medical School....1923
Richardson, Wyman, Harvard Medical School....1923
Riley, Cathryn V., Johns Hopkins Medical School....1922
Rykken, Felix Christian, Univ. of Pennsylvania Medical School....1922
Sa'di, Lufti M., University of Beirut....1920
Sanders, Miller Abram, Univ. of Pennsylvania Medical School....1923
Schauffler, Goodrich Capen, Harvard Medical School....1923
Schrack, Helen Frances, Woman's Medical College....1923
Shippey, Stuart Hunter, Emory University School of Medicine....1923
Simmons, James Greenleaf, Harvard Medical School....1923
Simpson, Miriam Elizabeth, Johns Hopkins Medical School....1922
Souther, Susan Page, Johns Hopkins Medical School....1922
Spangler, Paul E., Harvard Medical School....1923
Straub, Elmer Levi, Univ. of Pennsylvania Medical School....1922
Thiery, Raymond Donle, Harvard Medical School....1923
Thomas, Jessie Elisa, Univ. of Pennsylvania Medical School....1923
Thompson, Frederick G., Harvard Medical School....1923
Tiffany, Mary Neosholeta, Rush Medical College....1922
Vanderburgh, Alexander, N. Y. and Bellevue Univ. Med. School...1922
Van Dyck, Laird Sumner, Rush Medical College....1923
Wakeman, Alfred Maurice, Yale Medical School....1922
Walker, Arthur Meeker, Harvard Medical School....1923
Warren, Shields, Harvard Medical School....1923
Whiting, Walter B., Harvard Medical School....1923
Winter, Anna Ruth, Woman's Medical College....1923
Witherow, Lester Stuart, Univ. of Pennsylvania Medical School...1923
Wolff, Harold George, Harvard Medical School....1923
Wright, Arthur William, Harvard Medical School....1923

FAILED

Johns Hopkins Medical School....1923, 1
Harvard Medical School....1923, 1
Rush Medical College....1918, 1
University of Michigan Medical School....1923, 1
University of Pennsylvania Medical School....1923, 1
St. Louis University School of Medicine....1923, 1
Vanderbilt University School of Medicine....1923, 1
Washington University School of Medicine....1922, 1; 1923, 1; total, 2
Woman's Medical College....1923, 3

North Carolina June Examination

Dr. Kemp P. B. Bonner, secretary of the North Carolina Board of Medical Examiners, reports the oral and written examination, held at Raleigh, June 25-29, 1923. The examination covered 16 subjects and included 70 questions. An average of 80 per cent. was required to pass. Of the 70 candidates examined, 65 passed and 5 failed. Twenty-six candidates were licensed by reciprocity and 2 candidates were licensed by endorsement. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
George Washington University		(1923)	86
Atlanta Medical College		(1914)	81
Emory University School of Medicine		(1923, 2)	84, 85
Northwestern University Medical School		(1922)	87
Tulane University		(1922) 80, (1923, 5) 81, 84, 86,	86, 90
Johns Hopkins University Medical Dept.		(1918) 87, (1921)	85
Univ. of Maryland		(1921) 88, (1923, 7) 83, 85, 85, 86, 86,	89, 90
North Carolina Medical College		(1912)	80
Jefferson Medical College		(1922) 86, (1923, 16) 82, 83, 83,	84, 84, 84, 86, 86, 86, 86, 87, 87, 88, 90, 91, 91
University of Pennsylvania		(1921) 91, (1923, 12) 81, 83, 83,	87, 88, 88, 89, 90, 90, 91, 91, 94
Medical College of the State of South Carolina		(1922)	87
Meharry Medical College		(1918) 81, (1923)	80
Medical College of Virginia		(1922) 81, (1923, 7) 83, 83,	86, 88, 89, 89, 90
University of Virginia		(1923, 2)	90, 90

College	FAILED	Year Grad.	Per Cent.
Howard University School of Medicine		(1920)	72.5
Emory University School of Medicine		(1921) 63.8, (1922)	75.8
Tulane University		(1921)	76.4
Jefferson Medical College		(1922)	77

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Alabama		(1912, 2)	Alabama
University of Arkansas		(1918)	W. Virginia
Atlanta College of Physicians and Surgeons		(1912)	Georgia
Atlanta Medical College		(1916, 2)	Georgia
University of Georgia Medical Department		(1911)	Georgia
American Medical Missionary College		(1904)	Ohio
Chicago College of Medicine and Surgery		(1917)	Illinois
Baltimore Medical College		(1906)	Mass.
Johns Hopkins University Medical Department		(1913)	Virginia
Maryland Medical College		(1906)	S. Carolina
University of Maryland		(1884) Georgia, (1919)	Virginia
Leonard Medical School		(1911)	Tennessee
Bellevue Hospital Medical College		(1897)	S. Carolina
Cleveland Homeopathic Medical College		(1901)	Florida
Cleveland-Pulte Medical College		(1913)	Ohio
Med. Coll. of the State of S. Carolina		(1905), (1915), 1916	S. Carolina
Meharry Medical College		(1916)	Georgia
Memphis Hospital Medical College		(1906)	Tennessee
Tennessee Medical College		(1908)	Tennessee
University of Tennessee		(1921)	Tennessee
Medical College of Virginia		(1917)	Virginia

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement with
Tulane University		(1905)	U.S.P.H.S.
Jefferson Medical College of Philadelphia		(1918)	U. S. Navy

Social Medicine and Medical Economics

MEDICAL SCHOOL INSPECTION IN ROCHESTER, N. Y.

G. W. GOLER, M.D., AND A. M. JOHNSON, M.D.
Health Officer and Deputy Health Officer, Respectively
ROCHESTER, N. Y.

Medical school inspection in Rochester was begun in 1904. For a period of two months, funds for the employment of seven physicians were supplied by a private citizen, Capt. Henry Lomb. The work accomplished was of such evident value and its future believed to be so great that, in 1905, a staff was appointed, increased to twelve members, and they were given the additional work of medical inspection of school children together with the work for the sick poor of the city. These physicians are all part-time men.

From the beginning, the work was chiefly directed toward the early detection of infectious diseases, gross defects, eradication of head vermin, and the cleaning and ventilation of school buildings.

As the work progressed, the need of nurses in the schools became apparent, as it was necessary to have trained attendants get children ready for the physician, keep up the clerical work, visit the children in their homes, and carry the teaching of the school into the home.

BUREAU OF HEALTH
CITY OF ROCHESTER.

Rochester, ...192..

Name..... Age.....

Address.....

IS INSTRUCTED TO DISCONTINUE ATTENDANCE AT

School No....., located at.....

REASON: .....

.....
Medical Inspector.

NOTICE TO PARENTS

The disease mentioned on the other side of this card is a contagious affection and is liable to be transmitted to other children. The child should receive prompt treatment by a physician (or at any dispensary) and *should return to school.....192..*, for re-examination by the Medical Inspector of the Health Bureau. If found free from contagion at this time, he may resume attendance at school.

Fig. 1.—Card of exclusion, front (above) and back.

Home instruction in the care of children excluded from school because of lousiness, scabies, impetigo contagiosa, and similar affections is highly important. Instructions at home have to be given against the exchange of mittens and caps, in the use of sulphur in itch, and in the use of ointment of ammoniated mercury in impetigo (Fig. 1).

SCHEME OF ANNUAL INSPECTION

Once each calendar year, children are given a physical inspection and the results recorded on a physical record card

ROCHESTER BUREAU OF HEALTH. DIVISION OF MEDICAL INSPECTION OF PUBLIC SCHOOLS.

Physical record of ____ Sex ____ Born in ____ on ____

Nationality of Father ____ Mother ____ No. in Family: Adults ____ Children ____ No. of Birth ____

Measles ____ Scar. F. ____ Diph. ____ Whooping Cough ____ Mumps ____ Small Pox ____ C. Pox ____ Pneumonia ____ Grippe ____ Typhoid ____

Meningitis ____ Infant. ____ Diarrhoea ____ Rheumatism ____ Tuberc. ____ School No. ____

1. Age and year											
2. Grade and School											
3. Diseases during year											
4. Height											
5. Weight											
6. Vaccinated											
7. Date of Examination											
8. Nutrition											
9. Pediculosis											
10. Anaemia											
11. Enlarged Glands											
12. Goitre											
13. Nervous Diseases											
14. Cardiac Diseases											
15. Pulmonary Diseases											
16. Skin Diseases											
17. Defect Orthopaedic											
18. " of Vision											
19. " of Hearing											
20. " Nasal Breathing											
21. " of Teeth											
22. Hypertrophied Tonsils											
23. Adenoids											
24. Hernia											
25. Mentality											
26. Conduct											
27. Effort											
28. Proficiency											
29. Disposition of Cases											

Fig. 2.—Physical record card. The original measures 7¾ by 5¼ inches. On the back are written the dates, and diagnosis, defects, exclusions and treatment needed.

(Fig. 2), which accompanies the child from grade to grade. For several years, each physician was expected to keep up these inspections in the schools of his district. This was not entirely satisfactory, as the physicians making these inspections were part-time men and their visits to the schools could not always be arranged for in advance. At the physician's visit the children often would be engaged either with tests or with a supervisor; consequently the physical inspections dragged along during the entire school year, and we were unable to get the follow-up and quickly establish desired remedial and preventive measures.

For these reasons the physical inspections in each school are now made in groups, with physicians and nurses working on time schedules previously arranged with the central school authorities and the school principals. Beginning in the early fall, these schedules are made out a week in advance, a squad of four physicians, with six nurses working on an average of from two to three mornings a week from 9 until 11:30. The physicians and nurses assemble at one school, complete the work and inspection, and then move on to the next school on the schedule (Fig. 3).

METHOD OF INSPECTION

The apparatus is set up in a well lighted corridor or the assembly room. It consists of scales with a measuring rod, which will measure down to 36 inches, a sight-testing card, and three small tables for recorders. Children arrive in single file, an entire grade at a time. Each child carries his own physical record card. At Station 1, the first child in line steps on the scales, is weighed and measured, and the figures are called to a recorder. The child then moves to Station 2, and is inspected as to general nutrition, anemia, the thyroid, other enlarged glands and orthopedic defects. These defects are called and registered by a recorder. The pupil moves to Station 3, where the nose, teeth and throat are inspected and recorded. At Station 4, the pupil advances to a separate, quiet room, where the heart and lungs are gone over by the aid of a stethoscope. The pupil moves to Station 5, where the eyes are inspected by the aid either of a Snelling or of an illuminated chart. A Schick card (Fig. 4) is given to the child, and he goes back to his class room.

The nurse tabulates the various defects, and in case of enlarged or diseased tonsils the parents are called on and the tonsil operation consent card (Fig. 5) is used, giving such advice as is necessary.

The advantages of this mode of group inspection are accuracy with rapidity, and least interference with the school program. It can be accomplished early in the school year, leaving plenty of time for follow-up and advice regarding individual defects, as well as accuracy and completeness of the physical record.

About 500 pupils can be inspected between 9 and 11:30 a. m., leaving the afternoon free for the physician. The nurses tabulate results and make such visits as are necessary in that district.

HEALTH PHYSICIAN

The city now is divided into eighteen health districts with a physician attached to each district, in which he has the care of the sick poor through "orders" coming from the department of charities (where they have been socially investigated) on through the health bureau to the physician. There is also required of these physicians the examination and commitment of the insane; the annual medical school inspection of all the pupils of the public and parochial schools of the city; their vaccination against smallpox; the administration of the Schick test, and of toxin-antitoxin vaccine to those children whose parents give written permission for it; the exclusion for the correction of physical defects and so far as possible mental defects, and the reference of mental deficients to classes for subnormal children, where a special examiner attached to the bureau clears these children to the various special classes.

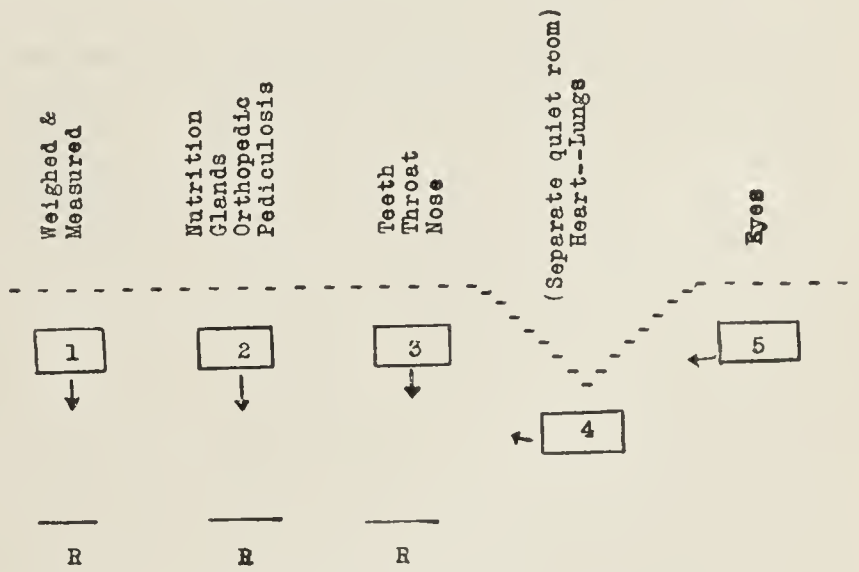


Fig. 3.—Squad inspection: *R*, recorder; line of dashes, line pursued by children; arrows, recording for stations indicated.

HEALTH NURSES

Thirty-eight of the seventy schools are supplied with nurses. A nurse is also assigned to the prenatal clinics hereinafter described in each of three different schools, the school for crippled children and its annex. No nurse is permitted to do work in any other school but her own—one nurse, one school. We are not conducting a nurses' travel club; we are trying to do intensive health nursing work in as many schools as we have nurses for, and we are using as many nurses as the administration will give us. The administration is giving us

nurses just as fast as people are willing to spend money to promote the health of their children.

The health nurse in the school has, under the direction of the physician and with the sanction of the principal of the school, general oversight of the health of the pupils in that school.

HEALTH BUREAU

1922

DIPHTHERIA CAN BE PREVENTED

If your child gets diphtheria or dies of diphtheria—a preventable disease—have you done your duty as a parent?

The Schick test is a sure way of showing whether children can or cannot take diphtheria. When children are found who may take diphtheria, they may be protected against the disease by three injections of toxin-antitoxin mixture.

We are anxious to stop diphtheria for all time and ask permission to make your child safe from diphtheria. You may have this done by your own family physician or at the school.

GEORGE W. GOLER,
Health Officer.

I want my child to be Schicked or to be given toxin-antitoxin mixture, if necessary.

.....

Fig. 4.—Schick card.

No school will have a nurse assigned to it until that school has provided a light, pleasant room, warm in winter and cool in summer, with a desk and telephone extension; one or two rattan couches with pillow and blanket; a small cabinet (not a medicine case); a table, and chairs.

Nurses are appointed under civil service. They receive $1,450 a year. They are requested (and they generally comply) not to wear their hair in bizarre form, conspicuous waists or dresses, high-heeled shoes or earrings. They do not use rouge, or in the matter of dress or decorum make themselves bad examples for the children with whom they come closely into contact.

In the nurse's room the physician and nurse see children sent either by the teacher or those who come voluntarily for physical and mental defects. While the nurse's room is used for most examinations, the nurse's room is preferred for the examination of the child. Here, too, children are taken for rest in emergency, especially adolescent girls often in pain and mental distress from lack of home information. In such a room children are vaccinated, given the Schick test, given toxin-antitoxin, and registered for tonsil and adenoid operations, dental work, refractions, examination of the ears, and reference to the orthopedic and open air school. Here, too, the real work of the nurse is done. Here children are cared for whose parents are unable to have formative or reformative work done, and in this room children are collected in groups by the nurse and taken to the dispensaries for corrective work. When children are assembled for preventive or corrective work and require dispensary care, no other thing the nurse does has such an educative and corrective value as the work done by the nurse in getting permission from the parent and taking the children in groups to various dispensaries. The old way of merely getting permission for such work, trying to get children to go to the dispensary, either with or without their parents, was found of little value. Once it has been determined that a child has a defect, the important thing to do is to get that defect corrected, and the nurse is able to get groups of children with various defects, ten or thirty in a group at a time, take them to the dispensary, have their defects corrected and later to follow them up and see that subsequent appointments are made and kept. This is the really important work of the nurses.

The children are taken to the Rochester Dental Dispensary, the Baden Street Dispensary, the dispensaries of the Rochester General, Homeopathic Hospital, St. Marys and the ear clinics of Dr. Franklin Bock, the Open Air School, and the school for crippled children.

The school children's teeth are cleaned twice a year by visiting dental hygienists in the schools; but filling, extractions and other work of the kind, including orthodontia, must be done at the Rochester Dental Dispensary. Here, too, 1,700 tonsils and adenoids are removed annually. No other corrective or preventive work in the city is superior to the dental, nose and throat work done in the Rochester Dental Dispensary, not only because of the work itself, but also because of the educational value of the work to the children in personal hygiene.

At the Baden Street Dispensary, situated in the middle of a populous district, the general physical defects of the hundreds of school children are cared for every year.

At the dispensaries of the Rochester General and Homeopathic Hospital, hundreds of children are cared for every year.

At the ear clinics conducted by Dr. Franklin Bock, a volunteer worker in two schools, not only have many children had their hearing restored, but the clinics have been made a gateway to which deaf children pass to lip-reading classes which were the direct outgrowth of the clinics.

To the Open Air School, conducted by the department of education and the health bureau, children are taken for corrective nutritional work, until such time as every school in Rochester and every other city becomes an open-air school, providing additional air, food and clothing for all of the children, the only real assets of the city.

ALLIED HOSPITAL TONSIL AND ADENOID CLINIC
ROCHESTER, N. Y.

School..... Grade..... Date..... Case No.....

I hereby authorize the administration of a general or local anaesthetic and an operation on.....(Child's Name (last name first)) Age.....for Tonsil and Adenoid removal, and agree that the child shall remain at the Clinic at least 48 hours. I agree to pay $.....

I also authorize the Schick test, vaccination against diphtheria and smallpox, if necessary.

Address..... Signed.....(PARENT OR GUARDIAN)

MEMBERS OF FAMILY EMPLOYED	OCCUPATION	EMPLOYER	WAGE	FULL	PART
FATHER Name					
MOTHER Name					
1. Name					
2. Name					
3.					

No. of children un-employed.....Total no. in family.....

Tot. Wk. Income

Illness in family

Remarks.....

Class A B.....Investigator

Schick.....Neg.....Pos..... Date Assigned.....Hospital

T-A-T1.....2.....3..... Date Re-Assigned.....Date Operated.....

THREE COPIES TO BE SIGNED AND FORWARDED TO HEALTH BUREAU

Fig. 5.—Tonsil operation consent card.

At the school for crippled children, conducted by the department of education, Dr. Ralph Fitch does corrective orthopedic work for children. Those who are in need of operations are amply provided with bed and outdoor care through the Rotary Club.

Ultimately, when the neurologic department of the university is opened, the children will be taken to a psychologic and

neurologic clinic conducted jointly by the University of Rochester and the health bureau.

PRENATAL CLINICS

Finally, the bureau conducts three prenatal clinics in Schools 5, 18 and 27. Each clinic has a prenatal nurse with a volunteer visiting obstetrician under the direction of Dr. William M. Brown, chief obstetrician, and also Drs. William H. Mitchell, A. C. Woggon and John Clifford, volunteers.

These clinics are situated in the most populous sections of the city, where births are most frequent. The aim of all this work is to conduct child welfare in the schools so that prenatal clinics will function for each group of schools, to the end that prenatal service may be had for every mother with

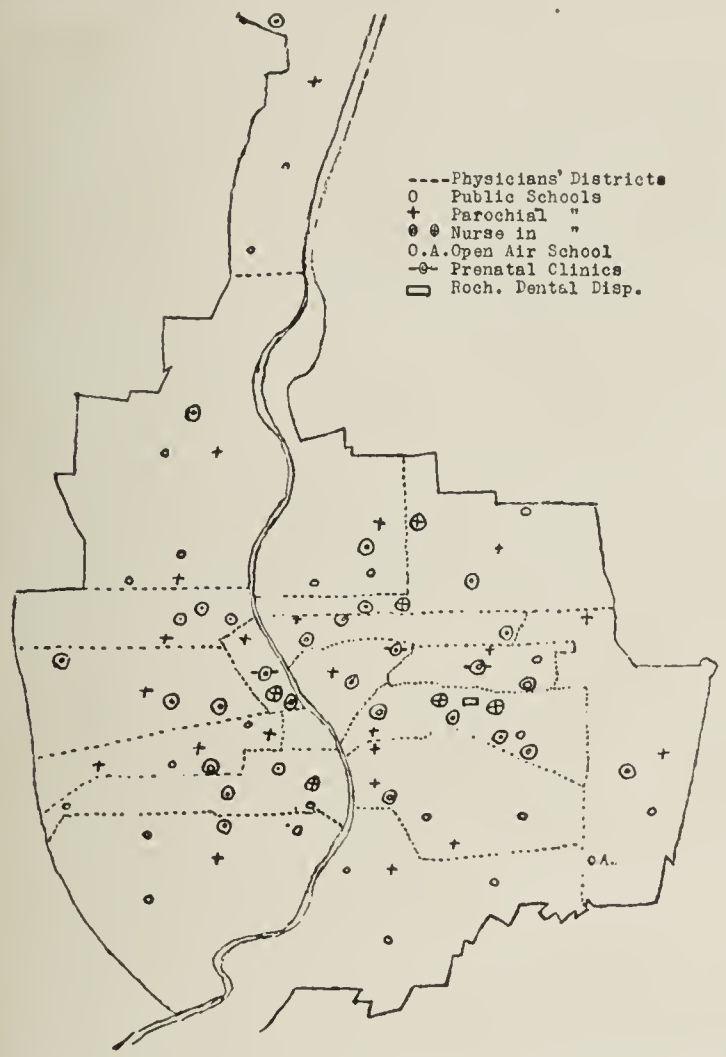


Fig. 6.—Outline map of Rochester, N. Y., showing the eighteen health districts into which the city is divided. A health physician is attached to each district. In this district he cares for the sick poor, makes insane examinations, and makes an annual physical inspection of every child in the schools in his district. The schools are marked by a circle or cross, indicating public and parochial schools. Surrounding some of these circles and crosses is another circle showing that the school is provided with a nurse. One nurse is attached to the school shown by a circle, and she does work only in that school and in no other school. The other schools are without nurses until such time as we may be able to provide nurses for them. The manner of doing the work and the results are tabulated monthly, figures being given by schools for service and care by physicians and nurses, abnormalities found, causes for exclusion, and corrections and care at hospitals and dispensaries, under the necessary subheadings.

child. The work of the school physician and nurse will ultimately be so arranged that the child may be followed from birth through postnatal life on into and out from the school, and that a card index plan may furnish the story of the child's mental and physical life from before birth into industry.

The Nucleus of an Atom.—The nucleus of a heavy atom is undoubtedly a very complicated system, and in a sense a world of its own, little, if at all, influenced by the ordinary physical and chemical agencies at our command. When we consider the mass of a nucleus compared with its volume it seems certain that its density is many billions of times that of our heaviest element.—Rutherford, E.: Address before the British Association for the Advancement of Science, Liverpool, Sept. 12, 1923.

Book Notices

A KEY TO THE ELECTROCARDIOGRAM. By Louis Faugeres Bishop, M. A., M.D., Sc.D., Professor of the Heart and Circulatory Diseases, Fordham University. Cloth. Price, $3. Pp. 96, with 48 illustrations. New York: William Wood & Co., 1923.

This book offers a simple description of the subject of electrocardiography and its clinical application, together with a brief account of the more common irregularities of the heart beat. It is well printed in large, clear type and the subject matter is well arranged. The electrocardiographic curves are well taken and clearly presented, their interpretation coinciding for the most part with accepted clinical teaching. The author emphasizes that electrocardiography should be part of a complete examination of a cardiac patient, but in certain chapters gives the impression of reading more value into the curves than they actually possess. Likewise, one feels that such statements as: "Auricular fibrillation . . . indicates a profound disturbance" (p. 16); "One is always in danger of giving too much digitalis without these tracings" (p. 76); "When the electric picture of the heart is carefully studied, all these things become perfectly clear," and "In the electrocardiogram therefore the heart writes its own story and thus indirectly the story of the whole body" (p. 10), appear dogmatic, unscientific and unduly optimistic. Such statements, taken literally, will prevent rather than extend the usefulness of this comparatively new and valuable adjunct to medical diagnosis. Finally, one cannot help but speculate as to the indications or necessity for the publication of this book, when the same subject is already adequately covered by such excellent textbooks as those of MacKenzie, Wenckebach, Willius and Sir Thomas Lewis.

RECOVERY RECORD FOR USE IN TUBERCULOSIS. By Gerald B. Webb, M.D., Consulting Physician, Cragmor, Glockner and Sunnyrest Sanatoria, and Charles T. Ryder, M.D., Cragmor and Glockner Sanatoria. Cloth. Price, $2 net. Pp. 189, with 108 charts. New York: Paul B. Hoeber, Inc., 1923.

How does a consumptive get well? Not by any specific remedy that kills the tubercle bacilli or gives resisting power to the body cells, but by the building up of his power of resistance through the practice of correct habits of eating, resting, breathing—in short, of right living. The sanatorium for tuberculosis, which is such an important factor in the modern campaign against this disease, is, in reality, a school for the instruction of the victims of consumption, designed to instruct them how to order their daily lives so as to promote their own restoration to health, and not to be a menace to those about them. In arranging his daily routine, it is desirable that the tuberculous person should keep, or have kept for him, a daily record of the temperature of his body as shown by the clinical thermometer. A temperature above 98.8 F. is an order for rest in bed. This neatly printed, convenient book consists of clinical charts for the recording of the temperature curve, the pulse, the weight—also an important index of progress—and of general notes and questions and questions for one's physician. At the top and bottom of each chart there appears a striking question from some authority on tuberculosis, or some literary author of distinction. But this is not all. Eighty pages are devoted to helpful advice to the patient, arranged in chapters on the record of recovery, the technic of recovery, the hygiene of recovery, and accidents and obstacles. The injunctions are driven home by pithy epigrams. "He who doctors himself has a fool for a physician." "Idleness is merely doing nothing; laziness is doing nothing with a contentment and gusto." "Of all the countless remedies proposed, *rest* alone has stood the test of time." "Treat yourself as though you were made of glass." "Be lazy; be selfish"; but "laziness and selfishness are to be regarded as necessary but dangerous drugs, to be discontinued as soon as possible." "Many a man has made important advances in the knowledge of his calling, of literature, and of truth, while confined to his bed or a reclining chair." "In connection with reading, there are two habits which are of the greatest permanent value, annotating and memorizing." In the discussion of diet we read: "Three square meals a day and plenty of water"; but

also that "stuffing in tuberculosis is an outgrown fad," and "getting fat does not cure tuberculosis." "Fresh air is to be taken externally, internally, eternally." Of clothing, "Wear as much as you need to keep warm, but no more"; "do not let cold or rain catch you unprepared"; and "do not let your feet be cold day or night." Personal cleanliness is advised, but of the danger of overmuch bathing during the active disease, one is enjoined that "it is better to be dirty and well than clean and sick." Concerning cough and expectoration, "never cough if you can help it." For the protection of others, "avoid all close contact with children." And of climate, a cool, high, dry climate "stimulates the bodily functions without causing fatigue," and is to be sought *"if* you can do so without sacrificing these more essential things, rest, good food, comfort, and peace of mind." More detailed discussion explains the application and limitations of these injunctions. This is an admirable book for the physician to put in the hands of a tuberculous patient as a supplement to, and in, some cases, as a substitute for personal advice given in the sanatorium or the home.

Dental State Board Questions and Answers. By R. Max Goepp, M.D., Professor of Clinical Medicine at the Philadelphia Polyclinic. Third edition. Cloth. Price, $3.75 net. Pp. 433. Philadelphia: W. B. Saunders Company, 1922.

State Board Questions and Answers. By R. Max Goepp, M.D., Professor of Clinical Medicine at the Philadelphia Polyclinic. Fifth edition. Cloth. Price, $6 net. Pp. 731. Philadelphia: W. B. Saunders Company, 1923.

These two works are so near alike that they may be reviewed together. As the questions contained in the two volumes were selected from state board questions asked during the last few years, they are representative of the kind of examination questions usually propounded by state boards. Almost every branch of medicine and dentistry is covered, from physics and chemistry to hygiene and medical jurisprudence. As it is impossible for so many state boards holding examinations several times yearly to formulate entirely new questions for each examination, it is evident that the questions contained in these volumes will continue to be asked over and over again so long as a man's fitness to practice these professions is determined by his ability to answer similar questions. Medical and dental students, therefore, will find these books a convenient help in preparing themselves to take state board examinations.

Laboratory Studies in Tropical Medicine. By C. W. Daniels, M.B., F.R.C.P., Director of the Institute for Medical Research, Federated Malay States, and H. B. Newham, C.M.G., M.D., M.R.C.P., Director of the Department of Tropical Pathology, London School of Tropical Medicine. Fifth edition. Cloth. Price, $7, net. Pp. 576, with 187 illustrations. New York: William Wood & Co., 1923.

This laboratory manual is detailed, is generally accurate, and in the main keeps abreast of current progress. While some of the directions concern very simple and elementary laboratory manipulation, it must be remembered that such a book may perhaps be the sole resource of workers in remote parts of the world, and that it may have to be relied on by men variously trained in animal parasitology, in protozoology or in bacteriology. One can, of course, find omissions or points to which exception may be made. Bile salt broth is recommended for the isolation of *Bacillus coli* in water examination. Advantage has not been taken of recent work on the parasites of hookworm disease. Mosquito larvae are not adequately illustrated—there is a fearsome picture of a larval head on page 497. Nomenclature is not always in accord with the recent pronouncements of systematists—for example, in the retention of the generic name of *Stegomyia* for the yellow fever mosquito, in place of *Aedes*. These may all be shortcomings, but they do not affect seriously the usefulness of this handbook.

Arteriosklerose und Hypertonie unter Berücksichtigung ihrer Beziehungen zur Gewerbehygiene und ihrer Bekämpfung auf Organotherapeutischem Wege. Von Hermann Griesbach, Dr. Med. et Phil. Ord. Honorarprofessor an der Universität Giessen. Paper. Pp. 56. Giessen: Alfred Töpelmann, 1923.

The title indicates a general treatise on arteriosclerosis and hypertension. As a matter of fact, it appears to be a piece of propaganda work for a new organotherapeutic product named "animasa." "Animasa" is said to be prepared from the intima of blood vessels and from erythrocytes, and it is stated that when given by mouth, both to normal persons and to persons with hypertension, it lowers the blood pressure from 10 to 20 mm. of mercury. This lowering of the blood pressure disappears within two or three days on stoppage of the administration of the product. The author confesses he does not know in what way "animasa" lowers the blood pressure, but suggests that it might be through its histamin content. If this guess should be correct, it seems at present a highly dubious practice to administer a substance containing enough of the highly poisonous histamin to produce this degree of histamin shock.

Insanity and the Criminal Law. By William A. White, M.D. Cloth. Price, $2.50. Pp. 281. New York: The Macmillan Company, 1923.

This is a psychiatrist's plea for justice for the so-called criminal: for justice in harmony with the formulas of the deterministic psychology of today. The criminal is merely the product of birth and environment, of overwhelming circumstances over which he has no control. He is sinned against, not sinning. Society is the wrong-doer. Methods established by society for judging between itself and the alleged offender are irrational, the outcome largely a matter of casuistry and chance, and punishment merely the gratification of a desire for vengeance, incapable of preventing antisocial conduct or of repairing the consequences of it. And the mentally defective classes are the chief victims of the system. The road to reform, according to the author, lies through an enlargement of the sphere of the trained psychologist, a restriction of the field of the expert witness and a better training of lawyers, especially of judges, in the psychology of the antisocial classes. Dr. White's standing in the field of psychiatry, the earnestness with which he presents his case, and the thirty years' study and observation lying back of it, all entitle the book to critical study.

Cures. The Story of the Cures That Fail. By James J. Walsh, M.D., Ph.D., Sc.D., Professor of Physiological Psychology, Cathedral College and College of the Sacred Heart, New York City. Cloth. Price, $2. Pp. 291. New York: D. Appleton & Co., 1923.

Mystical and magical healing are as old as mankind itself, and there will no doubt continue to be magical healers as long as there will be human beings to believe them. Dr. James J. Walsh, noted particularly for his writings in the field of medical history, has here considered, in a light literary survey, the cures of all time. Beginning with personal healers, he passes through the time of Mesmer and Perkins tractors through Christian science, appliance cures, manipulation cures, mythical cures and eventually to Coué. Dr. Walsh is at great pains to explain just how each of the methods he describes is fallacious, but he realizes, of course, that the explanation will not satisfy those who believe. In fact, when one considers the psychology of the reader one realizes that the persons who will enjoy Dr. Walsh's book and get the most from it are those who already know the things that Dr. Walsh is trying to teach. Physicians who know the fallacies of all the peculiar cults will enjoy having Dr. Walsh put these things into words, and they will relish his raillery at those who are so ignorant as to be duped. Unfortunately, the lay reader has not a sufficient knowledge of his own body mechanism, let alone of the intricate processes of immunology and infection, to understand the fallacies of the exploited "cures" after they are pointed out. For those who are willing to learn, Dr. Walsh has prepared a worth while study.

Food for the Diabetic. What to Eat and How to Calculate It With Common Household Measures. By Mary Pascoe Huddleson, Consulting Dietitian, with an Introduction by Nellis Barnes Foster, M.D., Assistant Professor of Medicine at Cornell University Medical School. Cloth. Price, $1.25. Pp. 75. New York: The Macmillan Company, 1923.

This little volume is written from the point of view of a consulting dietician whose work is to carry out the physician's orders. The book is well planned, concisely written, and has excellent, simple tables of food values and food equivalents. It also contains many recipes. It is a book that can be placed in the hands of diabetic patients with the assurance that it will be a safe and sound guide.

Miscellany

MODIFIED METHOD OF ADMINISTERING CARBON TETRACHLORID

Since February, 1922, more than 60,000 persons in Fiji have been treated for hookworm disease with carbon tetrachlorid. After 42,000 treatments had been given with no serious results, three deaths occurred in the course of the next 8,000 (THE JOURNAL, Feb. 24, 1923, p. 526). About that time, Macht published a paper in which it was shown that the specific action of a drug is delayed or nullified when administered in magnesium sulphate solution because a contrary current is set up in the intestinal wall preventing or delaying absorption. The director of the International Health Board, Dr. F. F. Russell, suggested to field workers in hookworm disease that this action of magnesium sulphate might make the use of carbon tetrachlorid entirely safe. After trial treatments, the administration of the two drugs simultaneously was undertaken in field work in Fiji, and the results have been reported by Dr. S. M. Lambert, director of the board's work at that place.

In routine work, from 50 to 60 minims of tetrachlorid in 1½ ounces of magnesium sulphate solution is given to adults, according to the size of the individual. Children are given from 3 to 4 minims to the year according to size in appropriate doses of magnesium sulphate. With this method, there have been no reports of headache, a symptom that was not uncommon when the drug was administered alone and followed by the purge. No patients have entered the hospital subsequent to administration of the drug, although hospital treatment is free. Seven thousand persons have been thus treated in the field where dysentery and typhoid fever are not rare. A few persons reported purging for several days, and there is a certain amount of vomiting soon after the dose is given. Security is increased if the carbon tetrachlorid is given with the magnesium sulphate, as both are rejected if there is vomiting. The advantage of tetrachlorid in treating hookworm disease in pregnant women is emphasized, since with other vermifuges pregnancy was frequently interrupted. In months of routine treatment of these women with tetrachlorid, no abortions have been reported. Carbon tetrachlorid was also effective against ancylostomes as well as necators. In a series of treatments in which the worms were carefully counted, among 280 worms removed there were seventeen acylostomes. A later test treatment removed two worms, one of which was an ancylostome.

The report concludes that carbon tetrachlorid in proper dosage in saturated solution of magnesium sulphate is a safe, reliable anthelmintic for both kinds of hookworm, and that few and minor symptoms result. It also reduces the cost of treating whole populations because it is time saving.

THE FIGHT AGAINST VENEREAL DISEASES IN DENMARK

A booklet with this title, by Prof. C. Rasch and Dr. S. Lomholt of the University of Copenhagen, states that as early as 1672 laws were passed in Denmark penalizing all medical empiricism, and in 1788 free treatment of venereal diseases was introduced. In 1859 a law was passed penalizing transmission of a venereal disease, and in 1869 a specialist course in the curriculum was made compulsory. The law making compulsory the Credé method of prophylaxis of ophthalmia neonatorum was adopted in 1900, and in 1922 the presentation of a certificate of noncontagious condition by candidates for matrimony who have been under treatment for venereal disease was made compulsory. The measures have been so strictly enforced that physicians never encounter patients now who have been previously treated by charlatans. Treatment is gratuitous, even for the well-to-do if they wish, including blood tests. The total number of venereal patients in the public hospitals in 1922 was 4,613, in a population of 3,300,000. The total of other patients in these hospitals was 150,000, during this period. The beds in the public hospitals (exclusive of the tuberculosis sanatoriums and institutions for the insane) total 14,300; that is, one bed for each 240 inhabitants. The State Serum Institute applies the Wassermann tests for the entire country, with a card catalogue of the cases to prevent duplication, identification being by the record of sex; year and day of birth; first letter of family name; date of diagnosis of syphilis; name of physician who made the diagnosis or the hospital where it was made, and the number of the patient on the physician's record or the hospital records. By this card catalogue record the patients can be traced from the date of their infection, from hospital to hospital, till their death, and any physician can obtain at any time, without giving his patient's name, all the information as to the preceding phases of his venereal disease. The card catalogue now contains 25,000 cards. The number of new cases in 1921 was 1,942 and in 1922, 1,578; of congenital syphilis, 142 and 95, respectively. If a patient neglects to continue treatment of syphilis, the attending physician is required by law to inform the public health authorities. This provision very rarely has to be enforced, as the legal requirements influence the most heedless. About sixty or seventy cases come before the courts each year at Copenhagen in prosecution of those who have reason to suspect they have venereal disease, and who expose others by sexual intercourse.

Medicolegal

Doubt as to Sanity or Insanity—Opinions as to Smoking of Mariahuana—Evidence as to Syphilis

(Cadena v. State (Texas), 251 S. W. R. 225)

The Court of Criminal Appeals of Texas, in affirming a conviction of defendant Cadena of murder, says that he complained of the refusal of the trial court to allow him to ask all the jurors whether, if they should be taken on the jury and after the evidence was all in there should be in their minds a reasonable doubt as to whether or not he was sane or insane, they would be willing to give him the benefit of the doubt and find him insane. As the court of criminal appeals views the matter, this question was so framed as not to present an issue; "a reasonable doubt as to whether or not defendant was sane or insane" presented the matter so as to make it impossible to determine whether the doubt inquired of was as to sanity or insanity. The use of the expression "whether or not" further added to the confusion of the question. It has never been the rule in Texas that sanity must appear beyond a reasonable doubt. Sanity is presumed until the contrary is made to appear, and this is one of the issues in which the burden shifts to the accused, who interposes the defense of insanity, and it is held that he must prove the latter by a preponderance of the testimony.

It was suggested that the defendant was a smoker of mariahuana, and that from the effects of the use of that drug he had developed a homicidal mania. To show that he was under the influence of that drug there was testimony that the night preceding the homicide he smoked a great deal, and that what he smoked smelled very bad; that about four nights before that he smoked cigarets that looked and smelled like mariahuana; that about fifteen years before that he had asked one of the witnesses to get him some mariahuana; and another witness testified that on a date not given he saw the defendant smoking and afterward acting queerly, and found that a partially smoked cigaret which the defendant threw away was mariahuana. To a physician who testified that he had observed the effects of the use of mariahuana on persons, the facts attending the homicide were then stated as well as testimony here summarized, and he was asked, assuming that the testimony was true, whether or not he would conclude therefrom that the cigarets smoked by the defendant on the night preceding the homicide were mariahuana. The state objected to this testimony, and to the trial court's refusal to allow it, a bill of exceptions was reserved. The court of criminal appeals knows of no authority that goes to the extent of holding such testimony admissible. The physician, as an expert, could state what condition of the mind would follow the use of mariahuana. The fact of the use of such drug, and the amount used could be proved by witnesses who knew such facts. But it seems to be the rule that expert

opinions must be limited to matters of science, skill, trade and the like, and will not be allowed to usurp the province of the jury on matters of fact of which the jury is made the judge by our laws.

Another contention was that the defendant should have been granted a new trial because of newly discovered evidence; but there was no error in the refusal to grant it. Physicians who examined the defendant at the time of his trial said that in their opinion he was then normal; which fact being true, the defendant must have been in condition to have informed his counsel of any testimony favorable to his defense which was then within his possession. The facts set up as newly discovered were necessarily within his knowledge, and if he failed to disclose them to his attorneys it was his misfortune. This new evidence was of the fact that the defendant had syphilis. Not only was this not newly discovered evidence within the contemplation of Texas law, but this court does not think it of that materiality which would call for granting of a new trial, and which would make it appear that the trial judge had abused his discretion in the matter.

Immaterial Averment About Not Recording License—Drugless Healer

(Feige v. State (Okla.), 215 Pac. R. 437)

The Court of Criminal Appeals of Oklahoma, in affirming a judgment of conviction of defendant Feige, says that it was charged in the information that he did unlawfully practice medicine within that state without first having obtained from the state board of medical examiners a certificate as provided by law entitling him to practice medicine within the state, and that he had not recorded any certificate with the county clerk. The latter statement he contended made the information duplicitous, but the demurrer which he interposed to the information on that ground was overruled, and this court is of the opinion that his contention was without merit. The information as a whole clearly attempted to state and did state the offense of practicing medicine without a license and set out in detail the character of such practice. The statement that the accused had not recorded his certificate with the county clerk was not of itself a distinct or separate averment; it was simply an explanatory clause that could have been omitted; it was mere surplusage. It is apparent that, if the accused was practicing medicine without having obtained a license, no license was recorded with the county clerk. In this case the one offense included the other, and the averment that no license was recorded with the clerk was immaterial so long as it appeared, as it manifestly did in this case, that the accused was being prosecuted for practicing without a license.

The proof showed, and the defendant himself admitted, that he maintained an office in Oklahoma City, where he held himself out as a person competent to treat those afflicted with various physical infirmities, and for which a fee was charged. Certain witnesses for the state testified that in the course of his practice he had advised and directed them to use an Epsom salt solution as an eye wash. This he denied, thus raising an issue of fact for the jury.

The defendant contended that he was not practicing medicine within the meaning of the Oklahoma statute, but was a drugless healer; that his system was to use Nature's remedies to purify the blood and to stimulate the different organs of the body by physical culture and proper food selection and by fasting. It appeared that he also practiced psychic suggestion. But where a person maintains an office and holds himself out as competent to treat and heal those afflicted with physical infirmities by drugless healing methods it is incumbent on him to procure a license to pursue such practice, as provided by penal statutes Sections 8815 and 8818, Compiled Statutes of Oklahoma of 1921. Section 8818 provides that any person claiming to practice any drugless system of healing must have attended a reputable college for a period of not less than twenty-seven months and passed examinations in anatomy, chemistry, bacteriology, pathology, surgery, physical diagnosis, etc. It appeared that the defendant could not legally qualify as a drugless healer any better than as a regular practicing physician. From the whole record, the court concludes that the information was sufficient, and that there was sufficient evidence to support the verdict.

Desire to Ventilate No Excuse for Failure to Heat—Contraction of a Cold

(Davis, Agent, v. Allen (Ky.), 251 S. W. R. 194)

The Court of Appeals of Kentucky, in affirming a judgment for $700 damages recovered by Mrs. Allen against the director general of railroads, says that her evidence was to the effect that on Nov. 30, 1918—a cold day with a stiff wind blowing—she was for about half an hour in an unheated waiting room of a railroad station, and then for an hour in an unheated coach of which windows were raised; that while she was in the waiting room and on the train she was shivering, and when she alighted she was sneezing and suffering from the effects of a cold; that this developed into grip, and that from the third day she was confined to her bed for six weeks.

On this appeal it was insisted that a peremptory instruction for the defendant should have been given because (*a*) this was at the period of the outbreak of influenza and the defendant's agents were endeavoring to prevent the spread of that disease, and were not negligent; (*b*) the plaintiff contracted influenza, which is a germ disease, and not caused by exposure, and if negligence existed it was not the proximate cause of her injuries; (*c*) if negligent, it could not be told with any degree of certainty whether the plaintiff suffered from influenza, for which the defendant was not responsible, or from a cold, for which he might be liable, and the jury should not be allowed to speculate on this question. It was true that this occurred during the epidemic of influenza of 1918.

The history of that period may show that the traveling public and transportation companies united in an effort to secure proper ventilation of public conveyances and stations; but it could not be urged that the duty on the part of the defendant to keep his waiting rooms and passenger coaches comfortably heated was to any degree relaxed; and that his agents were negligent in this matter was clearly established. As to whether there was evidence of a causal connection between this negligence and the plaintiff's injuries was not a difficult question. It is a matter of common knowledge that colds may be easily contracted under conditions such as described, and the uncontradicted evidence showed that the plaintiff did contract such a cold on this journey, and that her sickness followed. The doctrine that, when an injury may have resulted from one of two probable causes, one being the negligent act complained of and the other some cause for which the defendant is not responsible, the jury will not be permitted to speculate as to its verdict, had no application to the facts of this case. There was no evidence whatever that the plaintiff contracted any other character of disease than that claimed by her, and no physician testified that her symptoms would indicate otherwise; and the suggestion that she did was of itself conjectural.

Society Proceedings

COMING MEETINGS

American Pathological Society, St. Louis, Dec. 27-29. Dr. Wade H. Brown, Rockefeller Institute for Medical Research, New York, Sec'y.

American Physiological Society, St. Louis, Dec. 27-29. Dr. Charles W. Greene, University of Missouri, Columbia, Mo., Secretary.

American Society of Biological Chemistry, St. Louis, Dec. 27-29. Dr. Victor C. Myers, New York Post-Graduate Medical School, New York, Secretary.

Porto Rico, Medical Association of, San Juan, Dec. 14-16. Dr. Augustin R. Laugier, Box 1117, San Juan, Secretary.

Radiological Society of North America, Rochester, Minn., Dec. 3-7. Dr. M. J. Sandborn, Appleton, Wis., Secretary.

Society of American Bacteriologists, New Haven, Conn., Dec. 27-29. Dr. J. M. Sherman, Box 184, Washington, D. C., Secretary.

Southern Medical Association, Washington, D. C., Nov. 12-15. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., Dec. 11-13. Dr. H. A. Royster, 423 Fayetteville Street, Raleigh, N. C.

Western Surgical Association, Colorado Springs, Colo., Dec. 6-8. Dr. Warren A. Dennis, Hamm Bldg., St. Paul, Minn., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Otology, Rhinology and Laryngology, St. Louis

32: 641-952 (Sept.) 1923

Further Observations of Mastoid Structure by Means of Roentgen Ray. N. Bigelow and I. Gerber, Providence, R. I.—p. 641.
Incidence and Histopathology of Bone and Cartilage in Tonsil. C. V. Weller, Ann Arbor, Mich.—p. 687.
Relation of Optic Nerve to Last Posterior Ethmoid Cell. S. B. Westlake, St. Louis.—p. 729.
Study of Mechanism of Pain as Seen in Rhinologic and Laryngologic Cases. L. Hubert, New York.—p. 749.
Recent Nasal Fractures. I. Frank, Chicago.—p. 768.
Otologist in Field of Sociology (Alliance of Medical and Social Sciences in Prevention and Palliation of Acquired Deafness). W. C. Phillips, New York.—p. 780.
Aids of Hearing. G. Beery, Worcester, Mass.—p. 807.
Mastoiditis in Aged. R. A. Fenton, Portland, Ore.—p. 810.
Alcohol Injections as Possible Adjunct to Tonsillectomy Under Local Anesthesia. R. Sonnenschein, Chicago.—p. 827.
Clinical Diagnosis of Laryngeal Tuberculosis. F. R. Spencer, Boulder, Colo.—p. 838.
Differentiation of Neurolabyrinthitis Syphilitica and Labyrinthitis Syphilitica Tarda. G. W. Mackenzie, Philadelphia.—p. 847.
Parotid Fistulae After Mastoid Operation. W. E. Grove, Milwaukee. —p. 855.
Lymphoid Tissue in Tonsillar Fossae Following Tonsillectomy. B. B. Grichter and S. J. Pearlman, Chicago.—p. 860.
Clinical and Pathologic Study of Tonsil Cases. A. G. Morris, Rochester, N. Y.—p. 864.
Radical Mastoidectomy; Complete Healing. Method of Controlling Persistent Vertigo. J. L. Maybaum, New York.—p. 875.
Some Aspects of Aphonia, Psychic and Otherwise. J. A. Babbett, Philadelphia.—p. 879.
Foreign Bodies in Upper Air and Food Passages. Clinical Report. H. B. Graham, San Francisco.—p. 886.
Cochlea-Palpebral Reflex in Infants. T. Demetriades, Athens, Greece. —p. 894.
Precautions in Using Local Anesthesia. Report of Death. C. C. Eves, Philadelphia.—p. 904.
Waring Suction Tonsillectomy. J. B. H. Waring, Blanchester, Ohio. —p. 913.
Otogenic Sympathetic Meningitis: Report of Case with Recovery After Radical Mastoid Operation. J. W. Downey, Jr., F. A. Pacienza and O. G. Costa, Baltimore.—p. 923.

Archives of Dermatology and Syphilology, Chicago

8: 325-460 (Sept.) 1923

*Malignant Melanoma in Negro. L. A. Sutton and W. M. Mallia, Albany, N. Y.—p. 325.
Urticaria Pigmentosa (Nodular Type). Summary of Literature. Report of Case. C. W. Finnerud, Chicago.—p. 344.
*Biologic Reactions of Arsphenamin. VII. Relative Therapeutic Efficiency of Gelatin Arsphenamin and Disodium Arsphenamin. J. Oliver, E. Douglas and F. Kolos, San Francisco.—p. 359.
Poikiloderma Atrophicans Vasculare. Conclusion of Previously Reported Case. J. E. Lane, New Haven, Conn.—p. 373.
Keratosis Palmaris Et Plantaris Due to Frambesia. P. D. Gutierrez, Manila, P. I.—p. 382.
Gonorrheal Keratoderma. Report of Case. A. W. Stillians and E. P. Zeisler, Chicago.—p. 393.
*XXIX. Melanoma of Lower Lip. Report of Case. E. W. Netherton, St. Louis.—p. 402.
*Experimental Aspects of Iodid and Bromid Exanthems. U. J. Wile, Ann Arbor, Mich.—p. 407.
Carbon Tetrachlorid in Dermatology. H. E. Alderson, San Francisco. —p. 411.
Colloid Acne. Is Colloid Acne a Form of Colloid Milium? S. S. Greenbaum, Philadelphia.—p. 417.

Malignant Melanoma in Negro.—A complete study of a fatal case of malignant melanoma of the left leg in an aged negress, with necropsy findings, is presented by Sutton and Mallia. Of chief clinical interest was the syndrome which led to the diagnosis of gangrene of the leg and to amputation supposedly for this condition. This consisted of (*a*) marked generalized arteriosclerosis; (*b*) falling off of the small toe; (*c*) diffuse blackening of the skin of the entire leg; (*d*) edematous swelling. The tumor arose in the region of the small toe and invaded diffusely the subcutaneous tissues, blood and lymph channels, the leg as far as the inguinal ligament being uniformly pitch black. Metastasis occurred to the liver, lungs, kidneys, heart, spleen, uterus and retroperitoneal tissues. No pigmented nevus or other growth was found as a starting point. The question is raised as to the possibility of chronic irritation and two fairly definite injuries to the small toe, together with local anemia, being responsible for the genesis of the new growth which may have been derived from the chromatoblasts of the negro's epidermis.

Therapeutic Efficiency of Gelatin Arsphenamin and Disodium Arsphenamin. — According to the observations reported on by Oliver et al., gelatin arsphenamin is somewhat less trypanicidal in vitro than disodium arsphenamin. Gelatin arsphenamin is retained in the animal at a higher concentration for a longer period than is disodium arsphenamin. Gelatin arsphenamin is as effective as disodium arsphenamin in the treatment of experimental trypanosomiasis and rabbit syphilis. Under certain conditions it is more effective. Therapeutic indexes established on the basis of the late or chemical toxicity of the two preparations favor gelatin arsphenamin as compared to disodium arsphenamin. The immediate toxic effects of disodium arsphenamin may be avoided under experimental conditions by the use of gelatin arsphenamin without any sacrifice in therapeutic efficiency.

Melanoma of Lip in Child.—A case of melanoma of the lower lip occurring at a very early age (2 years) is reported by Netherton. Although histologically the tumor was a melanoma, clinically it could not be differentiated from sarcoma. The rapidity of growth following roentgen-ray therapy was characteristic of melanoma. The prognosis was hopeless.

Iodid and Bromid Exanthems.—Three patients, all women, suffering from mental and cutaneous manifestations of bromism, were markedly benefited, both with regard to the mental state and to the cutaneous condition, by the intravenous administration of decinormal sodium chlorid solution given at two or three day intervals. In all three cases bromin could not be determined in the urine previous to the administration of the salt solution. The prompt appearance of the bromin in two cases following the first injection and in the third case following the second injection, leads Wile to the conclusion that the mass action of the chlorid had thrown bromid out into the blood, relieving the apparent mental toxemia, and in a similar fashion causing a marked diminution and gradual disappearance of the cutaneous manifestations. Intravenous injection of physiologic solution of sodium chlorid is advocated in the treatment of both cutaneous and mental symptoms of "bromism."

Archives of Neurology and Psychiatry, Chicago

10: 267-380 (Sept.) 1923

*Centrifugation of Nervous System. Method for Neurocytologic Study. An Experimental Investigation of Cellular Changes in Commotion. S. Ingvar. Lund, Sweden.—p. 267.
*Histologic Changes Produced Experimentally in Central Nervous System of Monkeys by Mercury. B. Lucke and J. A. Kolmer, Philadelphia.—p. 288.
Sella Turcica of Mongolian Imbeciles. G. S. Stevenson and A. D. Stultz, Vineland, N. J.—p. 299.
Case of Porencephalic Defect Associated with Tuberculous Encephalitis. Histopathologic Support to Strümpell Theory of Inflammation. R. P. Winterode, Crownsville, Md., and N. D. C. Lewis, Washington, D. C.—p. 304.
Experimental Vestibular Tremors with Analogous Clinical Cases. C. L. Woolsey, Boston.—p. 314.
*Neurosyphilis in Aged. A. E. Bennett, Philadelphia.—p. 324.
Factor of Deterioration in Children Showing Behavior Difficulties After Epidemic Encephalitis. M. Sherman and B. I. Beverly, Chicago.—p. 329.

Effect of Centrifugation on Living Ganglion Cells.—Ingvar asserts that prolonged intense centrifugation of living ganglion cells can bring about a separation of the cell constituents or an alteration of their mutual interrelations. This has a bearing on the effects of severe trauma, concussions and other physical forces on the nervous system. It supports strongly the assumption that direct cellular disturbances are the cause of many acute commotional symptoms. The part of the ganglion cell that can be moved most easily within the cell by centrifugation is the nucleolus. After a short centrifugation this is always thrown to the distal end of the nucleus and proves that this latter is a vesicle, the contents of which have a low viscosity. The next most conspicuous change after centrifugation consists in an accumulation of the chromatophil substances at the distal end of the cell, and proves that these bodies must exist in a fluid condition in the living cell. This accords with the observations on the living cell with the

ultramicroscope. The canalicular apparatus is squeezed out of its position in the cell by centrifugation, but maintains its normal morphologic character; this demonstrates that the contents of this apparatus do not mix with the chromatophil substances and that they probably have a high viscosity. The neurofibrils show less elasticity than surrounding constituents and can be separated from other parts of the cell. The whole net of neurofibrils loosens as a unit from the cell membrane and, when centrifugation has been sufficiently strong, occupies the center of the cell and encloses the nucleus. This, Ingvar asserts, proves that the doubts raised in modern histologic literature as to the neurofibrils are not justified; the neurofibrils exist in the living specimen and are not artefacts brought about by fixative agents.

Effect of Mercury on Central Nervous System.—Mercury, administered by Lucke and Kolmer over a period of three months to monkeys, caused proliferative, degenerative, and slight exudative changes in the central nervous system. It is suggested that mercurial administrations may play a minor rôle in the production of the histopathologic picture of general paralysis.

Neurosyphilis in Aged.—Bennett presents the results of a study of nineteen cases of senile neurosyphilis occurring in a series of 2,175 cases of all types of nervous syphilis.

Archives of Surgery, Chicago

7: 237-468 (Sept.) 1923.

*Extensive Hemorrhagic Extravasation from Venous System of Galen, with Clinical Syndrome. Report of Three Fatal Cases with Two Necropsies. C. Bagley, Jr., Baltimore.—p. 237.
Resection of Proximal Colon for Malignancy. F. W. Rankin, Louisville, Ky., and A. J. Scholl, Rochester, Minn.—p. 258.
*Unusual Alteration in Natural History of Giant Cell Tumor of Bone. W. S. Stone and J. Ewing, New York.—p. 280.
*Brain Abscess with Especial Reference to Abscess of Frontal Lobe. H. H. Kerr, Washington, D. C.—p. 297.
*Transfusion of Unmodified Blood (Unger Method). O. A. Brines, Detroit.—p. 306.
*Empyema Necessitatis and Some Allied Conditions. F. J. Tees, Montreal.—p. 321.
Intra-Abdominal Hernia. N. H. Copenhaver, Rochester, Minn.—p. 332.
*Deetherization by Means of Carbon Dioxid Inhalations. Pulmonary Ventilations and Ether Tension During Anesthesia. J. C. White, Boston.—p. 347.
*Endothelioma of Spleen. Study of Two Cases. Review of Literature of Primary Malignancy of Spleen. C. E. Smith and G. Y. Rusk, San Francisco.—p. 371.
Twenty-First Report of Progress in Orthopedic Surgery. R. B. Osgood, R. Soutter, H. C. Low, M. S. Danforth, C. H. Bucholtz, Lloyd T. Brown, P. D. Wilson and M. N. Smith-Petersen, Boston.—p. 415.

Hemorrhagic Extravasation from Venous System of Galen.—The clinical course was identical in the three cases reported by Bagley. An early sharp rise of temperature, amounting to nearly 3 degrees, a few minutes after the accident in the one case, and to 5.5 degrees ten hours after in the second case, marked the beginning of a hyperpyrexia that continued throughout the course and gradually increased to from 106 to 107 F. in all cases at the time of death. The respiratory and pulse rates were greatly elevated in all cases. In one case the pulse rate was 120 and the respirations 56 a few hours after the accident, and the pulse rate was 160 before the end of twenty-four hours after coming under observation, after which it ranged between 125 and 170. The respiration rate during the entire course ranged between 26 and 62 per minute. In all cases, muscle power was affected to a greater or less degree, and increase of deep reflexes was present. Disturbance was chiefly of the spastic type, with predominance of loss of power on one side in one case. The pupillary reactions were disturbed and there was blood in the cerebrospinal fluid in all cases. In the same case a small opening was made in the temporal region and the intracranial tension was found to be less than normal; indeed, the brain seemed to be almost shriveled and was very easily compressed by the spatula. In the second case, the ventricle was aspirated through a burr opening over the occipital pole. In this case, there was a space of at least 1 cm. between the dura and the cortex of the brain showing lack of a normal degree of intracranial pressure. The pathologic findings in the two cases that came to necropsy, Bagley believes, justify the conclusion that the symptom complex was based on a definite morbid state. The morbid anatomy was so definitely limited to the structures anatomically related to the vein of Galen and its tributaries that it is believed such a syndrome can be accounted for in the lesions described. Some of the signs—for example, disturbance of muscles, spasticity, weakness and increase of deep reflexes—are fully accounted for by the pathologic findings; while others, hyperpyrexia, unconsciousness, and low intracranial pressure, could, perhaps, better be attributed to lesions of this part of the brain than to those of any other.

Unusual Alteration of Giant Cell Tumor.—The record of the case presented by Stone and Ewing is of interest from several aspects. The transformation of the structure of a benign giant cell tumor, while evidently very rare and not previously recorded in this disease, finds a parallel in similar transformations that have occurred in many other tumors, benign and malignant, after surgical and other forms of trauma. The development of metastases in this case proves no exception to the rule that the benign giant cell tumor never produces metastases. Here, the metastasizing tumor was not a giant cell tumor, but a malignant growth that developed out of a giant cell growth, as the result of various insults, in which curettage and imperfect irradiation probably played the chief part. Search of the literature seems to show that there is no satisfactory record of metastasis of a giant cell tumor in its original form. The occurrence of metastases in this case seems to stand as a somewhat hazardous feature of the usual surgical treatment of the benign giant cell tumor and as evidence in favor of the treatment by external radiation. The unfortunate outcome in this case suggests that the surgical plan of treatment, if adopted in these cases, should be adhered to, and that it is unwise to attempt to combine surgical methods with postoperative radiation by means of radium inserted in the tumor cavity.

Abscess of Frontal Lobe.—Kerr has analyzed 113 of these cases, and finds that 44 per cent., or nearly half of them, were not recognized until necropsy. It is evident that there is need of careful study of all cases in the hope of improving the diagnosis of frontal lobe abscess. This study includes six cases observed by Kerr.

Transfusion of Unmodified Blood.—While Brines would not recommend that the citrate method be abandoned, yet he advocates that the whole blood method should, whenever possible, be substituted for it; however, there is never a time when citrated blood is as good as whole blood. The Unger method seems to be the most simple and most generally successful for the giving of blood directly. This method insures promptness, as no time need be consumed by preliminary details or arrangements.

Empyema Necessitatis.—Tees describes some of the sequelae possible when a purulent pleural effusion has been allowed to take its own course. In the first case, an unrecognized empyema found its way through a weak spot in the upper anterior chest wall. In the second case, a massive empyema, commencing to point in a corresponding region, subsided after adequate drainage of the chest was established. In the third case, a fluctuating swelling in the chest wall arose from an old underlying empyema which had remained latent for four years. In the fourth case, with the history of a purulent effusion two and a half years previously, apparently cured, the diagnosis was established on the appearance of a superficial abscess at the site of the former rib resection. In connection with the last case, that of a basal empyema pointing in the loin, a detailed description is given of the anatomic relations which make this possible.

Deetherization by Means of Carbon Dioxid.—A study of forty cases by White has shown that the use of carbon dioxid to accelerate deetherization by stimulating respiration confers the following benefits: (*a*) the volume of respiration can be raised to any desired level; (*b*) recovery of consciousness is from three to five times more rapid; (*c*) blood pressure, circulation and color are materially improved; (*d*) nausea, vomiting and other subjective disagreeable sensations following ether anesthesia are reduced. Other indications for the use of carbon dioxid as a stimulus to respiration are: (*a*) in cases in which the respiratory center is depressed, not by the ether but by direct pressure or injury; for example, the above

mentioned cases of cerebellar tumor, brain abscess and fractured skull, in which carbon dioxid was the means of restoring normal respiratory function; (*b*) in the treatment of failing respiration during the period that ether is given. Whether this is due to a hypocapnea following a period of exaggerated breathing, or to an actual depression of the respiratory center by the ether, the findings in two cases suggest that carbon dioxid can restore normal respiration. In no instance have any signs of acidosis or other harmful effects attributable to carbon dioxid been noted.

Endothelioma of Spleen.—Smith and Rusk report two cases of primary endothelioma of the spleen arising from the endothelial cells of the sinuses. One hundred and four cases of malignant disease of the spleen were found reported in the literature. Lymphosarcoma is probably the most common type of tumor and is usually part of a generalized process which may appear simultaneously or later in other lymphoid tissues of the body. Exploratory laparotomy is justifiable in cases in which a well founded suspicion exists as to the presence of spleen tumors.

Arkansas Medical Society Journal, Little Rock

20: 75-84 (Sept.) 1923

Chronic Prostatitis. H. Fay, H. Jones, Little Rock.—p. 75.
*Hernia of Small Intestine Through Uterus. L. Kirby, Harrison.—p 79.

Hernia of Small Intestine Through Uterus.—Nothing is said by Kirby as to how the coil of intestine came to be in the uterus. The patient was not pregnant but was having irregular labor pains and had a slightly blood stained watery vaginal flow. The doctor in charge waited on the progress of labor for about ten hours, when he decided he could not prevent an abortion. He used a dilator until he could introduce his index finger into the uterus, when he felt a mass slightly elastic like a bag of waters. When he pulled the mass down into the vagina, he found it to be dark colored and congested; its walls thicker than a bag of waters. The mass was almost black in color and inelastic. Kirby twisted it off near the fundus uteri, introduced his finger into the uterus, and finding no indication of recent pregnancy, lightly packed the uterus with gauze. At operation the small intestines and omentum were found bound together, lying over the uterus, and attached to the right ovary and fallopian tube. Some of the adhesions were so firm they had to be cut and tied off. The small intestines were attached in a V shape to the upper and back part of the fundus uteri. The opening in the uterus was about one-half inch long.

Atlantic Medical Journal, Harrisburg, Pa.

26: 797-883 (Sept.) 1923

Early Diagnosis and Treatment of Malignant Disease of Larynx. F. O. Lewis, Philadelphia.—p. 797.
Medical Care of Dependent Children. H. H. Jenks, Philadelphia.—p. 799.
Preventable and Correctible Deformities of Childhood. E. W. Fiske, Pittsburgh.—p. 804.
Importance of Closer Obstetric and Pediatric Relations. J. K. Everhart, Pittsburgh.—p. 807.
Atypical Mastoiditis. M. S. Ersner, Philadelphia.—p. 811.
Value of Test Meal Studies. T. G. Schnabel, Philadelphia.—p. 819.
Some Neuro-ophthalmic Studies of War Injuries. H. W. Scarlett, Philadelphia.—p. 823.
Morbidity That Follows Prostatectomy. A. Randall, Philadelphia.—p. 827.
Voice Production. With Few Suggestions for Treating Hoarseness and Loss of Voice in Singers. R. F. Ridpath, Philadelphia.—p. 831.

Boston Medical and Surgical Journal

189: 425-456 (Sept. 27) 1923

*Acute Perforations of Stomach and Duodenum. C. L. Gibson, New York.—p. 425.
How Pathology Explains Clinical Symptoms Found in Ectopic Gestation. J. O. Polak, Brooklyn, N. Y.—p. 433.
Art and Science of Medicine. D. Gregg, Wellesley.—p. 438.
Modern Surgery of Prostate Gland. O. S. Lowsley, New York.—p. 441.

Acute Perforations of Stomach and Duodenum.—Seventy-six cases form the basis of Gibson's paper. A few facts emphasized are: (*a*) the relative immunity of women to acute perforations—only five out of seventy-six, four of these being gastric; (*b*) no patient under 20, the greatest number being between 30 and 40; (*c*) duodenal ulcer gives severer symptoms and a longer history; (*d*) the mortality of gastric ulcers is a little higher than that of duodenal ulcers, and (*e*) the occurrence of the ulcer in stomach and duodenum was the same—namely, thirty-eight each.

California State Journal of Medicine, San Francisco

21: 363-408 (Sept.) 1923

Graduate Instruction for Physicians in General Practice. T. C. Routley, Toronto.—p. 363.
Latent Stage of Gallstones and Its Early Recognition. H. Herbert, Los Angeles.—p. 366.
*Treatment of Ureter When Nephrectomy Is Done for Tuberculosis of Kidney. L. R. Reynolds, San Francisco.—p. 369.
Perineal and Suprapubic Prostatectomy and Choice of Operation in Types of Cases. R. V. Day, Los Angeles.—p. 371.
*Peritonsillar Abscess. Less Painful and More Efficient Method of Treatment. R. S. Irvine, San Francisco.—p. 373.
Radiotherapy of Tuberculous Lymph Nodes. P. H. Pierson, San Francisco.—p. 378.

Combined Ureterectomy and Nephrectomy.—In certain cases, even though the pathology of the ureter may not be entirely plain in the mind of the investigator, enough is certain to justify the operation of combined ureterectomy and nephrectomy. This was found to be true in cases reported by Reynolds and although not all were infected with tuberculosis, in each case the ureter was badly diseased and would undoubtedly have been the cause of a slowly healing sinus following nephrectomy. The combined operation recommended may be begun either on the kidney or the ureter, depending on the necessities of the particular case.

Treatment of Peritonsillar Abscess.—The method advocated by Irvine is as follows: The patient lies with face turned toward the affected side (if it be unilateral), a small mouth gag is placed between the teeth and complete anesthesia is induced. The anesthetic mask is then removed; the jaw is quickly opened by a mouth gag; the position and type of abscess are determined by palpation with the finger; a sponge holder is placed behind the swelling; blunt tonsil scissors, curved to a right angle, are passed between the tonsil and the anterior pillar and the abscess cavity is entered. The scissors blades are then opened as widely as necessary to evacuate the pus which is prevented from entering the larynx by the sponge and by the voluntary action of the patient, who by this time is sufficiently awake to clear the throat. If pus is not obtained at the point of entry of the scissors blade, it is proper to search with the blunt point until it is encountered. Tonsillectomy is performed two or three weeks later. The points of advantage claimed for this method are: (1) accurate localization of the abscess; (2) maximum safety and thoroughness in evacuation; (3) minimum damage to pillars and palate; (4) absence of pain during operation.

Canadian Medical Association Journal, Montreal

13: 627-702 (Sept.) 1923

Injuries to Forearm and Hand. J. A. Gunn.—p. 627.
Severe Industrial Injuries to Fingers and Their Treatment. C. L. Roman.—p. 633.
Retropharyngeal Abscess and Erosion of Internal Carotid Artery. D. E. S. Wishart.—p. 635.
Pathology of Endemic Goiter. J. Miller.—p. 642.
Some Unusual Feeding Cases. A. Goldbloom.—p. 646.
Results of Radium Treatment in Sarcoma. W. H. B. Aikins.—p. 654.
Medical Experiences Among Kwquithlih Indians Along Discovery Passage. B. C. W. F. Shaw.—p. 657.
Industrial Medicine. Its Motives and Merits. B. L. Wyatt.—p. 660.
Treatment of Bladder Tumors. R. Pearse.—p. 663.
Report of Epidemic of Typhoid Fever at Mansonville, Quebec. H. E. Gillanders.—p. 666.
Case of Streptococcus Viridans Bacteriemia with Endocarditis and Apparent Recovery. H. McPhedran.—p. 669.
Some Aspects of Experimental Pneumonia. A. Malloch.—p. 671.

Florida Medical Association Journal, St. Augustine and Jacksonville

10: 65-94 (Sept.) 1923

Diarrheas of Infancy. F. C. Moor, Tallahassee.—p. 65.
Safeguarding Prostatectomy. J. C. Vinson, Tampa.—p. 68.
Gastric and Duodenal Ulcers. P. C. Perry and H. L. Brillhart, Jacksonville.—p. 70.
Diagnostic Points of "Acute Abdomen." J. S. Turberville, Century.—p. 74.
Ectopic Beats, Their Significance and Treatment. E. W. Bitzer, Tampa.—p. 77.
Application of Diagnostic Methods. T. Z. Cason, Jacksonville.—p. 79.
Case of Myelogenous Leukemia. M. Freeman, Perrine.—p. 81.

Journal of Industrial Hygiene, Boston

5: 149-188 (Sept.) 1923

Undernourishment in Industry. II. W. H. Bunn, Youngstown, Ohio. —p. 149.
VI. Absorption of Lead by Upper Respiratory Passages. H. L. Blumgart, Boston.—p. 153.
Control and Prevention of Tetrachlorethane Poisoning. D. C. Parmenter, Boston.—p. 159.
Atmospheric Particulate Matter: II. Use of Electric Precipitation for Quantitative Determinations and Microscopy. P. Drinker, R. M. Thomson, and S. M. Fitchet, Boston.—p. 162.

Journal of Metabolic Research, Morristown, N. J.

3: 373-510 (March) 1923

*Amino-Acids in Nutrition. VI. Nature of Supplementary Value of Protein-Free Milk to Total Proteins of Milk. B. Sure, Fayetteville, Ark.—p. 373.
*Id. VII. Cause of Nutritive Inadequacy of Proteins of Georgia Velvet Bean (Stilzilobium Deeringianum). B. Sure, Fayetteville, Ark. —p. 383.
*Vitamin Potency of Cod Liver Oils. II. "Spring" Cod Liver Oil. A. D. Holmes, Boston.—p. 393.
*After-Effects of Prolonged Fasting on Basal Metabolism Rate. M. M. Kunde, Chicago.—p. 399.
*Physiologic Action of Saccharin. A. J. Carlson, C. J. Eldrige, H. P. Martin and F. L. Foran, Chicago.—p. 451.
Diet Treatment of Diabetes Insipidus. F. M. Allen and J. W. Sherrill, Morristown, N. J.—p. 479.

Supplementary Value of Protein-Free Milk.—Sure asserts that lactalbumin has no supplementary value to the casein in milk when the total proteins of milk are fed at a 10 per cent. level. Protein-free milk has a significant supplementary value to the total proteins of milk at a 10 per cent. plane of protein intake which may be attributed either to cystin or to some organic sulphur compound which the animal organism can readily transform into cystin. Protein-free milk also has additional supplementary value when introduced to the extent of 28 per cent. of the total ration by adding traces of tyrosin.

Indigestibility and Amino-Acid Deficiency of Proteins.—In addition to indigestibility, Sure says, amino-acid deficiency should be considered as another factor responsible for the nutritive inadequacy of the proteins in question, and that cystin is one of the amino-acids responsible for that deficiency.

Vitamin Potency of Cod Liver Oil.—Holmes' study shows that cod liver oils from emaciated fish may be highly potent in vitamin A, but cod liver oils obtained from plump cod fish have a higher vitamin potency than the oil obtained from emaciated fish.

Effect of Prolonged Fasting on Basal Metabolism.—A fast of forty-one days in dogs and fifteen days in man caused no appreciable lowering of the basal metabolic rate during the fasting period of Kunde's experiments. Dogs that had fasted until their initial body weights had been reduced 39 and 45 per cent. not only regained their normal weights, but gained weight on the same dietary which before fasting merely maintained their body weights constant. After the fast they maintained normal weight on a lower calory intake. This indicates a more economical use of the food. It is not due to decreased general activity. There is a temporary increase in the basal metabolic rate as an effect of prolonged fasting. This temporary increase seems to be proportional to the duration of the fast and loss in body weight. The increased oxygen consumption in dogs was most marked during the time that the body was undergoing rapid growth or gain in weight. The basal metabolic rate of female dogs during rut is normal or slightly lower than normal. The basal metabolic rate during the first four days of menstruation is usually slightly subnormal. There are indications of seasonal variations in the basal metabolic rate of man.

Physiologic Action of Saccharin.—The prevailing view that, except for its action on the organs of taste in the mouth, saccharin is an inert substance, having no action on organs and tissues, according to Carlson et al., is not tenable. Saccharin acting in the mouth decreases appetite, gastric secretion and peptic digestion. Acting in the small intestine, it decreases absorption. Acting on the erythrocytes, it decreases hemolysis. These actions of saccharin cannot be explained by the osmotic factor. Saccharin in the blood, in proportion to its concentration, passes into the lymph, cerebrospinal fluid, saliva, tears and mammary secretion.

Missouri State Medical Association Journal, St. Louis

20: 303-334 (Sept.) 1923

Insulin in Treatment of Diabetes Mellitus. F. Neuhoff, St. Louis.—p. 303.
Relation of Kidney Function Tests to Prognosis and Treatment of Hypertension. D. R. Black, Kansas City.—p. 306.
Diagnosis and Treatment of Exophthalmic Goiter. E. V. Mastin, St. Louis.—p. 311.
*Reduced Carbohydrate Tolerance: Its Possible Significance. G. H. Hoxie, Kansas City.—p. 316.
Hemangioma, with Calcification, Preoperative and Postoperative Roentgen-Ray Findings. H. J. Ravold, St. Joseph.—p. 318.
Recognition and Treatment of Postoperative Complications. F. W. Bailey, St. Louis.—p. 319.

Reduced Carbohydrate Tolerance.—Of 133 cases with a normal basal metabolism ratio, Hoxie found that the carbohydrate metabolism was normal in all but fifty-two. In the cases in which the basal metabolism ratio was above 10 per cent., the normals were 56 per cent. And in the thirty-four cases more than 10 per cent. below normal basal metabolism ratio, the carbohydrate metabolism was normal in eighteen. A rough analysis of cases showing a diabetic curve without glycosuria shows six cases due to focal infection, eight due to endocrin disorder, two due to exhaustion, and one frank diabetes. An analysis of the cases showing a glycosuria with a normal curve shows fourteen cases of focal infection, three of endocrin disorder, and nine of exhaustion. Hoxie calls attention to one factor that is so often present in these cases of reduced carbohydrate tolerance, and that is the factor of systemic exhaustion. This exhaustion may have resulted from sickness or from exertion or from one long continued monotonous activity. The results are the same, a lack of resilience in the bodily tissues. Such a depression of vital forces will show itself in glycosuria with or without the diabetic curve. The curve, however, becomes more and more diabetic the longer the condition persists.

Nebraska State Medical Journal, Norfolk

8: 301-340 (Sept.) 1923

Diagnosis and Treatment of Heart Disease. J. B. Herrick, Chicago.—p. 301.
Focal Infection in Neuropsychiatry. G. A. Young, Omaha.—p. 307.
Doctor's Relatives. L. Stark, Hartington.—p. 310.
Prevention and Cure of Pneumonia. F. A. Wells, Axtell.—p. 313.
Rational Treatment of Pneumonia. F. A. McGrew, Hastings.—p. 316
Local Anesthesia. J. M. Willis, McCook.—p. 324.
Constipation in Children: Etiology and Treatment. E. S. Wegner, York.—p. 327.
Hemorrhage of New-Born. F. Clarke, Omaha.—p. 329.
Case of Megacolon. H. M. McClanahan, Omaha.—p. 331.

New Jersey Medical Society Journal, Orange

20: 289-324 (Sept.) 1923

Oration in Medicine. B. S. Pollak, Jersey City.—p. 289.
Oration in Surgery. S. G. Gant, New York.—p. 294.
The Doctor. J. Becton, Greenville, Texas.—p. 308.
*Case of Situs Inversus. F. H. von Hofe and C. D. Martinetti, Orange. —p. 312.
New Apparatus for Administration of Fluids. E. F. Lane, Brunswick. —p. 312.

Situs Inversus.—In Von Hofe's case the heart was on the right side, the liver on the left. The spleen was not palpable. The child was normal otherwise.

New York Medical Journal and Medical Record

118: 257-332 (Sept. 5) 1923

Medical Fakirs of Athens and Sexual Problems of Babylon in Days of Herodotus. J. Wright, Pleasantville, N. Y.—p. 257.
*Results Obtained by Various Methods in Treatment of Tumors of Bladder. H. H. Young and W. W. Scott, Baltimore.—p. 262.
Retention Neurosis of Bladder, Secondary to Postoperative Catheterization. V. C. Pedersen, New York.—p. 269.
Roentgen Ray and Radium Therapy of Hypertrophied Prostate. H. B. Philips, New York.—p. 272.
Prostatectomy. W. F. Burrows and E. C. Burrows, New York.—p. 276.
*Unsuspected Syphilis. L. Thompson, Hot Springs, Ark.—p. 277.
Results in Treatment of Syphilis F. L. Taylor, New York.—p. 281.
Surgical Kidney. S. W. Schapira, New York and J. Wittenberg, Brooklyn.—p. 284.
Gumma of Nasal Septum. E. M. Schwartz, New York.—p. 289.
Intravenous Administration of Iodids. F. J. Farnell, Providence, R. I. —p. 290.
Treatment of Gonorrheal Epididymitis with Intravenous Injections of Sodium Iodid. L. T. Wright, New York.—p. 292.
Chronic Gonorrhea of Prostate and Seminal Vesicles. W. H. Morton, New York.—p. 294.
Acute Gonorrhea. W. F. McKenna, Brooklyn.—p. 295.

When is Man Cured Who Has Had Gonorrhea? W. M. Brunet, Brooklyn.—p. 297.
Gonorrhea Treated by Infra-Red Light. W. D. Chesney, Chicago.—p. 300.
Unilateral Bifid Ureter, with Duplicate Ureter and Ureterocele on Opposite Side. F. A. Roberts, Newark, N. J.—p. 302.
*Unusual Case of Stone in Bladder. H. Hallarman, New York.—p. 305.
Treatment of Syphilis with Massive Doses of Mercury Intravenously. R. A. Ireland, Charleston, W. Va.—p. 320.
Salts of Bismuth in Syphilis. B. Sherwood-Dunn, Nice, France.—p. 321.
Untoward Results of Intravenous Injection of Sodium Iodid. L. Isaeson, Sioux City, Iowa.—p. 322.

Results of Treatment of Bladder Tumors.—A review of the 380 cases which form the basis of the report made by Young and Scott shows that about 80 per cent. of bladder tumors occur between 40 and 69 years of age, being about equally distributed in these three decades. Both papilloma and carcinoma are much more frequent in the region of the trigone and ureteral orfices and adjacent lateral walls of the bladder and the vesical neck. The anterior wall is less frequently involved and the vertex and upper posterior wall are much more rarely involved. The vertex, anterior, upper lateral and posterior walls are most suitable for resection, and excellent results may be expected by radical removal of a wide margin of bladder wall, but good results may be obtained by resection in the base of the bladder and region of ureters. When the vesical neck and prostate are involved, deep cauterization is far more effective than excision. Fulguration is the method of choice in benign papilloma, but in large tumors radium is of great assistance in causing a rapid disappearance of the tumor, and, owing to the potential malignancy of all vesical papillomata, radium should generally be applied, if possible. In malignant papilloma radium, applied with an operative cystoscope and held firmly in position with clamp fastened to the table, is of first value and gives more brilliant results. Here, again, the conjoint use of fulguration and radium is advisable. The same treatment is sometimes completely effective in papillary carcinoma, and four small and two large tumors of this type and one small infiltrating cancer have been apparently cured by it. When the tumor is definitely malignant or very extensive, and particularly if infiltrating, it should be attacked suprapubically, great care being taken not to touch the tumor or break off any papillary processes; and alcohol or resorcin, 20 per cent., is applied to destroy any that may have dropped into the bladder or wound. If resection can be carried out successfully with a wide area of healthy bladder wall, whether extraperitoneal or transperitoneal or with transplantation of a ureter, it should usually be done, but the operation should not be so extravagantly extensive as to face a very high mortality rate. The position of radium implantation is still sub judice.

Syphilis.—Thompson pleads that all examinations be so conducted that the existence of syphilis will never be overlooked. He offers the following epigram: "Let syphilis be the lodestone of your diagnosis, the polar star of your suspicions, for this ubiquitous disease may mimic any known malady, may attack the prince and the pauper alike, and may invade any tissues or any organ of the body."

Stone in Bladder with Hairpin Nucleus.—Having been refused a life insurance policy because "of something wrong in her urine," a woman, aged 23, consulted Hallermann. On vaginal examination, a hard mass could be felt through the anterior wall of the vagina and on bimanual examination it felt as if it was in the bladder. A cystoscopic and radiologic examination corroborated the diagnosis, but it also showed a hairpin running through the center of the calculus. The calculus had formed around the ends of the pin, resembling a huge bicuspid tooth, the head of the pin projecting free for a distance of 1.5 cm. The whole stone was 8.5 cm. long, 3 cm. in circumference and 2.5 cm. at the points. Chemically, it consisted of natural calcium phosphate and calcium oxalate.

New York State Journal of Medicine

23: 359-396 (Sept.) 1923

Ankylosis: Treatment by Arthroplasty. W. R. MacAusland, Boston.—p. 361.
Normal Blind Spot. S. B. Marlow, Syracuse.—p. 369.
Factors Concerned in Production of Lesions of Eye in Experimental Syphilis. W. H. Brown and L. Pearce, New York.—p. 376.
Surgical Results from Operation for Convergence Strabismus. J. W. White, New York.—p. 380.
Evulsion of Optic Nerve. Report of Case. L. W. Crigler, New York.—p. 382.
Renal Infections Complicating Pregnancy. H. G. Bugbee, New York.—p. 385.

Southwestern Medicine, Phoenix, Ariz.

7: 313-350 (Sept.) 1923

Insulin in Treatment of Diabetes. F. M. Allen, Morristown, N. J.—p. 313.
Id. J. A. Buchanan, Pueblo, Colo.—p. 322.
Radiation of Female Pelvis in Nonmalignant Diseases. J. W. Cathcart, El Paso, Texas.—p. 327.
Central Nervous System Disease Associated with Pernicious Anemia. C. W. Mills, Tucson.—p. 330.

Surgery, Gynecology and Obstetrics, Chicago

37: 255-308 (Sept.) 1923

*Mobilization of Ankylosed Joints. W. R. MacAusland, Boston.—p. 255.
Arthroplasty. P. Santy, Lyon, France.—p. 310.
*Serotherapy and Vaccinotherapy in Surgical Infections. L. Bazy, Paris, France.—p. 320.
Electrochemical Interpretation of Shock and Exhaustion. G. W. Crile, Cleveland.—p. 342.
*Experiments on Infectious Origin of Thrombo-Angiitis Obliterans and Isolation of Specific Organism from Blood Stream. H. M. Rabinowitz, Brooklyn.—p. 353.
I. Fibromyona of Epididymis. II. Paraffinoma of Peritesticular Tissues. J. S. Eisenstaedt, Chicago.—p. 361.
Etiology (Congenital) and Importance of Cystico-Duodenocolic Fold. G. W. Nagel, Rochester, Minn.—p. 365.
Torsion of Spermatic Cord with Gangrene of Testicle: Report of Two Cases. H. W. McKay, Charlotte, N. C.—p. 373.
Dynamic Ileus and Its Causative Factors. F. D. Moore, Chicago.—p. 375.
Ovarian Hematomata. Two Cases. E. M. Blair, Vancouver, B. C.—p. 379.
Epithelization of Maxillary Sinus in Chronically Diseased States. J. E. Sheehan, New York.—p. 384.
*Sharp and Sterile Scalpel. W. W. Babcock, Philadelphia.—p. 389.
"Thermostatic Drip" Apparatus. J. Buckstein, New York.—p. 390.
Case of Diverticulum of Posterior Urethra with Stone. C. P. Howze, Charlottesville, Va., and R. A. Hennessey, Memphis, Tenn.—p. 392.

Mobilization of Ankylosed Joints.—MacAusland reviews the whole subject of arthroplasty as applied to the elbow, hip and knee and stressed these important points: (1) That excision of a joint does not constitute an arthroplasty; (2) that highly developed technical skill is absolutely necessary; (3) that judgment in the selection of cases is very difficult. The paper is long and detailed.

Serotherapy in Surgical Infections.—The various phases of this therapy, theoretical as well as practical, are reviewed by Bazy who is their ardent advocate. He says that surgeons attach great importance to the study of indications for operation. The same sensible course must be followed in serotherapy and vaccinotherapy. The rational use of serotherapy or vaccinotherapy is dominated by the fundamental conception of specificity. Besides, their specific action, serums, like vaccines, have a paraspecific action (colloidal therapy, peptonic action) which it may sometimes be convenient to utilize when the germ of the disease under treatment is not known, or if there is no specific medicine for the germ. In the cure of infections, the first place must be given to specific serotherapy. Bazy insists on the importance of the employment of local serotherapy whenever it is possible.

Infectious Origin of Thrombo-Angiitis Obliterans.—The bacillus isolated by Rabinowitz produced the same lesion in the ears and feet of the rabbit as that which was present in the calf of the leg of the human being. The lesions produced were similar in their gross and microscopic pathology to that produced in the disease known as thromboangiitis obliterans. This bacillus was isolated both from the blood of the local affected portion and from the general blood stream. The organism was distinctly hemoglobinophilic.

Sharp and Sterile Scalpel.—Babcock submerges the scalpel blades in a protective noncorrosive solution and places them in the sterilizer to boil with the other instruments. Knife blades that have been continuously in the solution for more than five years remain bright and sharp and repeated or long continued boiling has little appreciable influence on the cutting edge of instruments covered by the liquid. The solution is miscible with water and is readily rinsed from the instruments. It consists of liquor cresolis compositus, 5 parts and pure glycerin, 95 parts.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

4: 177-240 (Aug.) 1923

*Etiology of Rickets. II. D. N. Paton and A. Watson.—p. 177.
*Experiments on Respiration of Malignant Tissues. G. Ahlgreen.—p. 196.
Rate and Progress of Bacteriophage Action. E. H. Lepper.—p. 204.
*Studies in Experimental Tetany: I. Distribution of Calcium. II. Colloidal and Ionic Calcium. E. W. H. Cruickshank.—p. 213.
*Expression of Results of Wassermann Reaction in Units. J. McIntosh and A. N. Kingsbury.—p. 224.
Autodissociation of Agglutinin-Antigen Complex. T. G. M. Hine.—p. 231.
*Complement Fixation Test in Diagnosis of Gonococcal Infection in Women. E. M. Martland.—p. 235.

Etiology of Rickets.—In experiments reported by Paton and Watson a limitation of the supply of calcium proved to be of more importance in determining the onset of rickets then the limitation of vitamin A. A very restricted supply of calcium, although leading to changes in the bones, chemically and structurally resembling those found in rickets, did not materially reduce the calcium of the blood and muscles, or the inorganic phosphorus content of the blood. The retention of phosphorus appeared to be determined by the retention of the calcium. The percentage of the calcium retained did not vary very markedly with the amount in the food, within the limits investigated from 0.02 to 0.198 gm. calcium oxid per kilogram. The very high percentage retention of lime in the calcium-poor diet makes it difficult to explain the favorable action of cod liver oil on the retention. A comparison of the condition of puppies exposed to sunlight through glass with those from which direct sunlight was excluded showed that the latter condition favored the onset of rickets, but whether it was associated with the lethargy manifested by these puppies is not indicated. The addition of olive oil to a diet which was adequate to prevent rickets actually favored its onset. Cod liver oil exercised a marked effect in favoring the cure of rickets in puppies. The addition of feces from cases of infantile rickets to the diets of puppies, whether on a diet of full cream, milk and bread, or on a diet of separated milk and bread, was not followed by a development of rickets. The injection of blood from cases of active infantile rickets did not produce the condition in puppies on a diet of full cream, milk and bread. While these experiments give no support to the theory that rickets is an infective disease, they do not disprove the possibility that a particular condition of the intestinal flora, which might be propagated by fecal infection, may so modify the absorption of calcium and phosphorus as to lead to rachitic changes.

Respiration of Malignant Tissue.—When studying tumor respiration Ahlgreen says one has not hitherto sufficiently considered either the hydrogen ion concentration or the supply of combustible matter in the tissue the respiration of which is to be tested. The importance of these factors is now made evident. The hydrogen ion concentration should be maintained at the normal blood reaction by a sufficiently powerful buffer substance, preferably by potassium phosphate. To estimate the respiration intensity there must be a sufficient quantity present not only of oxygen (or of some other hydrogen acceptor), but also of a combustible matter, this being consumed without replacement when the tissue is removed from the organism. This is suitably done by adding succinic acid or glycerophosphoric acid, or both simultaneously.

Experimental Tetany; Distribution of Calcium.—The calcium content of 100 c.c. of normal blood amounts to the following average figures: Total 9.12 mg., plasma 8.11 mg., cells 1.10 mg. In tetany, Cruickshank points out, these drop to the average figures: whole blood 5.7 mg., plasma 5.26, and cells 0.46. These figures show a loss of calcium amounting to 27.2 per cent. for whole blood, to 54.4 per cent. for cells, and to 35.2 per cent. for the plasma. Diffusible calcium in normal serum averages from 60 to 70 per cent., while in severe parathyroid tetany it amounts to 94 per cent. of the total calcium. While there is an immediate state of alkalosis following parathyroidectomy, this condition is not necessarily marked, and with the development of the signs of severe tetany it passes rapidly into a condition of acidosis, as shown by a steadily falling p_H of the blood. The immediate relief of the condition consequent on the withdrawal of from 70 to 100 c.c. of blood is indicative of a toxic causative factor. The calcium deficiency and the great loss of colloidal calcium, Cruickshank suggests, are probably indicative of a rapid protein disintegration.

Expression of Results of Wassermann Reaction in Units.—A unit system for the expression of Wassermann results is described by McIntosh and Kingsbury. The method is applicable to any technic of carrying out the Wassermann test by reducing the number of minimum hemolytic doses of complement fixed to the required minimum hemolytic doses for a 5 per cent. suspension of sheep cells, and multiplying this result by the reciprocal of the quantity in cubic centimeters of serum employed.

Complement Fixation Test in Diagnosis of Gonorrhea.—Of seventy-nine cases regarded as genuine gonococcal infections in which Martland did a complement-fixation test, fifty-eight gave a positive result. Of these, however, fifty-five deviated no more than 1 minimum hemolytic dose of complement; twenty-six completely and twenty-nine partially, using antigen A; and twenty-one completely and thirty-four partially, using antigen B. Of the remaining three cases, two deviated 2 minimum hemolytic doses complement completely; on showed complete deviation on two occasions with 4 minimum hemolytic doses. These results establish the fact that a certain degree of deviation is produced in the majority—73 per cent.—of cases regarded as gonococcal, deviation being most constantly shown, as might be expected, in those cases in which infection is of some weeks' standing, and particularly when the disease has passed beyond the purely local stage.

British Journal of Medical Psychology, London

3: 153-266 (Aug.) 1923

Delinquency and Mental Defect. W. N. East.—p. 153.
Id. C. Burt.—p. 168.
Id. F. C. Shrubsall.—p. 179.
Id. W. H. B. Stoddart.—p. 188.
Nature of Autosuggestion. E. Jones.—p. 194.
Relation of Analytical Psychology to Poetic Art. C. G. Jung.—p. 213.

Edinburgh Medical Journal

30: 385-420 (Sept.) 1923

*Paralysis of Pott's Disease. Operation for Its Relief. J. Fraser.—p. 385.
Medicina Antiqua. W. G. A. Robertson.—p. 393.
Surgical Treatment of Embolism of Extremities. J. N. J. Hart'ey.—p. 408.

Operation to Relieve Paralysis Following Pott's Disease.—The operation devised by Fraser has been undertaken to relieve those cases of paralysis secondary to Pott's disease which have failed to respond to conservative treatment. A thorough trial is given to conservative measures, but, if no success is obtained, the paralysis is becoming more extensive, and there is danger of the cord degenerating, resort is had to operation. The operation entails division of the laminae of the affected vertebrae and of one or two laminae above and below the site of the lesion. Fraser asserts that the operation is invariably followed by early and progressive improvement in the paralysis, and, if care is continually exercised in regard to postoperative rest, recovery is complete and permanent. No weakening of the spine follows the operation. This report is based on the records of four cases, in all of which the operation was successful, though in one instance want of care in postoperative treatment resulted in a temporary relapse. The outstanding advantage of the operation is that it appears to relieve the spinal pressure that is maintaining the long standing paralysis, and which, if unrelieved, may result in spinal cord degeneration.

Journal of Laryngology and Otology, Edinburgh

38: 405-460 (Aug.) 1923

Physical Measurements of Minimum Audibility. J. P. Minton and J. G. Wilson.—p. 405.
Acusticus Tumors. F. M. R. Walshe.—p. 419.
Morbid Anatomy and Drainage of Otitic Meningitis. E. D. D. Davis.—p. 427.

38: 461-512 (Sept.) 1923

Lye Strictures of Esophagus. R. M. Kinney.—p. 461.
Lingual Tonsil. J. A. Jones.—p. 465.
Method of Applying Epithelial Grafts to Mastoid Cavity. A. Campbell.—p. 471.
Cysts of Larynx. E. D. D. Davis.—p. 473.
Injury to Larynx Induced by Roentgen-Ray Treatment. A. Van Rossem.—p. 477.

Journal of Physiology, London

57: 337-466 (Aug.) 1923

Effects of Speed on Mechanical Efficiency of Human Muscular Movement. H. Lupton.—p. 337.
*Respiratory Centers. T. Lumsden.—p. 354.
*Pulmonary Edema and Congestion in Heart-Lung Preparation. D. T. Barry.—p. 368.
Humoral Transmission of Excitation on Stimulating Vagus and Sympathetic Nerves of Frog's Heart. R. Brinkman and E. Van Dam.—p. 379.
*Carbon Dioxid Tension and Oxygen Consumption During Artificial Respiration, Acidosis and Alkalosis. J. A. Campbell.—p. 386.
Epinephrin and Vagal Types of Apnea. J. Mellanby and A. St. G. Huggett.—p. 395.
*Action of Vasoconstrictor Substances on Arteries of Brain. F. Roberts.—p. 405.
Activity of Golgi Apparatus in Neurones of Helix Aspersa. F. W. R. Brambell.—p. 415.
*Function of Tubules in Kidney Excretion. E. B. Mayrs.—p. 422.
Antidromic Action. I. J. N. Langley.—p. 428.
Effect of Insulin on Blood Phosphate. V. B. Wigglesworth, C. E. Woodrow, W. Smith and L. B. Winter.—p. 447.
*Relative Importance of Factors Concerned in Formation of Urine. N. B. Dreyer and E. B. Verney.—p. 451.
Influence of Oxygen Supply on Response of Isolated Intestine to Drugs. L. Gross and A. J. Clark.—p. 457.
*Action of Phlorizin on Kidney. E. B. Mayrs.—p. 461.

Location of Respiration Centers.—Rhythmical respiration in the cat and probably in all mammals, Lumsden asserts, is managed by an inspiratory mechanism, the apneic center at the level of the striae acousticae; by an expiratory center just below this level; and both these centers are controlled by a higher center, pneumotaxic center, in the upper half of the pons. The gasping center near the apex of the calamus scriptorius is probably a relic of some previous respiratory mechanism and does not appear to influence true rhythmical breathing of normal type, although it may or may not be a relay in the tract of apneic impulses to the inspiratory muscles.

Pulmonary Edema and Congestion.—In experiments on the heart-lung preparation Barry found that edema of the lung clears up to a varying extent when the colloid osmotic pressure of the blood is raised by a 10 per cent. gum solution. In some instances this was given in hypertonic saline solution. The use of gum clinically for this object seems to be indicated by these experiments.

Effects of Artificial Respiration.—Campbell asserts that artificial respiration decreases the carbon dioxid tension throughout the body, the lowest figures obtained being 21 mm. under the skin, 12 in the abdominal cavity and 7.5 in the arterial blood. Artificial respiration increased the oxygen consumption, the body cells attempting to replace the carbon dioxid pumped out. Artificial respiration decreases the glycogen content of the liver. Sodium bicarbonate injected intravenously increases, whereas hydrochloric acid decreases the oxygen consumption and carbon dioxid production independently of the respiratory center.

Action of Vasoconstrictor Substances on Brain Arteries.—The three vasoconstrictor substances tested by Roberts, pituitary extract, ergotoxin and barium chlorid, all caused diminution or complete stoppage of respiration. Since this effect occurs when the blood pressure is prevented from rising, it must be referred to anemia of the respiratory center by cerebral vasoconstriction. In the rabbit, pituitary extract causes two periods of apnea. Of these the second is proved to be related to cerebral vasoconstriction. Reasons are given for believing that the first is due to a similar cause. The second apnea is sometimes followed by Cheyne-Stokes respiration, the periods of which are related to changes in blood pressure. The fact that these substances all resemble epinephrin in their effect on respiration and especially the close similarity which exists between pituitary extract and epinephrin is confirmatory evidence for the view already expressed that epinephrin is vasoconstictor to the brain.

Function of Kidney Tubules.—No intracellular concentration has been found by Mayrs to occur during excretion of urea and sulphate by the kidney. Evidence obtained by other observers that phenolsulphonephthalein is secreted shows that concentration of the dye takes place in the renal cells. It is, therefore, concluded that urea and sulphate are eliminated by a process other than secretion; and, in view of the relatively small increases in concentration which occur in excretion of waste products as compared to dyes, this conclusion is extended to the urine as a whole. The conception of renal activity which justifies the employment of dyes in efficiency tests is probably erroneous.

Factors Causing Flow of Urine.—Dreyer and Verney present evidence to show that changes in the rate of urine secretion are determined primarily by changes in the height of the blood pressure and not by the velocity of blood flow when the composition of the blood remains unaltered. Changes in the composition of the blood are also preeminently important in this direction when the blood pressure remains constant, being often unaccompanied by any change in the velocity of blood flow. The authors, therefore, conclude that the two physicochemical factors which are of primary importance in the causation of the flow of urine are (*a*) the height of the arterial blood pressure and (*b*) the chemical composition of the blood. Blood flow is a necessary accompaniment of secretion but is not to be regarded as a cause per se.

Action of Phlorizin on Kidney.—All the results obtained by Mayrs are in accord with the absorption theory of the excretion of urine.

Journal of Tropical Medicine and Hygiene, London

26: 273-284 (Sept. 1) 1923

Practical Parasitology in South China. E. C. Faust.—p. 273.
Colombo Drainage. R. E. Tickell.—p. 275.

Lancet, London

2: 493-540 (Sept. 8) 1923

*Extrasensorial Channels of Knowledge. C. Richet.—p. 493.
Two Cases of Actinomycosis Subsequent to Extraction of Teeth. W. T. Warwick.—p. 497.
Outbreak of Acute Goiter in Children's Home. E. W. Adams and H. N. Crossley.—p. 501.
*Causes of Headache. A. B. Pavey-Smith.—p. 503.
*Treatment of Scarlet Fever by Eucalyptus Oil and Phenolated Oil Versus Isolation. G. Gushue-Taylor.—p. 505.
*Gastroduodenostomy versus Gastro-Enterostomy in Treatment of Chronic Duodenal Ulcer. E. R. Flint.—p. 508.
Case of Acute Myelitis, with Recovery. F. J. Jauch.—p. 510.
*Unusual Case of Chickenpox. H. C. Pattin.—p. 510.
Three Cases of Scurvy. R. H. Norgate.—p. 511.

Extrasensorial Channels of Knowledge.—The thesis which Richet sustains and tries to prove by experiment is that a knowledge of reality may be obtained by means other than by the ordinary channels of the senses. He says: "Every one knows that the external world is accessible to us by our senses, by vision, hearing, and touch, and to a less extent by smell and taste. No other ways are known. It is the universal opinion that we can have no other notion of the reality that surrounds us except through our five senses, and that any fact must remain forever unknown unless sight, touch, or vision has revealed it to us. This is the classic and at the same time popular idea. It is formal and exclusive, without itself ever having been demonstrated. To admit that a knowledge of occurrences can arrive at our consciousness by any other means than those of the senses, is a daring and revolutionary proceeding, and yet this is the thesis that I am about to maintain." Richet proposes to call this new science metapsychics. He divides it into two distinct groups: (1) subjective metapsychics, which deals only with the phenomena of consciousness, and (2) objective metapsychics, dealing with the external phenomena which are not explicable by the ordinary laws of mechanics. Much of this discussion concerns second sight, clairvoyance, cryptesthesia, hypnotism, etc., as means of acquiring knowledge.

Classification of Headaches.—The classification of headache in most works of reference is entirely unsatisfactory to Pavey-Smith. He suggests a different classification, dividing headache into three main groups, as follows: 1. Intracranial, due to actual processes occurring within the cranial cavity. 2. Cranial, due to processes affecting the cranial walls and the air spaces contained within them. 3. Extracranial, due to

processes affecting structures outside the cranial walls. By "process" is meant the actual organic condition directly responsible for the head pain. Thus, in an intracranial headache (Group 1) the pain arises as a result of some intracranial change. This intracranial change may itself be due to some extracranial and more general condition, but the headache is only "extracranial" if the actual pain causing lesion is outside the skull. These groups, in fact, refer to the starting point of pain, and not to the condition with which that pain is associated. In supra-orbital neuralgia (Group 3, extracranial) the patient complains of a pain which shoots upward into the forehead, and the maximum tenderness will be found over the nerve. Pressure near the supra-orbital notch will increase the severity and area of the pain. In frontal sinus headache (Group 2, cranial) the pain is fixed, dull, and may be throbbing; the maximum tenderness is usually on the floor of the sinus under the inner third of the supra-orbital margin. Superficial tenderness is not so marked, and pressure over the supra-orbital notch has no definite effect. In supra-orbital headache of intracranial origin (Group 1) there is no tenderness, though there may be hyperesthesia to finer skin tests. That is what the author believes to be the "anatomy of headache." It does not rest on definitely proved facts, but it is put forward as a useful working hypothesis.

Isolation of Prime Importance in Treatment of Scarlet Fever.—The use of eucalyptus oil applied to the skin and of phenolated oil to the throat in the treatment of scarlet fever, according to Gushue-Taylor, (*a*) does not prevent the occurrence of return cases; (*b*) does not prevent the infection spreading to susceptible patients and attendants during the course of treatment, and (*c*) does not prevent secondary complications. The number of return cases varies inversely as the length of the period of detention, when this period is up to about eight weeks. The author advises that all cases of scarlet fever should be isolated for at least eight weeks. They should not be allowed to mingle with other children until the ear, nose and throat appear healthy.

Gastroduodenostomy Operation of Choice for Chronic Duodenal Ulcer.—Flint thinks that gastroduodenostomy will be possible in 90 per cent. or more of cases of duodenal ulcer, and that consequently gastro-enterostomy will only need to be performed in less than 10 per cent. It can be performed in nearly every instance, and with no more risk to the patient than that attached to gastro-enterostomy. No case has been reported of the occurrence of an ulcer at the line of the anastomosis after gastroduodenostomy; this complication occurs in at least 2 per cent. of cases after gastro-enterostomy. It is so unlikely that an ulcer will ever be seen at the anastomotic line after gastroduodenostomy that when Flint has a gastrojejunal or jejunal ulcer to deal with, he excises it, sutures the openings in the stomach and jejunum, and does a gastroduodenostomy.

Chickenpox Eruption Influenced by Previous Exposure to Sun.—While there was a generalized distribution of rash in Pattin's case it was most abundant on the face, forearms, hands, legs and feet, and occurred on the plantar surface of the latter; it appeared on the flexor as well as extensor surfaces, and was, in places, almost confluent. The explanation arrived at respecting the unusual distribution of the eruption was that the sun's heat to which the girl had been exposed four days previously had given rise to heat erythema of the exposed parts, and that this accidental superficial irritation had determined the profuse character of the subsequent eruption.

Medical Journal of Australia, Sydney

2: 161-178 (Aug. 18) 1923

Some Child Welfare Centers in Great Britain, Their Methods and Results. R. H. M. Jull.—p. 161.
Recent Investigations in Growth of Bones in Infancy. E. J. Dalyeli.—p. 166.
Fracture Dislocation of Cervical Vertebrae. G. Bell.—p. 172.
Full Term Extra-Uterine Gestation. Anencephalic Monster. H. O. Lethbridge.—p. 172.

2: 189-216 (Aug. 25) 1923

*Modified Method for Manufacture of Insulin. T. B. Robertson and A. B. Anderson.—p. 189.
Absence of Direct Effect of "Insulin" on Oxidation of Diacetic Acid in Mice. T. B. Robertson.—p. 191.
Treatment of Diabetes by Insulin. C. T. C. de Crespigny.—p. 193.
Defects in Foot That Cause Disability. W. K. Hughes.—p. 199.

Modified Method for Manufacture of Insulin.—Robertson and Anderson add to the extract containing 50 per cent. of alcohol a sufficient amount of anhydrous sodium sulphate or of the exsiccated sulphate ($Na_2SO_4.H_2O$) to remove four-fifths of the water, rendering the alcoholic concentration a little over 80 per cent., as in Collip's method, but in a much smaller volume of fluid, so that much less time is consumed in distillation and rectification of recovered distillates and much less alcohol is wasted. The sodium sulphate can be recovered completely by ignition and can be employed for the same purpose again. The further stages of the process closely resemble those which are now employed at Toronto. A considerable saving of time and reagents is thus effected and the yield of insulin which is obtained compares favorably with that obtained by other more expensive methods.

Medical Journal of South Africa, Johannesburg

19: 1-32 (Aug.) 1923

Johannesburg Municipal Venereal Clinic. H. Gluckman.—p. 1.
Symposium on Cerebrospinal Meningitis. S. Lister.—p. 13.
Clinical Picture and Diagnosis. A. Bloom.—p. 16.
Serum Treatment of Cerebrospinal Fever. A. I. Girdwood.—p. 17.
Insulin: Study in Practical Ethics. C. L. L.—p. 23.

Sei-I-Kwai Medical Journal, Tokyo

42: 1-16 (Aug.) 1923

*Metabolic Changes in Experimental Tetany. T. Togawa.—p. 1.
Bacteriologic Investigation on Rice, Wheat and Barley Juice Culture Medium. S. Otabe.—p. 12.
*Appearance of "Plasma Cells" in Various Organs in Infectious Diseases. R. Hagiwara.—p. 13.
Experimental Study of Bacillus Coli Infection in Kidney. Y. Matsuyama.—p. 15.

Metabolic Changes in Experimental Tetany.—Togawa studied the carbon dioxid combining power of the blood plasma, the antitryptic power and the nonprotein nitrogen content of the serum in cases of experimental tetany on dogs. In parathyroidectomized dogs, showing typical tetanic symptoms, acidosis was always observed. The antitryptic power and the nonprotein nitrogen content of blood serum were usually increased. In thyroidectomized dogs showing no tetanic symptoms acidosis was never observed. A slight alkalosis condition, on the contrary, was sometimes induced. The antitryptic power and the nonprotein nitrogen content of the blood serum remained almost unchanged.

Plasma Cells in Infectious Diseases.—Hagiwara studied the plasma cells in cases of scarlet fever, streptococcemia, measles, diphtheria and whooping cough. They were present in chronic, subacute and acute infectious diseases, especially in the spleen, lymph glands, tonsil, heart, kidney and uterus, etc. The function of the plasma cell seems to be to resorb the destructive tissue in the body and to play some rôle against tissue obstruction. The localization of the cell is limited to the interstitial tissue, especially, around the blood vessels; never inside.

South African Medical Record, Cape Town

21: 365-388 (Aug. 25) 1923

Viscerоptosis. A. Radford.—p. 367.
Spinal and Local Anesthesia. A. Frew.—p. 371.
Nasal Administration of Nitrous Oxid and Oxygen in Dental Surgery. R. M. Muir.—p. 373.
History of Cape Town Hospitals. C. C. Elliott.—p. 377.

Tubercle, London

6: 529-576 (Sept.) 1923

*Bodily Temperature in Health and in Pulmonary Tuberculosis. C. G. R. Goodwin.—p. 529.
Induction of Artificial Pneumothorax with Use of Differential Double Manometers. H. DeC. Woodcock and Z. P. Fernandez.—p. 542.
Domiciliary Treatment of Oseo-Articular Tubercle. W. C. Rivers.—p. 546.

Temperature in Tuberculosis.—The points brought out by Goodwin are: (*a*) for tuberculosis work the rectal method of recording the temperature is the most efficient; (*b*) as the pivot of successful treatment is keeping the patient at complete rest when fever is present, the rectal temperature should be employed in all antituberculosis schemes, so that even

slight degrees of pyrexia may not be missed, and (*c*) temperature records should be employed to a greater extent than seems general in the diagnosis, prognosis and treatment of pulmonary tuberculosis.

Archives des Maladies de l'App. Digestif, Paris

13: 625-728 (July) 1923

*Ulcers of the Lesser Curvature. L. Christophe.—p. 625.

Ulcers of the Lesser Curvature.—Christophe analyzes and discusses the results of different methods of operative treatment in thirty-eight cases of ulcers of the lesser curvature. His method of choice is the annular excision. His cases are described in detail with twenty-six illustrations. The operations date from the years 1907 to 1921. Nearly all the patients were reexamined recently, and the perfect results after annular resection were confirmed anew, he says.

Encéphale, Paris

18: 353-416 (June) 1923

*Serous Meningitis and Cerebral Tumor. H. Claude and H. Schœffer.—p. 353.
Mental Disturbance with Pituitary Tumors. Sainton and Péron.—p. 358.
Presenile Deliriant Psychosis. Halberstadt.—p. 369.
Treatment in Acute Febrile Psychoses. Damaye and Pélawsky.—p. 378.
Associated Cerebellar and Parkinsonian Syndromes. Vullien and Nayrac.—p. 381.
Perforating Ulcer in the Mouth in Case of Tabes Involving Only the Cranial Nerves. Desforges and Baruk.—p. 386.

Serous Meningitis Versus Brain Tumor.—The diagnosis of the cause of intracranial hypertension, in the absence of signs of localization, is always difficult. This syndrome often arises from a cerebral tumor but sometimes it is connected with serous meningitis or ependymitis. In the case cited by Claude and Schœffer there was serous meningitis, but necropsy disclosed a small intracranial fibroma. In this case, as frequently occurs in syndromes of hypertension, glandular disturbances were present; dysmenorrhea, mammary hypersecretion, marked obesity, etc. Compression of the pituitary would formerly have seemed sufficient reason for these symptoms. But today it would be pertinent to inquire whether these symptoms were not due rather to the distention of the floor of the third ventricle, and the centers of the infundibulum. However, disturbance of the pituitary function resulting from compression should not be overlooked as a possible etiologic factor in glandular irregularities.

Gynécologie et Obstétrique, Paris

8: 101-254 (Aug.) 1923

*Retrodisplacement of Nongravid Uterus. H. Henneberg.—p. 101.
*Idem. R. Proust.—p. 123.
*Pregnancy and Pulmonary Tuberculosis. M. Voron.—p. 141.
*Idem. A. Weymeersch and E. Olbrechts.—p. 172.
Anesthesia Procedures in Obstetrics. O. J. Rapin.—p. 211.
Idem. in Gynecology. Schickelé.—p. 234.

Retrodeviation of Nongravid Uterus.—Henneberg summarizes the views of modern gynecologists, including Stacy's article in THE JOURNAL, Sept. 2, 1922, p. 793. Movable backward displacement that does not cause pain needs no treatment. When there is pain, and it ceases as the uterus is restored to place, surgical intervention should be considered, otherwise not, as the pain is due to other causes, possibly anemia, chlorosis, hysteroneurasthenia or ptosis of the stomach, liver or bowel. Persistent sterility, repeated abortions (if syphilis is excluded), are further indications, as is also the slightest tendency to prolapse.

Technic for Surgical Treatment of Retroversion of the Nongravid Uterus.—Proust advocates Doléris' procedure as modified by Gosset for the majority of cases. In addition, if Douglas' pouch is abnormally large, it should be obliterated by Marion's method. If the woman is still in the reproductive age, this should be the rule even with the uterus not movable. If there is no question of future pregnancies, direct fixation is preferable, and for this he commends Terrier's procedure. The bibliography of the last two years is appended.

Pulmonary Tuberculosis in the Pregnant.—Voron declares that treatment should be exclusively medical if the pregnancy has passed the third month; also when the lesions are grave and extensive, or inactive and cicatricial. Medical treatment is indicated also even after the third month when conditions allow artificial pneumothorax, or thorough medical treatment during the entire pregnancy and long enough afterward.

Pregnancy and Tuberculosis.—Weymeersch and Olbrechts present evidence to the effect that tuberculosis does not modify pregnancy much, and the child has the average chance for life and health; but pregnancy seems to reduce the natural defense forces, and this anergy speeds up the tuberculosis. As tuberculosis in the adult seems to be the flaring up of tuberculosis acquired in childhood, this condition of *anergie gravidique*, as Bar calls it, fans the latent embers into a flame. The six articles in this issue were the leading addresses at the third congress of French-speaking gynecologists and obstetricians, at Geneva, in August.

Lyon Chirurgical

20: 421-552 (July-Aug.) 1923

Periarterial Sympathectomy. A. Wojciechowski.—p. 421.
Phlegmonous Enteritis. E. Hammer.—p. 430.
*Cancer of the Parotid. F. J. Collet and P. Bonnet.—p. 435.
Paradental Cysts. H. Aloin.—p. 446.
Innervation of Suprarenals, Kidneys and Upper Ureters. A. Latarjet and P. Bertrand.—p. 452.
Facial Neuralgia. P. Wertheimer.—p. 463.
Encysted Abscess in Tonsil. R. Rendu.—p. 489.

Cancer of Parotid Gland.—Collet and Bonnet report two cases of cancer of the parotid with a paralytic syndrome, drawing therefrom the conclusions that in such cases facial paralysis is always present, and that the syndrome of the retroparotid space seems to be caused by glossopharyngeal, pneumogastric, spinal, hypoglossal and sympathetic disturbances. Prognosis is not favorable, they say, the operability of cancers of the parotid being very limited.

Lyon Médical

132: 635-682 (July 25) 1923

*Coincident Syphilis and Pulmonary Tuberculosis. G. Roque.—p. 635.
Bronchopulmonary Amebiasis. F. Leclerc.—p. 647.

Associated Syphilis and Pulmonary Tuberculosis.—The coexistence of tuberculosis and syphilis was found by Roque in 4 per cent. of his tuberculous patients, and his observations lead him to the conclusion that iodid, on account of its dangers in these circumstances, should in every such case be rejected. Mercurial treatment acts slowly, must be long kept up, and may entail loss of weight and anemia. The only satisfactory results obtained by him from mercury were when it was used in combination with arsphenamin. The most efficacious treatment for this double infection is with the arsenicals. They are dangerous, however, as the tuberculous liver is always diseased, and in some cases a superposed arsenic toxemia might induce flaring up of the tuberculous process. The arsenicals should never be administered in these cases until the laboratory has demonstrated adequate functioning of the liver.

Paris Médical

13: 57-80 (July 21) 1923

Children's Surgery and Orthopedics in 1923. A. Mouchet and C. Rœderer.—p. 57.
Juvenile Osteochondritis Deformans. Frœlich.—p. 65.
Acute Intestinal Invagination. L. Ombrédanne.—p. 68.
Drainage or Suture in Appendicular Peritonitis. P. Hallopeau and J. Baranger.—p. 71.
*Acute Osteomyelitis of Patella. H. L. Rocher.—p. 74.

Acute Osteomyelitis of the Patella.—Rocher reports a case which started inside the joint in the boy, aged 13. The special features of the case were: the sudden onset and rapid evolution (eight days after the first symptoms the articulation was full of staphylococcal pus); his surgical procedure which consisted in total patellectomy after broad arthrotomy, and the satisfactory functional result of the operation. The persisting impotence of the quadriceps muscle has compelled the wearing of an orthopedic appliance to supply elastic traction in front of the joint. Rocher has collected fifty cases from the records of osteomyelitis of the patella; there was a history of trauma in 24, but usually the infectious process develops spontaneously. The osteomyelitis

was acute in all but 5 of the cases. The operations were completely successful in 24 cases; in 10 there was more or less stiffness, and in 3 complete ankylosis. The regeneration of the patella may be anticipated when the cartilage protecting the cavity of the joint and the fibrous periosteal envelop have been saved. In the 10 cases of total patellectomy, regeneration of the patella occurred in 6 patients, all between 5 and 13, but not in 4 other cases including 2 adults.

13: 81-92 (July 28) 1923

Colloidal Theory of Biology and Pathology. A. Lumière.—p. 81.
Iodin Treatment of Trichophytosis. Dong-Ngoc-Dieu and Millous.—p. 88.
Noninfluenzal Tracheitis. G. Rosenthal.—p. 89.
*Syphilis and Mineral Waters. Molinéry.—p. 90.

Syphilis and Mineral Waters.—Molinéry gives a brief account of the utilization of mineral waters in skin affections, starting with reference to their use in the Middle Ages and bringing the history to date. He cites the custom of the South American Indians who, working in the mercury mines, rid themselves of mercurial poisoning by drinking and bathing in sulphur mineral waters. Salles has recently studied the action of sulphur waters on patients with stomatitis during bismuth treatment. The results of his investigation clearly showed that these patients could support much larger doses of bismuth salts than are ordinarily prescribed, when they were taking sulphur waters.

13: 117-128 (Aug. 11) 1923

Sympathetic Factor in Nitritoid Crisis. E. Juster.—p. 117.
*Panasthenia. M. Reinhold.—p. 121.
*Perforated Ulcers of Small Intestine. M. Chabrut.—p. 124.

Panasthenia.—Reinhold takes exception to the term "neurasthenia" because, he claims, its use is so indefinite as to be an acknowledgment of inability to cope with the real situation. The clinical picture of infectious diseases may be regarded, he says, as an acute panasthenia with fever and sudden denutrition.

Perforated Ulcer of Small Intestine.—Chabrut tells of two cases of perforation of the small intestine from ulceration. There was nothing to suggest syphilis or tuberculosis, and the lesion was certainly not malignant. He assumes a simple ulcer, and remarks that these lesions are never recognized until perforation occurs. His patients were two women, about 54, and both recovered after resection of the segment of bowel involved. No evidence of perforation was found in one case in the resected segment, but the discovery of relics of food in the vicinity showed that perforation must have occurred at some time, and the opening must have become occluded. Leotta found diffuse peritonitis in all but one of the twenty-two cases of ulcer of the small intestine he has found on record, and this exception was a necropsy surprise. Bergeret, however, has published a case in which the operation, sixteen hours after the perforation, showed adhesions plugging the opening.

Presse Médicale, Paris

31: 741-752 (Aug. 29) 1923

*Denervation of the Kidney. F. Legueu and P. Flandrin.—p. 741.
*Emetin for Outpatients in Egypt. Ralli and Panayotatou.—p. 742.

Neurectomy for Denervation of the Kidney.—Legueu and Flandrin have severed the nerves in the pedicle of one kidney in two men and six women to relieve nephralgia with hematuria or hydronephrosis, not severe enough to justify nephrectomy but so extremely painful that something had to be done. The pains vanished at once and permanently. One woman who had been completely crippled by the pain, and had been contemplating suicide, was completely transformed by the operation. Their clinical experience thus sustains the physiologic and the surgical bases and the practical utility of tearing out the nerves in the pedicle of the kidney. They left a few nerve fibers intact in the pedicle, and one patient returned several months later to have the other kidney treated in the same way. This was done, and with equal success.

Emetin in Dispensary Practice.—Ralli's thousands of injections of emetin in outpatients at the Greek hospital in Alexandria have convinced him that emetin is a valuable remedy for the liver even in the absence of dysentery. It aids in reducing malarial congestion in the liver and averting suppuration, and it displays a pronounced hemostatic action in the urinary passages and the lungs.

Pediatria, Naples

31: 577-632 (June 1) 1923

*Purulent Pleurisy in Infants. G. Sillitti.—p. 577.
*Syphilis and Twin Pregnancy. C. Gallo.—p. 599.
Combined Leishmaniasis and Malta Fever. A. Emmanuele.—p. 603.
Arterial Pressure in Pediatrics. A. Nizzoli.—p. 609.
Present Status of Diphtheria in Infants. R. Vaglio.—p. 614.

Purulent Pleurisy in Infants.—Sillitti observed 333 cases of purulent pleuritis in infants and young children. Pneumococci were present in the effusion in about 70 per cent. of the cases. These patients had a comparatively low mortality (23.39 per cent.) and some of them recovered without operation. Vaccine therapy gave encouraging results.

Syphilis and Twin Pregnancy.—Gallo found 3.9 per cent. of twin pregnancies in syphilitic mothers while there were but 2.5 per cent. in nonsyphilitics. The total number of twin pregnancies observed by him in eight years at Naples was 690.

Riforma Medica, Naples

39: 649-672 (July 9) 1923

Mechanism of Precipitation Reaction in Tuberculosis. A. de Martini.—p. 649.
*Transfusion of Portal Vein Blood. A. Tommaselli.—p. 651.
*Camphorated Oil Tumor. G. Armuzzi.—p. 654.
Cysts of Dental Origin in Lower Jaw. P. G. Bortolucci.—p. 656.

Transfusion of Portal Vein Blood.—Injection of blood from the portal vein of a digesting dog into the jugular vein of a fasting dog did not modify the blood in the recipient dog in any way differently from blood taken at other points (carotid artery). Tommaselli's research thus fails to confirm Widal's doctrine of the proteopexic function of the liver.

Camphorated Oil Tumor.—Only 1 c.c. of camphorated oil had been injected into the woman's thigh, but inflammation followed, and this inflammatory tumor in the connective tissue has kept recurring. The plastron varies in size from time to time, enlarging at the menses or any febrile infection, or slight injury of the region. The tumor is movable on the deep tissues, is hard and tender, and the skin above is red and hot. Although the general condition keeps good, tuberculin tests were positive and elicited a lively reaction in this elaioma, as Armuzzi designates it, a term analogous to paraffinoma.

Archivos Latino-Amer. de Pediatría, Buenos Aires

17: 481-560 (July) 1923

*Tumor of the Spinal Cord. R. Rivarola and J. M. Obarrio.—p. 481.
Papilloma in Larynx of Child. A. Carrau.—p. 496.
*Cardiohepatic Cirrhosis in Children. E. Portu Pereyra.—p. 500.
Infant Ward in Maternity. L. Velasco Blanco and H. Paperini.—p. 508.
*Pyelitis in Young Infants. M. Valabrega.—p. 515.

Tumor of the Spinal Cord.—In Rivarola and Obarrio's case, in a boy, aged 9, the symptoms were ascribed to a tumor compressing the spinal cord from the seventh cervical segment to the first and second dorsal segments. The cerebrospinal fluid was yellow, and it coagulated completely. It contained no cells and gave none of the reactions specific to syphilis, but the albumin content reached 1 per cent. Contrary to anticipations, the large tumor proved to be in the cord instead of extradural.

Hutinel's Cardiohepatic Cirrhosis in Children.—By coincidence, three cases of this rare disease were in Morquio's service at one time in 1922. The heart valves seemed normal, and the heart itself had not enlarged, notwithstanding the adhesive pericarditis and extensive ascites. The comparatively normal myocardium in such cases helps to exclude rheumatic heart disease. Necropsy confirmed the tuberculous nature of the cirrhosis. Ascites is the first and the dominant symptom throughout. The pericarditis, pleural reactions and hypertrophy of the liver may escape the notice of the family until ascites attracts attention. In the one case described in detail, the condition had been stationary for several months in the girl of 7. Then the tuberculosis flared

up in miliary form, rapidly fatal. The liver showed cirrhosis and fatty degeneration.

Pyelitis in Infants.—Valabrega relates that in six years no case of acute pyelitis in an infant had been encountered in the children's ward, dispensary and milk station in his charge until last November. Then three cases were observed in three months. The pyelitis was secondary to intestinal disturbances in two of the infants, and to influenza in the other. This third infant, aged 10 months, recovered completely in two weeks under treatment with methylene blue alone (0.01 gm. twice a day by the mouth, in a 0.2 per cent. solution). The drug caused no stomach derangement, and it was eliminated promptly in the urine. In the second case the infant, aged 20 months, recovered in eighteen days under methylene blue at first, then hexamethylenamin. The third infant had cystitis as well as pyelitis, and symptoms of nephritis became evident toward the last, the child, aged 7 months, finally succumbing. In a fourth case the infant was only 2 months old, and a convulsion was the first sign of trouble. The pyelitis was primary in this case, and it was mild, with prompt recovery. The colon bacillus was found in the urine in all four cases.

Brazil-Medico, Rio de Janeiro

1: 337-350 (June 23) 1923

Treatment of the Neurasthenic. H. Roxo.—p. 337.
The Teaching of Tropical Medicine. P. S. de Magalhaes.—p. 340.
*Influence of Electrolytes on Bacteriophagy. J. da Costa Cruz.—p. 341.
*Sarcosporidiosis of Pork. G. Hasselmann.—p. 342.

Influence of Electrolytes on Bacteriophagy.—Da Costa Cruz tabulates the findings in twenty-two tests which demonstrated that the bacteriophagic action does not occur in the absence of sufficient electrolytes. His tests were made with a 1 per cent. solution of Witte's peptone. This is nearly free from salts, and when 10 c.c. is inoculated with dysentery bacilli and one drop of the bacteriophage, the bacilli develop luxuriantly without a trace of the bacteriophagic action. But after addition of a little sodium chlorid, calcium chlorid or other salt, to bring the molecular concentration to that of 5 per cent. sodium chlorid, there was not the least trace of proliferation of the bacteria. The same results were obtained with the peptone solution to which 3 or 6 per cent. glucose or saccharose had been added, with the bacteriophage. The colonies grew profusely, but addition of even 1 per cent. sodium chlorid enabled the bacteriophage to work, and no colonies developed. The fluid kept clear. Another curious fact observed was that the proliferation of the bacteria seemed exceptionally luxuriant in the peptone-glucose solution inoculated with the Flexner bacillus and the drop of bacteriophage before the 1 per cent. solution chlorid was added. "The influence of the electrolytes displayed in this research seems to suggest the ferment or antibody nature of this transmissible microbic lysis."

Parasites in Meat.—In this third communication from the Agricultural and Veterinary College, the sarcosporidium found in pork is discussed. In twenty samples of apparently perfect pork, Hasselmann found protozoa of the sarcosporidium group deep in the muscle fibers of the hind-quarters.

Archiv für Kinderheilkunde, Stuttgart

73: 81-239 (July 21) 1923

*Physiology and Pathology of the Circulation. E. Rominger.—p. 81.
*Neuroses in Children. J. Zappert.—p. 108.
*Occurrence of Monometal Phosphates in Body Fluids. R. Berg.—p. 127.
*Thickness of Fat in Abdominal Wall. G. Hille.—p. 134.
Case of Inherited Syphilis in Third Generation. Schweizer.—p. 140.
Severe Forms of Anemia in Sepsis. M. Frank.—p. 142.
*Thrombopenic Purpura in Children. M. Schönberger.—p. 152.
*Relative Isolation of Infants. L. Salmony.—p. 157.
*Minor Manifestations Suggesting Epilepsy. R. Kochmann.—p. 163.
*Arsphenamin by the Rectum. C. Noeggerath and H. S. Reichle.—p. 175.
*Kidney Function During Treatment of Syphilis. Haassengier.—p. 190.
*Tuberculin Treatment of Children. W. Röekemann.—p. 200.

Physiology and Pathology of the Circulation.—The phases of this subject studied by Rominger were the arterial blood pressure and the capillary pressure in children. He tabulates the comparative findings in seventy-five healthy children, from 3 days to 14 years old, and five adults. The capillary pressure seems to be independent of the arterial pressure, but the range is about the same in infants as in adults, keeping at a low figure.

Neuroses in Children.—Zappert discusses in turn the seven groups represented by neuropathies, psychopathies, habit neuroses (from pathologic conditional reflexes or from autoerotism), imitation neuroses, Freud's anxiety neuroses, obsession neuroses, and hysteria. He presents evidence that certain symptoms which we have been labeling as psychopathic, in reality are dependent on endocrine influences. Even the participation of different diatheses can be surmised at times. Nervous children are sometimes hypersensitive to different drugs, some of which may have a directly opposite action. He adds that pediatricians must accept a sexual element evident in certain neuroses, even in quite young children. He says further that the ultimate prognosis had better be guarded in the last three of the groups mentioned above.

Monometal Phosphate.—Berg explains that it is chemically impossible for monometal phosphates to occur in the urine or other body fluid so long as they give the Congo alkaline reaction.

Estimation of State of Nourishment.—Hille measures with a compass the width of a horizontal fold taken up in the skin, down to the fascia, to the right of the navel of the reclining child. This usefully supplements inspection in distinguishing between the underfed and the naturally lean children. The average normal diameter of the fold in 678 children at Greifswald was 4.5 mm. in the boys at the age of 7 (7.5 mm. in girls); at 8: 4.5 (8); at 9: 5 (8.5); at 10: 5.5 (10); at 11: 6 (10.5); at 12: 6.5 (12.5); 13: 6 (12.5); at 14: 6.5 (14); at 15: 7; at 16: 6.5 and at 17: 8. A total of 942 children were thus examined.

Purpura in Infant.—The tenth day after birth the child had a hemorrhage from the umbilicus, and the bleeding kept up for three weeks until it was arrested by intramuscular injection of whole blood. There were no further signs of purpura until the child was over 2. Then after a blow on the head from a slight fall, the child developed fever, vomiting and left paralysis, with other symptoms of intracranial hemorrhage. This yielded likewise to intramuscular injection of whole blood. The bleeding time was thirty-two minutes (ear) and thirteen minutes (finger); the blood clot formed but did not retract; serum was not expressed. There were none of the usual signs of thrombopenic purpura on skin and mucous membranes at any time. Twenty minutes after the intramuscular injection of whole blood, the finger bleeding time was four minutes shorter, and the blood plates numbered 172,000 instead of the 52,000 previously found. The paralysis gradually subsided within two weeks. The asymmetry of the mouth was the last to disappear. The case warns of the need to record the bleeding time and the coagulation time in all cases of spontaneous intracranial and umbilical hemorrhage, and to inject whole blood without delay. This seems to exert a stimulating action on the thrombocyte apparatus.

Separation of Younger and Older Infants in Institutions.—Salmony compares the morbidity in 145 infants less than 3 months old, that had been kept separate from other infants, with 145 kept with older infants until they were a year old, and 145 of this latter group of older infants. The data confirm anew the special advantages of isolating infants until they are 3 months old at least.

Recurring Pyknolepsy in Children.—Kochmann bases the diagnosis of pyknolepsy on the extreme frequency of the attacks, their monotonous character and their resistance to drugs of all kinds. The prognosis should be reserved until after puberty; five cases are known in which the pyknolepsy became genuine epilepsy soon after puberty. Treatment seems to be absolutely futile. He describes five cases in detail; one child of 7 outgrew the attacks in two years; in the others, spontaneous remissions of several months were observed, but no permanent cure in any instance.

Arsphenamin by the Rectum.—Arsphenamin kills *Trypanosoma brucei*, and white mice infected with this micro-organism recovered after intrarectal injection of a single dose of about 0.7 mg. of neo-arsphenamin per gram of body weight. The details of the tests are tabulated for twenty-five mice. Nineteen were saved by this means. The curative dose by the rectum seems to be very close to the subcutaneous dose. Eight children were treated with from 0.3 to 0.6 gm. of neo-

arsphenamin by the rectum, and arsenic was found in the urine of the first day in amounts ranging from 0.15 to 0.34 per thousand. The ages ranged from 3 to 6 months in 6; the others were 4 to 13 years old. One child of 4, given 1.2 gm. defecated in an hour and a half, and the urine showed only 0.09 per thousand arsenic. By the intravenous route, the urine contained 2.53 per thousand arsenic after a dose of 0.15 gm. The absorption depends on the length of time the enema is retained. Opium did not seem to help in the experiences related. The outcome therefore of intrarectal administration of arsphenamin preparations depends on the patient's cooperation in retaining the enema. In infants, for whom this method is especially desirable on account of the difficulty of the intravenous technic, the outcome is a matter of luck. The interval before the first stools in these infants was from three to five hours.

Kidney Function During Arsphenamin Treatment of Congenital Syphilis.—Haassengier's charts and curves from five typical cases show that the work of the kidneys proceeded normally throughout the courses of combined mercury and neo-arsphenamin treatment. In the total twenty-seven single tests, nothing to indicate impairment of kidney functioning was observed.

Present Status of Tuberculin Treatment of Children.—Röckemann refers in particular to Petruschky's tuberculin liniment and Moro's tuberculin salve, and describes his experience with these and other methods of tuberculin treatment. He declares that they do not compete with but supplement each other. The liniment is intended to induce a focal reaction, while the salve aims to avoid an internal focal reaction by concentrating the reaction on the skin. The tuberculin is mixed with a substance to soften the horny layer of the skin, and with an excipient which retards absorption.

Deutsche Zeitschrift für Chirurgie, Leipzig

181: 1-144 (Aug.) 1923

*Treatment of Mastitis. Naumann.—p. 1.
*Nephropexy by Fixation from Below. R. Klapp and N. Kleiber.—p. 26.
*Operative Reduction of Hypertrophied Breasts. A. W. Hübener.—p. 40.
*Periproctal Cancer of the Rectum. K. Nather.—p. 48.
*Actinomycosis of Bladder Wall. E. Köster.—p. 60.
*Surgical Complications of Typhus and Relapsing Fever. A. Gregory.—p. 66.
*Hemangiomas of Muscles. E. Gold.—p. 74.
*Origin of Abdominal Pains. K. Buchholz.—p. 84.
*The Stomach After Operations. Bode.—p. 107.
*Occlusion After Gastro-Enterostomy. H. Steindl.—p. 126.
Incarceration of Meckel's Diverticulum. W. Smital.—p. 137.
Formation of Bone in Laparotomy Scar. C. Häbler.—p. 140.

Treatment of Mastitis.—Naumann remarks that mastitis is generally treated with family remedies until conditions reach such a stage it is very difficult to cure. In seventy of 200 cases in Payr's service, the breast was incised below, 1 cm. above the fold, and turned upward (Bardenheuer's *aufklappung* method). This allows access to the abscesses in the breast from the rear by radial incisions, and thorough drainage. When the breast is released, the incision is entirely concealed. Naumann urges this operation as soon as fluctuation is apparent, without wasting time on inadequate and disfiguring partial measures.

Nephropexy from Below.—Klapp and Kleiber draw up the fascia renalis from below, take reefs in it, and suture it to form a solid bag in which the kidney rides freely. Their eleven illustrations show the technic and the excellent outcome in two cases treated with this *fascienreffung*. They say it is far more physiologic than suspending the kidney from a rib or muscle.

Operative Treatment of Hypertrophied Breasts.—Hübener knows of only eighty cases of this kind, and adds another to the list. His patient was a girl, aged 14, and the weight of the huge sagging breasts caused great discomfort. The girl had never menstruated. Both breasts were amputated, retaining the nipples, and the cosmetic result was excellent after a second operation four months later.

Periproctal Cancer.—In the three cases reported, the metastatic periproctal carcinoma was evidently of blood-borne origin and not an implantation cancer. Diffuse carcinoma of the abdomen soon followed. The periproctal cancer is generally assumed to be the primary growth, especially when the primary tumor is not in the abdomen.

Actinomycosis of Bladder Wall.—The actinomycosis was in the form of a villous, polypous tumor of the bladder. The laparotomy revealed an abscess above the bladder, with the rectus muscles hard as wood. The pus contained actinomycetes, and after the abscess had been scraped out, the patient recovered under potassium iodid, roentgen exposures of the bladder and heliotherapy. The man, aged 40, had long had a patch of intertrigo on the abdomen just below the umbilicus, and the ray fungus had secured a foothold here and had invaded the bladder from this point.

Surgical Complications of Typhus and Relapsing Fever.—Gregory states that, in 1920, 13.8 per cent. of his 4,096 cases of typhus presented surgical complications; 10 per cent. in 970 cases in 1921, and in 4 per cent. of the 2,171 cases in 1922. In relapsing fever, the proportion ranged from 1.1 to 3.4 per cent. in 203, 1,124 and 1,376 cases. The surgical complications included abscesses, gangrene, chondritis, osteomyelitis, arthritis and thrombophlebitis. Erysipelas developed in 199 cases of typhus and in 3 of relapsing fever.

Hemangiomas of the Skeletal Musculature.—Three cases of diffuse hemangioma in the muscles of the forearm are described by Gold from the clinical and histologic standpoints. There has been no recurrence or functional disturbance since the radical removal of the hemangioma. The danger is that it may be mistaken for cancer, and the operation thus be unnecessarily mutilating. Even puncture, showing pure blood, may not be decisive.

Abdominal Pain.—Buchholz presents evidence to prove that contraction, from an infectious focus or other cause, in the appendix or colon or elsewhere in the bowel, in the stomach or in the gallbladder, does not induce pain at the spot at first, but only in the celiac ganglion. There is no pain at the spot until the local peritoneum becomes involved. Conditions are different with pain from distention of the bowel; this is felt at the spot, and the pain, periodical at first, gradually grows continuous, instead of the rhythmic waves of pain that correspond to spasmodic contractions. The distention pain gradually wears off, leaving only local tenderness. The pain from peritonitis is continuous from the first, and is more like the pain from a burn. It may fluctuate in intensity but never ceases entirely, and it is strictly localized to the area over the infectious process. The pain-conducting fibers for the viscera are in the splanchnic nerve, and hence the pain from contraction of a viscus is felt in the celiac ganglion.

Differentiation of Gastric Ulcer and Cancer.—Bode discusses in this article the physiology of the stomach after gastro-enterostomy and resection, and describes his success with the fluid interferometer in distinguishing between ulcer and cancer. He has been using this interferometer for a year, and has always found that when it showed the defensive ferments in the patient's serum, the ulcer invariably proved to be of a malignant nature. After the operation, the interferometer also showed when recurrence or metastasis was developing, and thus allowed prophylactic radiotherapy or operative measures in time. Another point emphasized in his article is that cachexia and advanced age do not contraindicate operations on the stomach.

Ileus After Gastro-Enterostomy.—A loop of small intestine had become incarcerated between the stomach, the posterior wall of the abdomen and the anastomosed loop.

Jahrbuch für Kinderheilkunde, Berlin

102: 257-320 (July) 1923

*Goat's Milk in Infant Feeding. E. Brouwer.—p. 257.
Duodenal Juice in Infants. E. Schiff et al.—p. 277.
Digestion of Fat in Infant Stomach. H. Behrendt.—p. 291.
The Granules in the Leukocytes in Infectious Diseases in Children. H. J. Schulten.—p. 303.

Goat's Milk in Infant Feeding.—Brouwer finds a distinct causal connection between the use of goat's milk and severe anemia in infants. He would allow it only after the sixth month.

Klinische Wochenschrift, Berlin

2: 1053-1100 (June 4) 1923

*Analogy Between Leprosy and Tuberculosis. Herxheimer.—p. 1053.
Heterochromia and Sympathetic. F. von Herrenschwant.—p. 1059.
*Epinephrin Reaction in Man. B. Aschner.—p. 1060.
*Epidemic Encephalitis Causing Violent Pains. G. Stertz.—p. 1063.
Dehydrocholalic Acid, Nontoxic Member of Biliary Acid Group. E. Neubauer.—p. 1065.
Fibrinogen Content of Blood in Liver Disease. K. Isaac-Krieger and A. Hiege.—p. 1067.
*Nature of Bacteriophagy. E. Putter and S. Vallen.—p. 1072.
The Wassermann Reaction. K. Monferratos-Floros and G. Sato.—p. 1072.
*Action of Thrombin in Coagulation. E. Wöhlisch.—p. 1073.
Nerves of Thyroid, Parathyroids and Thymus. Braeucker.—p. 1074.
Roentgen-Ray Diagnosis of a Teratoma. J. Pless.—p. 1074.
*Chronic Deforming Arthritis. S. Hirsch.—p. 1075.
Fight Against Venereal Diseases in Stockholm. H. Haustein.—p. 1079.
Significance of Calcium in Blood. E. Billigheimer.—p. 1082. Conc'n.

Analogy Between Leprosy and Tuberculosis.—Herxheimer compares the pathology of leprosy to tuberculosis. He finds a close analogy between the type with nodules in the skin containing many bacilli, and the caseous form of tuberculosis. In the anesthetic form of leprosy, which he compares with proliferative tuberculosis, very few bacilli are found, and the prognosis is better. Reticulo-endothelial cells take up large numbers of bacilli, and degenerate. He found esters of cholesterol and free fatty acids in such cells.

Epinephrin Reaction in Man.—Aschner believes that subcutaneous administration of epinephrin is preferable to intravenous. The speed of resorption is not the main factor except in patients with very pronounced edema. Patients who reacted to subcutaneous injection of epinephrin with a very slight increase in blood pressure, reacted as a rule also feebly to small doses of epinephrin given intravenously. This was especially marked in a case of myxedema. Some of the patients had severe acute pains in the musculature, which she attributes to anemia of the muscles. She is opposed to the terms "vagotonia" and "sympathicotonia," used in a strict sense.

Epidemic Encephalitis Causing Violent Pains.—Stertz describes five cases of encephalitis in which severe pains were the predominant symptom. The cerebrospinal fluid was apparently normal in some.

Nature of Bacteriophagy.—Putter and Vallen correct their former paper. The bacteriophagic properties they found in filtered bouillon were probably due to the use of unsterilized filters, which had been used before for filtering bacteriophages.

Action of Thrombin in Coagulation.—Wöhlisch believes that thrombin changes fibrinogen (which has its isoelectric point in acid reaction) into fibrin with a neutral isoelectric point. Therefore the fibrin coagulates in the practically neutral reaction of the blood.

Diagnosis and Pathogenesis of Chronic Deforming Arthritis.—Hirsch has observed 150 cases of arthritis deformans since 1919, while he encountered only fourteen in the years 1900-1917. A similar phenomenon is the increased frequency of osteopathies. Many cases are developing unilaterally. This depends on static and dynamic factors. The deformations appear at the points of least resistance. He suspects a tuberculous etiology in a large proportion of the cases of arthritis of obscure origin. Removal of diseased tonsils had beneficial effects only in cases of acute rheumatism. It is however indicated for prophylaxis. Exact differentiation between the forms of chronic arthritis is impossible.

2: 1101-1148 (June 11) 1923

Localization of Cerebral Functions. M. Rosenfeld.—p. 1101.
*Shape and Position of Human Stomach. F. W. Müller.—p. 1107.
Myxedema and Pluriglandular Insufficiency. T. Fahr.—p. 1109.
Quantitative Determination of Glycocholic and Taurocholic Acid in Human Bile. F. Rosenthal and M. F. v. Falkenhausen.—p. 1111.
Widal Liver Function Test in Pregnancy. A. Heyn and T. Messtorff.—p. 1114.
*Constitution and Genital Prolapse. E. E. Pribram.—p. 1115.
*Indicanemia at the End of Pregnancy. K. Hellmuth.—p. 1118.
Treatment of Dyspepsia in Infants with Yoghurt. P. Kissoff.—p. 1119.
Physician as Source of Infection in Poliomyelitis. A. Wallgren.—p. 1120.
Nontropical Sprue. H. Schaefer.—p. 1121.
Iodin Treatment of Diseases of Thyroid. Sudeck.—p. 1122.
Dispensary Welfare Work for Cripples. K. Biesalski.—p. 1126.
Finding of Significance as Category of Medical Thinking. O. Schwarz.—p. 1129.

Shape and Position of Human Stomach.—Müller finds that the cowhorn shape of the stomach is due only to the special projection of the stomach, which turns its greater curvature forward. Therefore this form is only a sign of the position, not of the actual shape of the stomach.

Constitution and Genital Prolapse.—Pribram observed among 490 women suffering from prolapse of the uterus, 447 with distinct constitutional deficiencies.

Indicanemia at the End of Pregnancy.—Hellmuth examined the blood of seventy pregnant women for indican. He failed to find any increase above the normal level. This applied even to some patients with eclampsia.

2: 1149-1196 (June 18) 1923

*Endocrine Disturbances in Puberty. J. Wiesel.—p. 1149.
*Arterial Hypertension. J. Pal.—p. 1151.
*Hematoporphyrin and Intestinal Bacteria. H. Kämmerer.—p. 1153.
Theories on Inflammation. H. Gessler.—p. 1155.
Phenobarbital in Treatment of Chorea. F. von Bernuth.—p. 1158.
*Roentgen-Rays and Tubercle Bacilli. Lange and Fraenkel.—p. 1161.
Water Metabolism of Tuberculous Organism. E. Brieger.—p. 1162.
End-Results of Fractures of Neck of Femur. A. Hübner.—p. 1165.
*Increased Sensitivity to Phlorizin in Jaundice. Rosenow.—p. 1166.
Fatty Degeneration. M. Goldberg.—p. 1167.
Serodiagnosis of Syphilis of Rabbits. E. Illert.—p. 1168.
*Cold, Heat and the Thyroid. Parrisius and Schlack.—p. 1168.
Cirrhosis of Liver in a Child. R. Weiss and Bettinger.—p. 1169.
Estimation of Nervous Sequelae of Injuries. M. Reichardt.—p. 1171.
Social Insurance Against Sickness. J. Alexander.—p. 1174.
Present Status of Isolation and Analysis of Antibodies. W. Berger.—p. 1176. Conc'n, p. 1226.

Endocrine Disturbances in Puberty.—Wiesel points out that the whole endocrine system is disturbed if one gland is affected. Not only the sex glands, but also other endocrine (thyroid, suprarenals, thymus) have a normal postembryonic development. The disturbances of the endocrine correlation are almost always due to a hereditary degenerative basis. Abnormal growth of bones, hypertrichosis in girls, or a virile type of hair distribution, hyperthyroidism and chlorosis are the most common types.

Arterial Hypertension.—Pal considers high blood pressure only a symptom, not a disease. It is caused by functional change in the arteries (predisposition to excessive contraction) and starts with "vascular crises" which may be overlooked by the patient. Later on the pressure remains permanently high. He uses the term "hypertension" to designate high pressure in the arteries, and the term "hypertonia" for the increased tonus of the arterial wall, which may persist even if the pressure is low (for instance with heart failure). The primary permanent hypertonia is an angiotonic neurosis, which causes severe anatomic lesions. Its frequency has increased lately. He cites this as a reason to assume a psychogenous origin.

Formation of Hematoporphyrin by Intestinal Bacteria.—Kämmerer found a pronounced formation of hematoporphyrin when blood bouillon had been inoculated with a few loops of the stool of certain patients. The action is due to a synergism of anaerobic and aerobic bacteria.

Action of Roentgen Rays on Tubercle Bacilli.—Lange and Fraenkel found that roentgen rays kill tubercle bacilli only from old cultures (over four weeks). They believe that this refutes the Tribondeau-Bergonié law which postulates that young cells are most susceptible to the rays.

Increased Sensitivity to Phlorizin in Jaundice.—Rosenow found that most patients suffering from icterus become glycosuric after injection of 1 mg. phlorizin.

Action of Cold and Heat on the Thyroid.—Parrisius and Schlack applied bags filled with hot water or ice around the neck of patients with disease of the thyroid, and of controls. The blood sugar sank in nine tenths of the patients after the application of the icebag and in one third of them after the hot water. It rose in more than 50 per cent. of the hot water tests.

Medizinische Klinik, Berlin

19: 965-1002 (July 15) 1923

*Functions of Frontal Brain. Goldstein.—p. 965. Conc'n, p. 1006.
*Masked Cholecystitis. W. Zweig.—p. 969.
Treatment of Tumors with Fluorescent Substances. J. Plesch.—p. 971.
*Perforation of the Uterus. S. Joseph.—p. 973.
*Means to Influence Whooping Cough. C. B. Schroeder.—p. 974.
Hypnoid Neuroses. Rehder.—p. 976.

Study of the Capillary Functions. F. Fischl.—p. 980.
Trauma Exonerated for Abscess in Tabetic Arthropathy. Engel.—p. 983.
Gynecology from Practitioner's Standpoint. E. Runge.—p. 985.
Recent Works on Urology. Paschkis.—p. 988.

Differential Diagnosis of Disease of the Frontal Lobe of the Brain.—Goldstein's study of this subject shows the need for closer analysis of the symptoms from disease in the frontal lobe. The direct consequences of loss of frontal lobe functioning are easier to recognize than those which result from the loss of the frontal lobe's inhibition on the functioning of its three subordinate mechanisms, the cerebellum, the brain-stem and the extrafrontal cortex. The consequence of this isolation of these three mechanisms is seen in the exaggerated reaction to irritation of the vestibular nerve, the exaggerated estimation of weight, size, etc., the protracted motor reaction time, the phenomena of abnormal tension, catalepsy, uncontrollable weeping, mental inhibitions, inability to focus the attention, abnormal uniformity in reactions, abnormal emotional instability, or excessive emotional reactions. With predominance of symptoms from one of these three subordinate centers, it is important to note any suggestion of disturbances from the direct frontal lobe deficit group; for example, any tendency to apraxia with cerebellar symptoms, or to frontal mental disturbances with parkinsonian symptoms. The physical and the mental activity of the frontal brain is along the same general lines, and both, he explains, have evolved from the change in relation to the outer world which came when man began to walk erect.

Masked Cholecystitis.—Zweig has encountered numbers of cases in which the cholecystitis long sailed under the flag of some other disease before the true cause of the symptoms was suspected. In these masked cases, infection from the bowel was responsible for the symptoms, and there were no gallstones. The gallbladder may appear normal to the eye when the microscope will reveal the inflammatory process. In some cases the fever and other symptoms appeared after emotional stress. The symptoms may be merely an atypical fever, with dyspepsia, or there may be atypical attacks of pain, suggesting gastric or duodenal ulcer or appendicitis, but removal of the inflamed gallbladder puts an end at once and permanently to the attacks of pain. In a number of cases the surgeon protested against removing the macroscopically sound gallbladder, but the histologic findings always confirmed the chronic inflammation. In one case the recurring pains were always in the stomach region and extremely severe. A laparotomy showed the stomach and duodenum normal, and the gallbladder macroscopically normal. The surgeon therefore refrained from further intervention. The pains continued, and a year later the gallbladder was removed, when the histologic findings showed severe chronic inflammation. There has not been the slightest return of the pains during the five years since. In another case the chronic cholecystitis was masked by a minute duodenal ulcer. The ulcer was resected, but the pains returned and subsided only after cholecystectomy. In the febrile cases, tuberculosis is generally assumed, and sanatorium treatment is enforced, but without relief. Under forced feeding the symptoms became aggravated, until finally the discovery of tenderness in the gallbladder region, with negative findings elsewhere, cleared up the case, and the supposedly tuberculous patient was restored to health by treatment or removal of the gallbladder. He has found hexamethylenamin useful as a cholagogue and in disinfection of the biliary passages, especially when combined with oxgall, or in the formula: 25 gm. of magnesium carbonate; 25 gm. of sodium bicarbonate; 10 gm. of hexamethylenamin, and 0.3 gm. of papaverin hydrochlorid. A teaspoonful half an hour before meals three times a day. Among the specimen cases described is that of one woman, aged 40, with slight fever in the afternoons for six months, burning pains in the stomach region and hunger pain, with anemia, constipation and cachectic aspect. She had taken several courses of sanatorium treatment in a mountain climate as a tuberculosis suspect, but without benefit. The only objective finding was tenderness in the gallbladder. Under hexamethylenamin treatment the fever subsided, and the woman gained 6 pounds in a month.

Perforation of the Uterus.—Joseph relates that in the 1,500 cases of abortion treated at the Moabit Hospital in the last three years, there was perforation of the uterus in ten cases, and in all but two, a physician had been responsible for the perforation. The prognosis depends on the prompt recognition of the perforation and immediate operation. Perforation may occur with the most experienced gynecologist; the indispensable thing is to recognize it at once and operate immediately. Five of the ten women were thus saved. The perforation had always been with an instrument in these cases.

Treatment of Whooping Cough.—Schroeder injected alcohol into one superior laryngeal nerve in an attempt to reduce the violence of the coughing paroxysms in eleven cases of pertussis. The paroxysms were attenuated thereby only in two or three cases, but he thinks this method deserves further trial as he probably was too timid in his dosage, and he injected only quite young children.

Mitteil. a. d. Grenzgeb. d. Med. und Chir., Jena

36: 577-731, 1923

Roentgen Diagnosis of Duodenal Ulcer. A. Akerlund.—p. 577.
Case of Ossifying Myositis. A. Szenes.—p. 591.
Treatment of Wounds of Lung. L. Biener.—p. 606.
Roentgenotherapy of Cancer. I. K. Nather and H. R. Schintz.—p. 620.
Bactericidal Effect of the Ether Used in General Anesthesia. A. Buzello.—p. 661.
*Paresis of the Diaphragm. J. von Boros.—p. 670.
*Resorptive Power of Peritoneum. C. Prima.—p. 678.
*The Esophagus with Goiter. S. Jatrou.—p. 694.
*Air Embolism. E. Ranzi and O. Albrecht.—p. 709.
*The Stomach Channel. V. Orator.—p. 725.

Paresis of the Diaphragm.—In one of the two cases of relaxatio diaphragmatica reported by von Boros, the left phrenic nerve was completely paralyzed (no response to either faradic or galvanic stimulation of the phrenic nerve). In the other there was paresis (no response to faradic stimulation of the phrenic nerve; slow wormlike contraction of that side of diaphragm on galvanic stimulation). In both cases paradoxic respiratory movements (Kienböck's phenomenon) were seen with roentgenoscopy during Müller's test (inspiration with obstruction of the upper air passages). With normal breathing, the paretic showed some contraction of the diaphragm. Consequently, the discovery of paradoxic movements of the diaphragm under the conditions of Müller's test cannot be interpreted as a certain sign of paralysis of the diaphragm. In the first case, the injury to the diaphragm was the result of contusion of the left chest and shoulder fifteen years before. The second patient was a woman, aged 32, and the etiology of the paresis could not be determined.

Resorptive Power of the Peritoneum.—Prima discusses whether resorption is promoted by increased intestinal peristalsis.

The Esophagus with Goiter.—Jatrou analyzes the factors responsible for retarding the passage of ingesta in the esophagus in cases of goiter.

Air Embolism from Operations and Wounds Involving the Pleura.—Three cases of sudden unconsciousness during operations involving the pleura, two resulting in deaths and necropsy giving no satisfactory explanation, are cited from Ranzi's previous experience. He ascribes the shock to arterial air embolism (air enters the pulmonary veins, passes to the left side of the heart, then to the brain, coronary arteries, etc.). The case of arterial air embolism here reported was in a middle aged man who had been stabbed inward and downward with a long knife. There was a sudden coughing paroxysm a few minutes after primary suture of the skin wound. This was followed by loss of consciousness and development of subcutaneous emphysema on neck and chest. On loosening the sutures, there was a gush of air under pressure from the pleural cavity. The unconsciousness persisted, with flaccid paralysis of both arms and the left leg. The head was inclined to the right and there was conjugate deviation of the eyes to the right. The sensory symptoms were most pronounced on the right side. With return of consciousness, paralysis of accommodation became apparent. All these symptoms gradually subsided in the course of three weeks except that the reflexes were somewhat exaggerated, and there was persistent weakness of the right hand and arm. Albrecht assumes that some supranuclear lesion was responsible for the symptoms, possibly a sowing of the cortex with large numbers

of tiny air bubbles, with formation of myriads of the minute islands described by Spielmeyer in 1913.

The "Stomach Channel."—Orator reviews the present status of the question as to the functional significance of the *magenstrasse* (direct passage of ingested foods from the cardia along the lesser curvature). He also discusses the conditions whieh favor the loeation of ulcers close to the cardia.

Monatsschrift für Geb. und Gynäkologie, Berlin

63: 61-184 (June) 1923

*Ovarian Pregnancy. H. Fuchs.—p. 61.
*Glycosuria in Early Diagnosis of Pregnancy. W. Scheffel.—p. 69.
Syphilitic Sclerosis of Vaginal Portion of Uterus. Kehrer.—p. 83.
Huge Retroperitoneal Fibrolipoma. R. Fleischer.—p. 99.
Is the Effect of Irradiation Local or General? L. Seitz.—p. 103.
*Syndactylia. P. Heupel.—p. 111.
Present Status of Protein Therapy in Gynecology. H. Martius.—p. 119.

Ovarian Pregnancy.—In the case described, a defect of the fallopian tube on that side had allowed external migration of the spermatozoa.

Glycosuria in Early Diagnosis of Pregnancy.—Scheffel found that the blood sugar curve rose more rapidly in the pregnant than in the nonpregnant after intramuscular injection of 0.001 to 0.002 gm. of phlorizin, followed by drinking 200 c.c. of tea. As the sugar content of the blood thus rose, temporary glycosuria followed. The blood sugar curve, recorded at fifteen minute intervals, showed a second rise. This has not been mentioned in the other methods of studying the carbohydrate disturbances of pregnancy. This induced glycosuria occurred also, in Scheffel's experiments, during a short period just preceding and just following menstruation, and immediately following the emptying of the uterus (childbirth, abortion). This test cannot be used, therefore, as an aid in differentiating impending abortion from incomplete abortion, but he regards negative findings as positively excluding uterine pregnancy.

Inheritance of Syndactylia.—Heupel expatiates on the close resemblance between the genealogic tree of the family with syndactylia he describes, and a chart typical of heredity according to Mendel's law. A hereditary basis seems unquestionable for the syndactylia. The three middle fingers or toes on one or both sides were fused in one, with a single nail, or variations of this syndactylia were known in four generations: one instance in the first generation; in one of the 4 members in the second generation; 4 of the 7 in the third and one of the 2 in the fourth.

Münchener medizinische Wochenschrift, Munich

70: 865-898 (July 6) 1923

*Decomposition of Hemoglobin. F. Müller.—p. 865 .
Cellular Defensive Reactions in Parabiosis. Sauerbruch.—p. 866.
*Changes of Streptococci. R. Schnitzer and F. Pulvermacher.—p. 866.
Medical Oversight of Printing Trades. L. Schwarz.—p. 868.
*Serologic Reaction in the New-Born. K. v. Oettingen.—p. 869.
*The Spinal Fluid at Different Levels. W. Jacobi.—p. 870.
Serology in Dermatology. A. Memmesheimer.—p. 872.
Protracted Meningeal Irritation After Infections. Schwab.—p. 872.
*The Tonsils and Tuberculosis. P. Fischer.—p. 873.
Hereditary Congenital Ankylosis of Finger Joints. Brügger.—p. 874.
Expert Testimony in Case of Malpractice. A. Döderlein.—p. 875.
Intraspinal Insufflation of Air Preliminary to Treatment with Arsenicals. E. v. Thurzó.—p. 876.
Water-Glass for Mounting Specimens. F. Windholz.—p. 877.
A Stick in Rectum. K. Wisotzki.—p. 878.
Torsion of Ovarian Tumor in a Child. J. P. zum Busch.—p. 878.
Neuritis and Polyneuritis in General Practice. Cuneschmann.—p. 881.
School Physician and Heredity. Welde.—p. 883.
Advisory Dispensaries for Venereal Disease. L. Görl.—p. 885.

Decomposition of Hemoglobin.—Müller recalls old investigations of the Dorpat school on the decomposition of hemoglobin by the aetion of leukocytes and of liver and spleen eells.

Changes of Streptococci.—Schnitzer and Pulvermacher observed a change of cultures of streptococcus viridans into the hemolytic type. They claim that both are only instances of the different changes which may occur in various strains of the streptococci.

Serologic Reaction in the New-Born.—Oettingen observed that the blood plasma (preserved with sodium citrate) of new-born infants has a pronounced precipitating action on colloids.

The Spinal Fluid at Different Levels.—Jacobi found variations in the protein content of the cerebrospinal fluid at different levels. This speaks against the assumption of a regular aetive circulation of this fluid.

The Tonsils and Tuberculosis.—Fiseher examined the tonsils in 173 cadavers. Death had been from tuberculosis in 161. Only in one case did the data indicate with great probability that the infection had started in the tonsil, but even this one case he considers important. In 73.2 per cent. of the cases of ulcerative processes of the lung, the tonsils presented tuberculous changes. Even minute lesions in the lungs, not ulcerative, were sometimes accompanied by contagious tuberculous foci in the tonsils.

Wiener klinische Wochenschrift, Vienna

36: 409-424 (June 7) 1923

Tar Cancer in Mice. B. Lipschütz.—p. 409.
*Irradiation of Spleen in Gynecology. P. Werner.—p. 412.
*Action of Digitalis on Eosinophils. G. Recht.—p. 415.
Action of Ovarian Extract on Goiter. R. Bauer.—p. 416.
Crisis of Organization of Physicians. E. Ruff.—p. 416.

Irradiation of Spleen in Gynecology.—Werner does not report good results from roentgen irradiation of the spleen in treatment of eighty women with uterine hemorrhage of different origins. One woman who had had for years a negative Wassermann reaction, beeame positive after the irradiation.

Action of Digitalis on Eosinophils.—Recht found eosinophilia of 6-8 per cent. in patients who had been taking digitalis until vagotonic symptoms appeared.

36: 425-440 (June 14) 1923

*Surgical Treatment of Duodenal Ulcers. H. Finsterer.—p. 425.
Indications for Surgical Treatment of Cholelithiasis. H. Lehmann.—p. 428. Conc'n, p. 450.
Syphilis of the Stomach. L. Neumann.—p. 431.
Operation for Phimosis. G. Hummer.—p. 432.

Surgical Treatment of Duodenal Ulcers.—Finsterer deals with the surgical treatment of those duodenal ulcers that cannot be resected safely. He admits that resection is possible in a larger number of cases than those in which he operates, but the mortality would increase too much. The method of choice, he says, is Eiselsberg's unilateral exclusion of the pylorus with a posterior gastro-enterostomy. The ulcer heals quickly. New hemorrhages or other disturbances are due only to development of an uleer in the jejunum, which is more sensitive to the acid gastrie juice than the duodenal mucosa. Therefore he combines the operation with resection of the stomach (antrum) in order to obtain anacidity or reduce production of the aeid gastric juice. A jejunal uleer occurred only in 5 per cent. of sixty-one patients operated on by this method, which leaves the pylorus in the body. Only one patient died (perforation of the ulcer). Clinical practically complete recovery followed in 94 per cent. of his cases.

36: 441-458 (June 21) 1923

*Muscle Atrophy After Injuries. F. Mandl.—p. 441.
Suprarenalectomy in Epilepsy. E. Kutscha-Lissberg.—p. 443.
*Chlorids in Cerebrospinal Fluid. P. Neuda.—p. 447.
Diuretics in Healthy Children. A. F. Hecht.—p. 449.
Venous Stasis in Treatment of Circulatory Affections. Peller.—p. 449.
General Principles of Welfare Work for the Young. R. Uhlirz.—p. 451.

Muscle Atrophy After Injuries.—The fact that very painful wounds predispose to extensive atrophy of muscles leads Mandl to inject procain intramuscularly into the neighborhood of the fracture. Experiments on frogs and on forty patients demonstrated the value of the method. He injected 20 or 30 c.c. of a 0.5 per cent. solution of procain when the patient was first seen, and repeated this on the two to four following days. Open wounds and fractures, which are easily dislocated, are contraindications. He explains the favorable results by A. W. Mayer's theory, according to which the lack of muscular tonus prevents atrophy. The procain keeps the tonus low, and atrophy is averted.

Chlorids in Cerebrospinal Fluid.—Neuda examined the cerebrospinal fluid from 250 patients for chlorin. The average proportion was 0.72 per cent. (reckoned as sodium chlorid). Meningitis gave lower figures, while the chlorids were rather increased in cases of brain tumors.

Zentralblatt für Gynäkologie, Leipzig

47: 1153-1200 (July 21) 1923

The Mechanism of Childbirth. A. Mueller.—p. 1154.
Technic in Interruption of Pregnancy. E. Kehrer.—p. 1163.
*Biologic Changes from Roentgen Irradiation. E. Klaften.—p. 1171.
Psycho-Organic Correlations in Gynecology. Liepmann.—p. 1174.
Origin and Diagnostic Value of Cutaneous Striæ. Loebel.—p. 1178.

Biologic Changes from Mild Roentgen Irradiation in Gynecologic Affections.—Before and after the application of small roentgen doses, Klaften studied the qualitative and quantitative blood picture, the chemical behavior of the blood serum, the effects on the sympathetic and the autonomic nervous systems, the changes in blood pressure, diuresis, the general symptoms associated with roentgen irradiation, and the local findings in thirty cases. The irradiation was applied with the Apex machine and a Watt tube to the area from the umbilicus to the symphysis; focal distance 23 cm.; 3 mm. aluminum filter and from 6 to 10 H. was applied. The most striking changes took place in the leukopoietic system. In most cases there was leukocytosis, with an increase of the neutrophil elements, and simultaneous lymphopenia. Twice, in cases of primary leukocytosis, the reverse condition was noted. The more marked the inflammatory changes, the more likely it was for leukocytosis to develop. The reverse behavior in cases of primary leukocytosis resembles the result after irradiations given at short intervals, and may be due to temporary exhaustion of the leukoplastic apparatus. The effects of roentgenization in inflammatory affections of the adnexa correspond, in general, to the effects of parenteral, specific or nonspecific protein therapy.

Casopis lekaruv ceskych, Prague

62: 725-748 (July 7) 1923

*Fixation of Scapula. J. Divis.—p. 725.—Conc'n.
*Surgical Treatment of Spinal Deformities. Hanausek.—p. 729. Conc'n, p. 759.
Surgical Treatment of Scoliosis. O. E. Schulz.—p. 735. Conc'n.
Sense of Smell in Diagnosis of Diseases. Cmunt.—p. 740.

Fixation of Scapula.—Divis recommends operative fixation of the scapula in cases of juvenile progressive myodystrophia, if the progress of the disease is not too rapid. His method of choice is Jedlicka's scapulopexy, which wedges the angle of the scapula under a rib, thus avoiding the use of a wire. It shifts the scapula in a sagittal direction, which is necessary for a complete elevation of the arm. The method may be useful in incurable paralysis of the serratus muscle. His illustrations show the technic clearly.

Treatment of Deviations of Spine.—Hanausek reports the results of operative experiments on rachitic children and pigs. His method endeavors to restrict the growth on the protruding side of the spine by suturing together the convex parts of the vertebrae with silk threads (spinous processes in kyphosis, transverse processes in scoliosis).

Tohoku Journal of Experimental Medicine, Sendai

4: 149-274 (June 30) 1923. English and German Edition

Pharmacology of Seaweed. W. Watanabe.—p. 149.
*Action of Sensory Nerves on Epinephrin Output. Kodama.—p. 166.
*Reserve Alkali and Oxygen of Blood in Anemias. T. Odaira.—p. 243.
Glycogen Formation After Infusion of Sugar. K. Sato.—p. 265.

Effect of Stimulation of Sensory Nerves on Rate of Liberation of Epinephrin from Suprarenals.—Kodama, using the "cava pocket" method, found an increased epinephrin output after stimulation of the median nerve in animals. The epinephrin content of the gland was not affected by the large output.

Reserve Alkali and Oxygen of Blood in Anemias.—Odaira found an acidosis if the blood count was under 3 millions.

Hospitalstidende, Copenhagen

66: 457-472 (June 27) 1923

*Surgical Tuberculosis of the Liver. C. Vemming.—p. 457.

Tuberculous Process in the Liver.—In the case reported by Vemming, in a young woman, the first clinical manifestation was a gravity abscess in the sheath of the right rectus muscle, secondary to a subphrenic abscess which was traced to the perforated tuberculous process in the right lobe of the liver. A similar course was observed in thirteen other cases on record. The whole process shelled out readily, after ligation of the larger vessels; resection was impracticable. Recovery was proceeding smoothly when perforation of the stomach proved fatal. Some vessel in the stomach may have been injured during the operation, but there was amyloid degeneration of spleen and kidneys. The patients were restored to health in thirteen of the twenty-one operated cases that have been published. Necropsy in his case showed that the enucleation had been a success; no tuberculous tissue had been left in the liver. The mass removed weighed 320 gm. The liver was not always enlarged in these cases. Brütt has reported great improvement in one inoperable case under roentgenotherapy. Tuberculosis of the liver usually develops silently until the tissues around the liver become irritated. Night sweats and evening fever were noted in some cases. Even when the liver is exposed, it is not always possible to distinguish between a tuberculoma and a gumma. Thöle has collected twenty-nine operated cases of gumma of the liver.

Hygiea, Stockholm

85: 545-592 (July 15) 1923

Ouabain and Digitalis. O. Ohlin.—p. 545.
*Infant Welfare Work. H. Fries et al.—p. 570.

Milk Stations and Well Baby Clinics.—This is the report of a committee appointed by the pediatrics section of the Swedish Medical Association to suggest ways and means for welfare work for young children along all lines.

85: 593-624 (July 31) 1923

*Works of Swedish Physicians. Söderbergh.—p. 593. Conc'n, p. 633.
Insulin in Treatment of Diabetes. R. Roman.—p. 606.

Works of Swedish Physicians in Recent Years.—This article presents summaries of most of the forty-four works on neurologic topics by Swedish writers which have been published in recent years in English, French or German. The Scandinavian writers refrain from using their native language when addressing a world audience, as in their *Acta*, and their works have to be summarized for their compatriots who do not happen to read foreign languages.

Ugeskrift for Læger, Copenhagen

85: 405-420 (June 7) 1923

*Myasthenia Gravis in Exophthalmic Goiter. Vedsmand.—p. 405.
Experiences with Insulin Treatment of Diabetes. Hagedorn.—p. 407.
Intranasal Operations on Lacrimal Passages. Strandbygaard.—p. 410.
*Treatment of Leg Ulcer. C. Engelbreth.—p. 411.
Technic for Rapid Methods of Blood Sugar Determination. J. Christiansen.—p. 411.

Endocrine Pluriglandular Insufficiency.—Vedsmand theorizes to explain the case of a previously healthy woman who at the age of 41 began to complain of headache, sensation of oppression in the heart region and increasing nervousness. By the end of two years the clinical picture of exophthalmic goiter was pronounced, and four years later myasthenia gravis developed, progressing to a fatal termination in two years. The blood pressure fluctuated from 140 to 175 mm. during the last few months. The sugar content of the blood responded normally to epinephrin tests. The condition grew rapidly worse under suprarenal extract treatment.

Treatment of Leg Ulcers on New Basis.—Engelbreth has become convinced that the ulcer in a varix of the leg is the result of infiltration of the tissues. Any treatment which does not attack the infiltration is almost sure to fail, while, if the infiltration is effectually combated, the ulcer will disappear. He describes a case of leg ulcer treated on this principle with light vibratory massage to influence the infiltration, supplemented with yellow light, which he has found useful in treatment of ulceration in general and in eczema. In the case described, the leg ulcer in the man, aged 65, had appeared six years before, and after a course of two years it had healed under a year of bed rest and various local applications. The ulcer had recurred at various intervals but yielded to prolonged bed rest. The present recurrence was of six months' standing; the ulcer was very painful, and the man had been confined to bed. Under the vibratory massage and yellow light applications for one hour on alternate days, the patient up and about all the time, the ulcer healed completely, the skin normal, in three weeks.

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ABDOMINAL SURGERY WITHOUT DETACHED PADS AND SPONGES *

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The subject I have chosen is one of much importance in abdominal work. While we, as pelvic and abdominal surgeons, are busy devising better operative procedures for the lesions of the various organs, we must not lose sight of the fact that a dangerous feature still persists in the general technic of abdominal section. I refer to the numerous sponges, large and small, used in and about the cavity. Infection and hemorrhage have been largely eliminated, but the dangerous detached sponges are still seen in every operating room.

A sponge left in the peritoneal cavity following an operation constitutes one of the most deplorable accidents of abdominal surgery. This is not a new subject. Much has been written concerning it, and many cases have been reported and many suggestions have been made as to preventive measures. In my original paper [1] on the subject in 1909, a summary of reported cases was given along with various preventive measures devised. Attention is here called to the following facts therein stated.

1. Sponges are lost in the peritoneal cavity much more frequently than is generally supposed. The more recent cases, added to the summary in my previous paper, make a total of more than 200 reported cases in which a sponge was left in the abdominal cavity following operation. And it must be kept in mind that the reported cases represent only a small portion of the recognized cases, for naturally the accident is not given publicity unless there is some special reason for doing so. In any large body of surgeons, a little experience meeting where testimonies are freely given will bring to light a number of unreported cases of this accident.

Furthermore, many cases are not even recognized. The patient dies with evidence of peritonitis; there is no suspicion of any foreign body having been left in the abdomen, no postmortem examination is made, and the death is supposed to be due to ordinary peritonitis. The possibilities in this direction are indicated by the fact that in 20 per cent. of the reported cases the accident was recognized only when the sponge was found on postmortem examination, and would have remained unknown had there been no necropsy.

2. It is a most serious accident. In the large series of cases compiled, more than one fourth of the patients died, and of those who recovered many went through weeks and months of suffering.

3. To persons outside the profession, the accident seems absolutely inexcusable. They can understand how other complications may arise, such as hemorrhage or sepsis or kidney failure, in spite of every precaution, but they can imagine no reasonable excuse for allowing a sponge to be lost in the patient's interior. To those not familiar with surgical work, it seems past belief that the surgeon would carry into the peritoneal cavity anything the removal of which was not provided for with absolute certainty.

The growing cognizance of the public as to the occurrence of this accident, and the feeling in regard to the responsibility for it, are reflected in the increasing number of lawsuits connected therewith.

4. The methods commonly employed to prevent this accident have broken down time and again under the varied vicissitudes of abdominal surgery. The list of preventive measures shows that much thought has been given to devising means for preventing this accident. Rules interminable have been proposed, and expensive and cumbersome racks and stands devised for the purpose. Not one of these devices, however, has proved absolutely safe, for the reason that in their use the certain removal of all sponges carried into the abdomen depends on the studied attention of the operator or on a system of attentive cooperation among assistants or nurses. While such attentive cooperation would be entirely feasible under ideal conditions and with ideal persons, the fact remains that it is not secured and is not likely to be secured under the variable circumstances of abdominal work. The many emergencies that arise in the course of abdominal operations, the changing assistants and nurses, the hurried operations at night in the hospital with short help, the operations in private homes when the patient cannot be taken to the hospital —all these conditions play havoc with safety arrangements depending on a nicely balanced system of rules and cooperation, or on the use of cumbersome racks or stands.

There is not time here to take up in detail the various ways in which mistakes have occurred; suffice it to say that a review of the cases in which dependence was placed on counting shows an appalling list in which a sponge was left, because one was hastily torn in two and one half forgotten, or an extra one was primarily included in the bundle and missed in the counting; or an extra one was secured for an emergency during the operation; or some loose piece of gauze, not intended for intraperitoneal use, slipped in while near the wound; or a mistake was made in the final count of the sponges removed. It is astonishing what a slight inattention may lead to a sponge being left, with all the consequences which such an accident entails.

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* Chairman's address, read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Crossen, H. S.: Am. J. Obst. **59**, 1909.

The method of attaching a tape to each sponge and then fastening forceps to the tape and at the same time to the abdominal sheet is probably the method in most general use. It has a record of many failures—the tape pulled off the sponge, or there was a failure to attach the forceps or the forceps failed to hold. In one

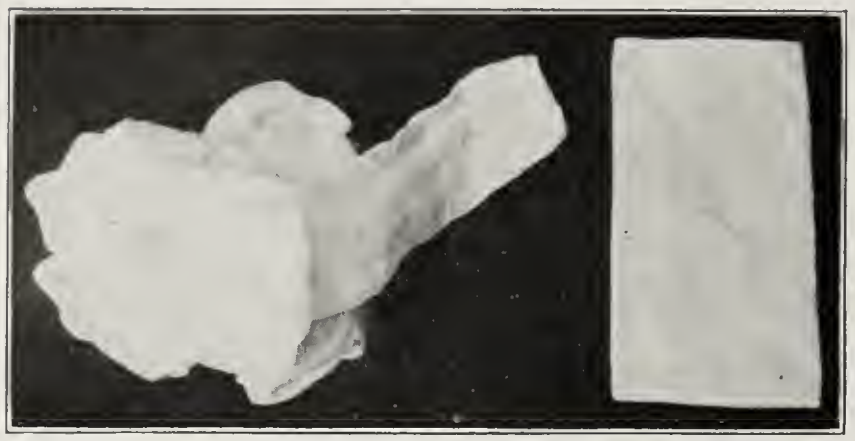


Fig. 1.—The gauze strip, folded, and the muslin bag: The gauze strip is 10 yards long and 18 inches wide, and when folded longitudinally to six thicknesses gives a folded strip 3 inches wide. The muslin bag is 5 inches wide and 10 inches deep, and is sewed with French seams so that there is no chance for a raveling to be pulled out with the gauze.

recorded case the sponge, tape and forceps were all lost in the cavity.

The difficulty of guarding absolutely against leaving a sponge in the abdomen is such that entire security against this fatal accident has been counted one of the unsolved problems of abdominal work. Practically all writers on the subject state that there is no guaranty against its occurrence, even in routine hospital work and with all the rules of cooperation and the special apparatus designed to prevent it. Neugebauer, in an exhaustive consideration of the subject, comes to the conclusion



Fig. 2.—Packing the gauze strip into the bag: The end of the strip is stitched to the bottom of the bag, as shown by the black stitch in the illustration, and the strip is then packed into the bag as here indicated. Packed in thus, it may be conveniently pulled out a little at a time as needed for sponging.

that the accident is, to a certain extent, unavoidable. Schachner states that "so long as surgery continues an art, just so long will foreign bodies continue to be unintentionally left in the abdominal cavity." Findley writes, "In former years the abdominal surgeon was seriously disturbed by well-grounded fears of secondary hemorrhage and sepsis, but surgery has mastered these problems to a large degree and they are little feared and seldom experienced. Now it is the thought of the sponge that disturbs the night's repose when the report comes that something has gone wrong with our patient. The operator can never rid himself of the feeling of uncertainty as to the possibility of leaving a sponge." This quotation expresses very well the feeling of those who have personally experienced the accident and have thus been brought face to face with a concrete exemplification of the inadequacy of the usual methods.

The continued occurrence of this fatal accident, and the failure of the preventive methods in general use, constitute sufficient reason for again calling attention to a method which I have used with much satisfaction for many years. This method gives entire security and at the same time is simple and inexpensive, and is effective in all conditions of abdominal work—in the emergency operation in the country with unfamiliar assistants, as well as in the routine hospital work. The failure of the safety methods in general use is due to their dependence on sustained attention concerning the sponges, which attention on the part of the surgeon cannot be given to the sponges, for it is required

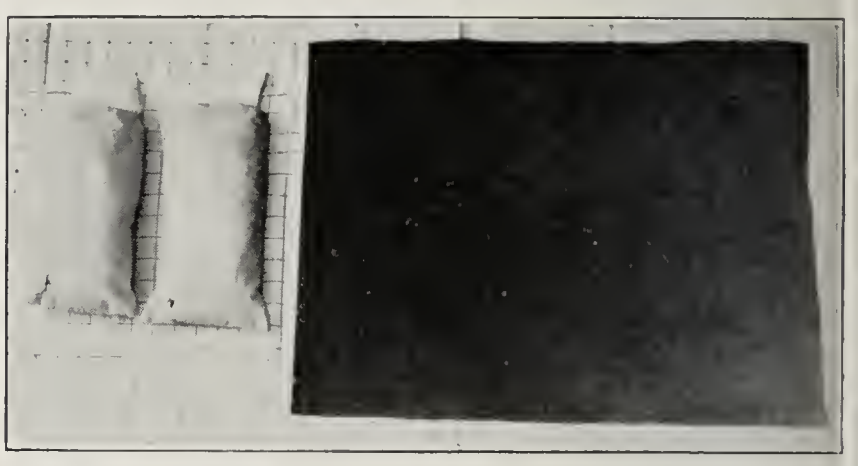


Fig. 3.—Set of strip sponges and rubber sheeting for abdominal operation: The arrangements for abdominal packing and sponging thus become very simple; the intestines are packed away from the field with the rubber sheeting, and the sponging is done with the continuous strip sponge, which automatically removes all danger of a sponge being left. The piece of rubber sheeting measures 18 by 24 inches and is of very heavy pure gum rubber dam No. 20 gage; the lighter weight rubber dam was found not satisfactory for this work.

elsewhere. A method, to be effective under all circumstances, must be *automatic*, insuring the removal of all gauze, without particular attention on the part of any one at the time of operation.

METHOD BY WHICH REMOVAL OF GAUZE IS AUTOMATIC

The underlying principle of the method I have been using is the elimination of all detached pads and sponges. In place of them, long strips of gauze are used, each strip being packed into a small bag in such a way that it may be drawn out a little at a time as needed.

I was led to a study of the subject and the adoption of this method by an unfortunate experience. Following the usual technic, I operated for years without accident, but finally many years ago left a gauze pad in the abdomen. The case was one of diffuse pelvic suppuration, requiring extensive drainage, and, fortunately, the pad was discovered and extracted through the drainage opening about two weeks later. The patient recovered without serious result from the accident, but the lesson was not lost. I determined to find some method that

would really prevent such an accident—a method that would be entirely under the control of the operator and first assistant (a greater division of responsibility increases the danger) and one which would occasion no delay in the closing steps of the operation. The result is the method here described.

The object of the method is to make the removal of all sponges automatic, and therefore independent of sponge counting and other uncertain procedures. The essential feature of this method is the substitution of a long gauze strip for the ordinary detached sponges, the greater part of the strip being always outside the abdominal cavity. The strip is 10 yards long. Two strips are made by dividing the yard-width of gauze in the center and folding each half longitudinally to six thicknesses. Each strip is therefore 10 yards long, about 3 inches wide, and has six thicknesses of gauze. For protection and convenience in handling, the strip is packed into a small muslin bag, 5 inches wide and 10 inches deep (Fig. 1). The end of the strip is stitched to the bottom of the bag, and the strip is then packed into the bag in such a way that it may be pulled out a little at a time, as needed (Fig. 2). The filled bags are sterilized and are then ready for use (Fig. 3). At



Fig. 4.—Use of the gauze strip sponge: ready to sponge with the end of the strip.

operation, the bottom of the bag is clamped or pinned to the abdominal sheet, and the gauze strip is pulled out a little at a time as needed for sponging (Figs. 4 and 5). Originally, I used a wide strip for packing back the intestines, in addition to the narrow strips for sponging.

Since the publication of the method in 1909, modifications in details have been made by several surgeons. One operator made pockets in the abdominal sheet for holding the strips. Another arranged a large bag for each side, and connected them by tapes across the median line, giving a "saddle bag" arrangement, which was very convenient for holding the strips before sponging, and also the soiled strips after sponging. Recently, in place of the wide strip for packing back the intestines, I have substituted sheet rubber, advocated for this purpose by several operators. Rubber sheeting for walling off the intestines from the operative field has been found less irritating than gauze. Hence it tends to fewer adhesions and less vomiting and other postoperative peritoneal disturbances. Its advantages are emphasized by Keefe,[2] in an article on abdominal sponging, and also by Bissell in an article on vomiting and distention after operation.[3] I have been experimenting with different sizes of rubber sheeting and different weights, and have adopted for routine use a piece 18 by 24 inches of a very heavy pure gum rubber sheeting No. 20 gage (Fig. 3). This size was found most convenient for all-round work in the pelvis and



Fig. 5.—Use of the gauze strip sponge: the soiled portion gravitates out of the field.

abdomen. In the large abdomen it may be used spread out and tucked far laterally to control the intestinal coils. In other cases it may be folded as needed to adjust it to the condition found, and in the small wound a corner of it may be used.

The arrangements for abdominal packing and sponging thus become very simple (Fig. 3). The intestines are packed away from the field with the rubber sheeting, and the sponging is done with the continuous strip sponge, which automatically removes all danger of a sponge being left (Fig. 8). The gauze strip sponges

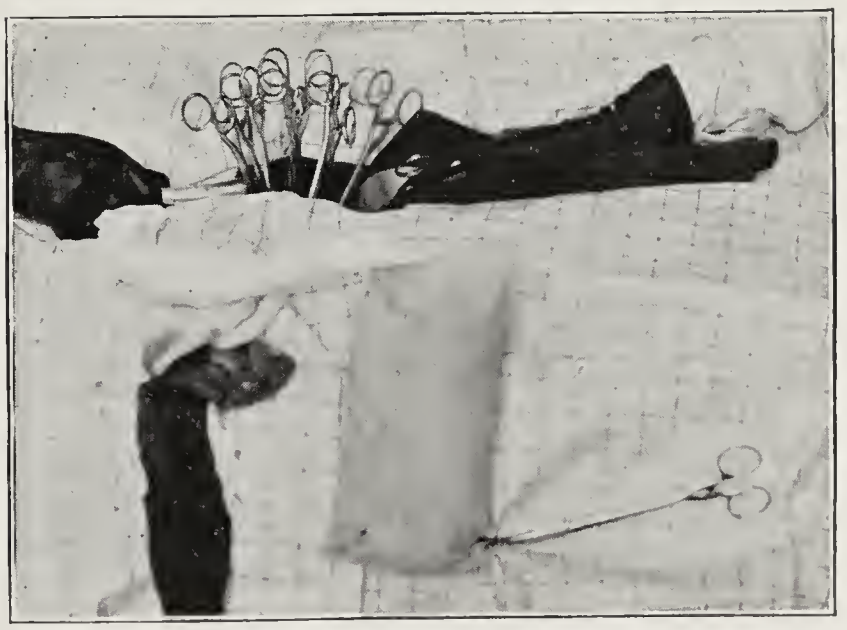


Fig. 6.—Use of the gauze strip sponge: an accumulation of forceps in the wound.

and bags are made with much less trouble than the numerous detached gauze pads and sponges of various sizes in general use. Nurses welcome the method, because it simplifies the preparations for abdominal operation and also eliminates the trying responsibility of sponge counting at the close of the operation.

2. Keefe, J. W.: Sheet Rubber Superior to Gauze Sponges in Abdominal Operations, J. A. M. A. **67**: 567 (Aug. 19) 1916.

3. Bissell, D.: Surg., Gynec. & Obst. **35**: 320 (Sept.) 1922.

For the exceptional condition in which "point" sponging is required, as in ureteral work deep in the pelvis or cholelithiasis involving the common duct, the usual "gauze-pointed forceps" (long forceps holding a very small gauze ball clamped securely in their tip) may be used. However, it is surprising how easily point sponging may be done with the strip, as familiarity with it and dexterity are acquired.

Of course, the use of the gauze strip sponge, like any other important change in technic, must be studied, and attention must be given to details in order to make it work smoothly. Various questions have been asked concerning the method by surgeons contemplating its use. The following points seem to be the only ones requiring any special directions:

(*a*) The strip should never be cut during the course of an operation, as that destroys the continuity of it and the certainty of the removal of all pieces.

(*b*) In picking up a portion of the strip for sponging, enough should be drawn out of the bag to permit the portion in the forceps to be carried easily and without tension to the farthest area to be sponged (Fig. 3).

(*c*) The used folds of gauze should not be permitted to accumulate in the vicinity of the wound, but should promptly gravitate outside the operative field (Fig. 3).

(*d*) When there are many forceps in the abdominal wound, an assistant should hold the handles out of the way sufficiently to give room for the continuous sponge to be carried in and out without entangling (Figs. 6 and 7). The assistant's hand laid over the group of forceps prevents their becoming entangled with the sponges or with the sutures.

COMMENT

This method eliminates all chance of leaving a sponge in the abdomen, for the larger part of the strip is always outside the cavity, and the end is fastened securely outside. The important point is that the sure



Fig. 7.—Use of the gauze strip sponge: forceps grouped and covered by assistant, to avoid entangling of sponge or ligatures about handles.

removal of gauze is *automatic*. It does not depend on the accuracy of a hurried counting of sponges at the close of the operation, or on catching each sponge or sponge-tape with forceps, or on a studied "watching what sponges go in and what sponges come out of the cavity." Those methods that depend for safety on the observance of complicated rules or on the strict following of a regular routine or on the constant attention of the operator have all broken down under the difficulties and vicissitudes of abdominal surgery, as the many reported cases clearly show. Notwithstanding the various methods in common use, lives are still being sacrificed to this accident. In spite of widespread interest in the subject for some years past and of much study and investigation of it and several excellent papers by different authorities, there has been no signal advance in general practice. Ten years ago, operators were using

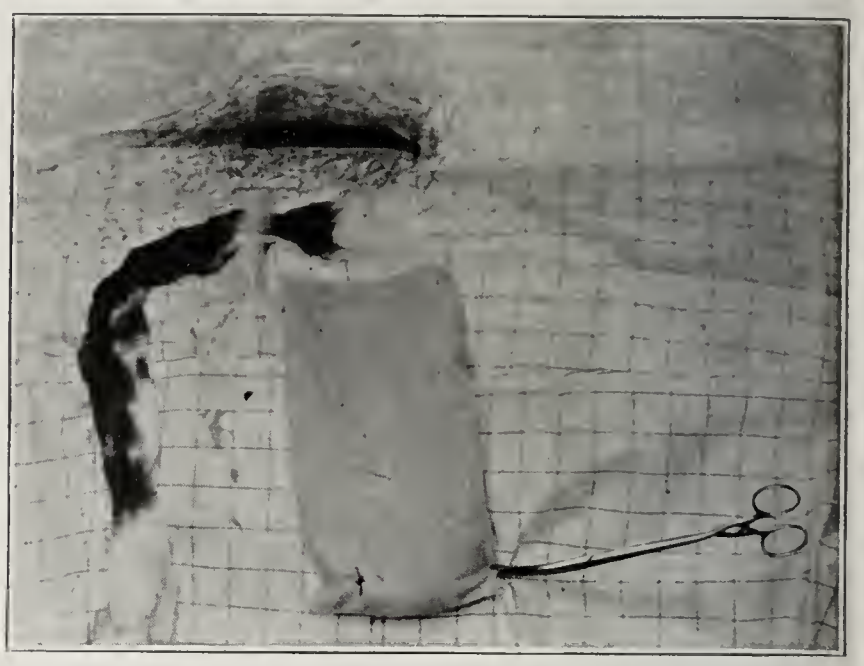


Fig. 8.—Use of the gauze strip sponge: operation finished; no counting of sponges and no anxiety as to one being left.

the same preventive methods now commonly employed. The sponges were counted, tapes were attached to the sponges that were counted, forceps were attached to the tapes that were attached to sponges that were counted, and so on and so on. Yet with all these complicated precautions, many sponges are still being left in the cavity. Two hundred reported cases of this accident and new cases coming in right along constitute a startling commentary on the inefficiency of the safety precautions in common use.

A method, to be really safe and suitable for general use, must be (1) automatic in the removal of all gauze carried into the cavity; (2) comparatively inexpensive in materials and preparation; (3) fairly simple and convenient in use, and (4) applicable in every environment, including emergency work in the country. These four basic requirements are met by the method here described.

University Club Building.

Cooperation of Medical Men and Social Service Workers.—Just as medical practice can no longer be carried on efficiently without pathologists and a score of other specially trained associates of the surgeon and physician, and can no longer be conceived as satisfactory without the assistance of the professionally trained nurse, so the public and the medical and nursing professions are rapidly realizing that these forces already active must have added to them the cooperation of the professional social service worker who can bring to the disposition of each case essential knowledge of the social unit from which the patient comes, and the social resources available for application to the treatment, convalescence and social rehabilitation of the patient, and the prevention of recurrence of the conditions and illness. We need to emphasize, and educate the public and the professional groups concerned to see and apply a broad program of cooperation and partnership on a basis of respect and equality among members of the professions of medicine, nursing, and social work.—W. F. Snow: *Hosp. Social Service* **8**:188 (Oct.) 1923.

FUSION IN SCOLIOSIS

WITH SPECIAL REFERENCE TO THE ANATOMY OF NATURAL FUSION AND THE USE OF THE OSTEOPERIOSTEAL GRAFT *

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In the treatment of scoliosis, the value of a method which will make the spine appear straight, even though it may not give anatomic correction, is generally recognized. Such a method is Abbott's nonoperative flexion, which, when presented several years ago, aroused widespread interest, and since then has been frequently used in one form or another with more or less success, especially in nonfused cases. When natural fusion has occurred, this method, forcibly applied, will move the fused area as a whole, the points of motion being below and above the vertebrae forming the fixed curve and rotation. When this is done in the direction of the concavity of the back, the appearance of the trunk is often improved.

Various cutting operations have been employed to improve the deformities of scoliosis. Operations on the ribs by various investigators for the curvature and rotation deformities accompanying scoliosis are reported unsatisfactory.

Since Hibbs and Albee suggested the application of their operations for Pott's disease to the correction of scoliosis, the possible benefits to be derived from open operation in the latter condition have received a great deal of consideration.

Albee's technic for the transplantation of the tibia to the spinous processes in Pott's disease is too well known to require repetition here. His method of splinting the transverse processes in scoliotic cases is less widely known. His method of splinting the transverse processes is as follows:

The graft is placed into the tips of the transverse processes of the vertebrae on the convex side at the apex of the sharpest curve, preference being given to the thoracic region for the implant, and from six to eight transverse or spinous processes included by this graft. He says: [1]

From a mechanical standpoint, the transverse processes afford a much better leverage action to the correction of the lateral curvature than the spinous processes. A lateral deviation in the spine causes a separation of the transverse processes of the convex side coincident with the approximation of the transverse processes of the concave side. Much of this lateral deformity can be readily corrected by manual force under an anesthetic. This correction causes the transverse processes of the convex side to approach each other at the same time that the transverse processes of the concave side separate. The implantation of the graft with the spine so corrected acts in a like manner in preventing the relapse to lateral curvature by controlling the separation of the transverse processes of the convex side, as does the graft implanted with the spinous processes for the control of the anteroposterior deformity of Pott's disease. The graft thus embedded acts at a great mechanical advantage, in that it is pulled up lengthwise, in preventing the separation of the transverse processes, which are arms of levers, at the same time acting as an internal fixation splint.

Hibbs [2] described his technic as follows:

An incision is made directly over the spinous processes through the skin, the subcutaneous tissue, and the ligaments to the tips of the spinous processes. The periosteum over each tip and the ligament between is split. The periosteum is then elevated from the bone over a part of each process in turn. As the periosteum is separated from the bone, small packings of gauze are made to prevent oozing. Separation of the periosteum is carried forward gradually until each spinous process and lamina is completely bare to the base of the transverse process. This is done in children with a blunt periosteal elevator and in adults with a sharp one, as in the latter the periosteum is more adherent.

The periosteum is then pushed from the adjacent bases of the spinous processes and the adjacent edges of the laminae to the ventral side with a small curet or a periosteal elevator. With this dissection made, the operative field is ready for any treatment of the exposed bone that is desirable. The first thing to be done is to curet the lateral articulations which lie at the base of the transverse processes and are always easily reached in children and in most adults. After this is accomplished, a small piece of bone is elevated from the laminae and turned down, its free end resting on the next one below it. The spinous processes are then partially divided with forceps for that purpose, and broken down so that the tip of one comes in contact with the base next below it. This completes all that is necessary to do to the bone.



Fig. 1.—Scoliotic skeleton, illustrating the marked natural fusion, especially along the left side of the spinous processes on the concave side of the curve; the articular processes are fused; the laminae are strongly massed together; the lateral processes are woven into the fusion. At one point this fusion has been broken apart and the vertebrae have become separated.

The periosteum and ligament which have been separated are then brought together and sutured in the center with interrupted ten-day chromic catgut. The skin wound is closed with continuous ten-day chromic catgut. Dressings and a brace or jacket are applied.

The eight cases treated in this manner which were reported by Hibbs in 1917 were cases of scoliosis due to poliomyelitis. The result in every instance was a much better posture, he reported, with much greater stability, and protection from progressive increase of the deformity. In addition, the patients were spared the necessity of wearing a brace or jacket for an indefinite period. Sufficient time has not yet elapsed, he thinks, however, to warrant conclusions regarding the permanence of the

* Read before the Section on Orthopedic Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Albee: Bone-Graft Surgery, Philadelphia, W. B. Saunders Company, 1917.

2. Hibbs, R. A.: The Treatment of Deformities of the Spine Caused by Poliomyelitis, J. A. M. A. **69**: 787 (Sept. 8) 1917.

results. At Rochester, N. Y., Hibbs recently reported a second group of cases. His results have been satisfactory enough for the continued practice of this treatment.

In an operative method described by Forbes,[3] a flap of skin sufficiently long to expose the operative area is reflected from the concave side, and the muscles on either side of the spinous processes are separated and retracted. The supraspinous ligament, the interspinous ligaments and other tissues between the adjacent spinous processes are then removed. In the case of the dorsal vertebrae, the spinous processes and laminae are so gouged with a concave chisel that their cortical layers are separated from the medulla beneath, and a series of chips of bone and periosteum are pried up along the superior and inferior surfaces of these parts of the vertebrae and made to interdigitate. The same gouging is done also in the lumbar vertebrae, but here the spinous processes are split vertically into several thin sections, and these sections are forced upward and downward and toward the sides to interlock with those from the adjoining spinous processes and laminae. In the upper sacral vertebrae, the lateral masses are turned over by means of a gouge from the caudal toward the capital extremity of this bone, and made to cover the space between the sacrum and the fifth lumbar vertebra. The erector muscles are united over the exposed medullary layers of bone after the insertion of drainage tubes. The skin is then united in the usual way and the wound dressed.



Fig. 2.—Skeleton with scoliotic natural fusion, showing the comparative fusion on the concave and convex side.

With regard to the results of this operation, Forbes stated that every patient on whom it was performed reported improvement in her general condition following the treatment, and that in several cases a secondary operation revealed a broad ribbon of bone extending from vertebra to vertebra on the posterior angles, which seemed of sufficient strength to maintain the correction.

In 1921, Whitman[4] reported that he had applied a fusion operation in twelve cases of advanced scoliosis in which the most noticeable deformity was backward projection of the ribs. Ankylosis of the dorsal vertebrae was induced. Whitman favors an operation of the Forbes type rather than the original Hibbs operation. His youngest patient was 13 years of age, and the oldest, 27 years. The immediate results of the operation were very satisfactory to the patients, and it appeared that the improvement would be permanent. In a report of fifteen other cases made in 1922, Whitman stated that the operation was associated with considerable shock, depending on the amount of time it consumed. He found that it generally required from one hour to an hour and three quarters. There were no deaths or infections in his cases.

In 1922, Kleinberg[5] reported that he had adopted the Hibbs operation, but that he did not always succeed in obtaining complete bony ankylosis in cases of extreme deformity of the vertebrae and ribs, a drawback which made it impossible for him to carry out all of the steps of the Hibbs technic. He therefore decided to supplement the Hibbs fusion with the use of a beef-bone graft in a procedure combining the technics of the Hibbs and Albee methods. This was done in nineteen cases, in twelve girls and seven boys. The ages of the patients ranged from 8 to 20 years. In three, the scoliosis was of the paralytic type, and in the others, of the idiopathic type. Kleinberg concluded that at least fibrous ankylosis was obtained in every instance, and that the method described was applicable to all varieties of scoliosis.

MacLennan[6] favors the Abbott method for forcible correction, and reports an interesting operative treatment for selected cases, which includes operation on the bodies of the vertebrae themselves. He describes his operative technic thus:

> A 4-inch incision is made over the convexity of the curve. It is placed just external to the tips of the transverse processes. The dissection will vary according to the locality, but the muscles are split rather than cut. The posterior nerve branches are conserved as far as possible. . . . Two, or at most three, ribs are resected from their angles to their articulations with the vertebrae. . . . The body of the vertebra forming the center of the curve is excavated and the same is done to the vertebra above and below, though not to so complete an extent. The intervertebral substance is nibbled or cut away. With the finger in the cavity so made, the spine is forcibly flexed toward the convexity. The wound is closed in layers, without drainage. A plaster-of-Paris jacket is applied with the spine flexed laterally as much as possible.

With regard to the results of this operation, MacLennan says only that he is satisfied that the risk involved is compensated for by the improvement.

ANATOMY OF NATURAL FUSION

In this brief review I have mentioned the principal methods in use today for the correction of scoliosis. In my own cases I use the Hibbs method, and one of my chief purposes in this paper is to describe a procedure which I have found of value in improving the

3. Forbes, A. M.: Operative Treatment of Scoliosis, J. Bone & Joint Surg. **4**: 446 (July) 1922.
4. Whitman, Royal: J. Orthop. Surg. **3**: 330-333 (July) 1921.
5. Kleinberg, Samuel: Operative Treatment of Scoliosis, Arch. Surg. **5**:631-645 (Nov.) 1922.
6. MacLennan, A.: Brit. M. J. **2**: 864 (Nov. 4) 1922.

results of that operation. Before proceeding to its discussion, however, I wish to say a few words regarding the frequent presence of natural fusion in scoliosis, because I believe that it is unrecognized by some, and that a study of such fusion will greatly aid the operator in his attempts to produce efficient artificial fixation.

Jones and Lovett [7] give illustrations of natural fusion and label them as such. This fusion in scolosis, as I have seen it in the skeleton and when operating, occurs most extensively at the point of greatest curvature and on the concave side of the curved and rotated spine. The articular processes, in particular, are often fused and surrounded by such extensive masses of bone that they are completely hidden. This callus is seen on the pedicles and along the lower border of the spinous processes, and on the lower margin of the superior articular processes. Often a spinous process is fused with its neighbor for half or two thirds of its length. The outer half or third of the spinous process below, including the narrower tip, is seldom fused, and it is this bone, uninvolved in the natural fusion, which the operator may use as part of his material for artificial fusion.

Along the concave side of the curve the fusion is dense and strong, the callus often curving over and enveloping the transverse process in practically its entire length. On the convex side, where separation of the adjacent pedicles and transverse processes is exaggerated, the fusion is less dense, often incomplete, weak and easily broken.

In many cases, the transverse processes and pedicles on the concave side are free from callus, the articular process alone being fused, and sometimes fused poorly. The uppermost fused vertebra is frefrequently solid at its articular process on the concave side, but unfused or poorly fused on its convex side. In skeletons showing scoliosis, the concave fused articular processes of these upper vertebrae are frequently found broken, probably because of the comparative instability due to the single-sided fusion. The lowest fused vertebra also often presents single-sided fusion.



Fig. 3.—Skeleton with scoliotic natural function, showing fused and nonfused articular process.

Cases in which there is natural fusion—and, I believe, in most cases in which the spine is fixed in rotation and curvature there is such fusion—are best adapted to an operation in which the fusion is cut apart carefully and preparations, as far as fusion is concerned, are thus made at once for some correction, and for fusion in a more corrected position. Such preparation requires the chiseling away of the ankylosed processes as well as all other bony adhesions, especially on the concave side of the curve. These ankylosed articular processes and much of the other natural fusion are often entirely hidden, but usually can be reached if the deformed anatomy is borne in mind. In early cases without fusion, in which manual correction during operation is easily possible, the Albee technic for Pott's disease with an autogenous bone graft is indicated, should operation be desired.

The procedure mentioned as increasing ankylosis when using the Hibbs operation is the use of an osteoperiosteal graft for additional support. I was led to use such a graft in cases for fusion of tuberculous spines, and later in scolosis, by the excellent restults obtained with them in the repair of old fractures of the tibia.

The osteoperiosteal graft (Delagénière) is a graft of periosteum with a thin layer of underlying bone which is easily moulded to the parts requiring support. Its use for reinforcement in cases of scoliosis has produced especially gratifying results for me when additional bone is required in a given case, and when it is desired to reinforce the foundation made with the neighboring bone. Often the spinous processes are small, and therefore do not yield sufficient bone. In other cases, the patient may not be suited physically for the more severe transplantation method in which large pieces of bone, including the cortex, are removed from the tibia. Under such circumstances, the use of the osteoperiosteal graft is particularly indicated.

In the early use of this graft, a strip of periosteum with its islands of bone measuring 1½ by 3 or 4 inches was laid along the freshly made fusion bed so that it covered the newly placed bone and the denuded laminae and neighboring fresh bone. This method gave satisfactory results but wasted considerable valuable material in areas already provided for; in fact, much growth took place bringing the laminae where the split spinous processes were laid, giving here sufficient strength. The stumps of the spinous processes are often left without bone for fusion. Therefore, smaller grafts of periosteal compacted material, one for the interval between each spinous process base, were placed so that wafer graft covered the entire posterior disk space and overlapped the neighboring bone. The result is a more even and symmetrically stronger support than the fusion alone, which is often too strong in one area and too weak or insufficient in another.

The postmortem examination of one case in which this type of graft was used showed a remarkably uniform distribution of bone, with surprising strength. The massed appearance and the effect of shavings and clumps of bone placed in the fusion operation were present. It is probable that when surgeons become familiar with the combination of the wafer graft with the fusion operation, or with the massive transplantation operation, it may become more popular.

7. Jones and Lovett: Orthopedic Surgery, 1923, Figs. 681 and 682, p. 648.

RESULTS

The results in my patients, none of whom were paralytic, will be made the subject of a future paper at a time when the end-results of the operation can be more fairly judged. At present, the outcome seems only fairly encouraging. Less so in a corrective effect on the rotation deformity than on the curves. I am less optimistic than the reports on prognosis made by Hibbs, Kleinberg, Whitman, Forbes or MacLennan would indicate, but I may be unfortunate in my technic or in my choice of cases for the operation.

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ABSTRACT OF DISCUSSION

DR. FRED H. ALBEE, New York: Cases for operation must be selected with the greatest care. I have done very few bone graft operations in the ordinary types of scoliosis. The statistics that have been given proving the interference with longevity by scoliosis and the impossibility of determining how much the deformity is going to progress in spite of all known conservative treatment is a consideration we must heed. Most of us can agree that certain severe cases of paralytic scoliosis ought to be ankylosed as they are difficult to control by external means. Most of these patients will still need external support; but the combined method of internal fusion or internal ankylosis and external support offers a much more favorable prognosis than conservative treatment alone. If we are to ankylose the spine, what method shall we use? This is a condition in which the surgeon cannot afford to leave anything undone in order to get the most reliable result and strongest and most rigid bony bridge possible. The lateral stress that comes on the ankylosis which the rigid bony bridge produces is more unfavorable than that which occurs in the case of Pott's disease. In Pott's disease the reparative process is taking place always, and it helps in the immobilization. This is not the case in scoliosis. In implanting the graft by the same general technic which I have employed in Pott's disease cases, I turn it over and, instead of putting it in with its broader diameter anteroposterior, I put it in with its broader diameter lateral, thus supplying laterally a very strong bridge. The graft is made very large. In severe cases of paralytic scoliosis I have hospitalized the patient for some time before I operated for the purpose of stretching and correction. At the operation I have used the graft as a lever to increase the correction. In cases in which I operated eight years ago, the grafts are holding in a most gratifying way. In addition to the graft, I do something that Hibbs and Forbes have pointed out—especially Forbes—of chipping around the laminae and the base of the spinous processes so that as large and rigid a bony bridge as possible is obtained. It cannot be too large to withstand the stress that comes on it. Where the ribs telescope into the pelvis in an uncomfortable and awkward position with an extreme lateral deviation at the lumbosacral junction, I have forcibly corrected the deformity under anesthesia and put a bone graft prop between the crest of the ilium and the tenth rib.



FIG. 4.—Moderately severe right dorsal scoliosis, operated on by the Hibbs method with the addition of the osteoperiosteal graft. The cast was removed recently. The left shoulder is still held high, but will drop gradually. The back is much improved. However, the present condition of the curve and rotation must not yet be judged as permanent.

DR. F. J. GAENSLEN, Milwaukee: Scoliosis continues to be one of the most difficult problems in orthopedic surgery; and when we are forced to admit that occasionally patients grow worse right under our hands, I believe it is perfectly justifiable to cast about for any improvement in treatment that we can obtain by surgical or other means. The relief from brace wearing, if that is possible, and the improvement of the functions of circulation and respiration that come about with correction, are not among the least to be considered, because severe scoliosis patients are not likely to enjoy longevity, owing to intercurrent pneumonia and other respiratory conditions. I should like to have Dr. Thomas say something about the effect of growth on the ankylosed portions. I believe that what little influence may be expected will be in the direction of correction of the deformity. As regards the author's modification of the Hibbs operation by the addition of the wafer graft, it seems to me that it is a rather valuable addition to the technic. To those who have done the Hibbs operation it will be quite apparent that it is a difficult matter to get anything like a continuous periosteal tunnel by denudation of the laminae, so that the addition of this wafer graft will be a great help. Its osteogenic possibilities are very considerable, and I have come to rely a great deal on this as a help when used as a wrapper round a repaired ununited fracture. Preoperative traction for a period of several weeks is an important addition. While I think that surgery should be resorted to, my own inclination would be to allow some men who have manifested a great interest in this work and who have done much of it to continue their investigative work on a rather larger scale, and those of us who have not done so much of this work, to wait for their results. My own experience is very limited, and I have confined it to cases in which there was rather distinct angulation. I am not familiar with the details of the McClennan operation; but its plan of attack, while probably very hazardous, appears logical.

DR. H. B. THOMAS, Chicago: In 1914, to determine the effect of transplants on the growth of the spine, I carried out a series of experiments on kittens. Numerous transplants to the spine were made. Several of these animals were under observation for two years after the operation, but no increase in kyphosis or lordosis of the spine was noted.

Drugs of Value in Tuberculosis.—Many drugs are valuable in combating and relieving particular symptoms of lung tuberculosis; none affect it fundamentally. The various specific products of the bacillus—tuberculins—have done not a little good in one or two very special types of cases, but only the thoroughly trained physician, experienced in their use, should administer them.—A. K. Krause: Rest and Other Things, p. 17.

SYNOVECTOMY OF THE KNEE JOINT IN CHRONIC ARTHRITIS*

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LOS ANGELES

My purpose in this paper is to present the value of synovectomy in carefully selected cases of chronic arthritis of the knee joint. Synovectomy, a systematic removal, total or partial, of the articular synovial membrane, has long been used in various infections of the joint, and was originally recommended as surgical treatment for synovial tuberculosis. The application of synovectomy, therefore, has been extremely restricted. Albertin, in 1895, reported two successful cases in which the operation was performed through lateral incisions for an acute infectious arthritis following penetrating wounds of the knee. Mignon, in 1899, ablated the anterior portion of the membrane in a case reported as a chronic traumatic hydrarthrosis with extreme synovial hypertrophy. Murphy, in 1916, reported two cases of synovectomy in so-called hypertrophic villous synovitis. His technic included a horseshoe skin incision with the base above and a transverse division of the ligamentum patellae, permitting upward reflection of the patella and excellent exposure of the joint. Suture of the patellar ligament was required, and early postoperative joint motion was not permitted until repair of the ligament occurred. Recently, Swett has reported synovectomies in eight patients suffering with chronic infectious arthritis, the operation consisting in opening the knee joint at the site of the greatest thickening and effusion, and dissecting out the synovial membrane.



Fig. 1 (Case 1).—Only moderate hypertrophic changes; predominance of pathologic changes in soft tissue.

I have used, in twelve cases reported, the longitudinal split-patella approach advised by Robert Jones. The advantage of leaving the extensor apparatus intact is obvious, since it permits immediate postoperative mobilization. Through this incision all the synovia, with its reflections, the ligamentum alaria, the infrapatellar pad and the menisci can be easily excised from the anterior joint.

SELECTION OF CASES

The importance of careful selection of cases cannot be overemphasized. The chronically diseased knee joint is always with us, and to suggest that radical surgery offers the only means of restoring joint function would be ridiculous. It is worthy of attention that in more than 300 cases of chronic arthritis of the knee joint only twelve cases were submitted to a synovectomy during a period of ten years. I have hesitated to present even this small series of cases with the end-results, which I believe possible only by this method, for fear of popularizing an operation that requires special knowledge and experience in the selection of cases for operation.

In the early stages of a chronic infectious arthritis of the knee joint we have great opportunities, the routine search for an infective or toxemic focus existing commonly in the teeth, pharynx, nose and intestinal or genito-urinary tract. With the extirpation of the focus, the treatment of the knee joint includes various forms of joint nursing, physiotherapy and brace or plaster fixation, all being directed to the relief of pain, prevention of deformity and conservation of function. Such efforts, so successfully directed to the cure of incipient diseases of the joint, are not, however, equally well applied to chronic diseases of the joint. Most of us must confess to a certain sense of uneasiness when confronted by a patient with a chronic disease of the knee joint which has been faithfully and persistently treated by good routine methods in common practice. The patient has perhaps submitted to a tonsillectomy, extraction of teeth, or laparotomy, and has received excellent conservative orthopedic treatment; but the stiff and painful knee joint persists. Yet it was for the disability in the knee that the patient originally consulted us, and to continue with conservative methods which have already failed is no longer justified. Fortunately, in certain cases the infection is quiescent, and the pathologic picture of grossly proliferated synovia, hypertrophied infrapatellar pad, and degenerated or fibrillated menisci represents the ashes of a dead fire. The pathologic changes within such a joint are definite, and function will be returned only if the mechanical derangements present as a result of long standing infection are removed. Provided, therefore, we are not dealing with a generally disseminated polyarthritis but with a low grade infection confined solely after months or years to one or even both knee joints, it may be possible by appropriate surgery to remove the products of infection and restore function.

It is of the utmost importance to be certain of the type of arthritis before operating on these joints. At a single examination we cannot be sure that the infected

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knee joint may not be the precursor of a general arthritis involving all joints, the so-called arthritis deformans. Arthritis deformans is a progressive bone and joint lesion; and, while it may begin in a knee joint, yet at succeeding examinations it is seen to involve the other knee, the hips, the spine and multiple smaller joints. Arthritis deformans, pyogenic arthritis, and the acutely proliferative type of so-called atrophic arthritis positively contraindicate synovectomy. There is, however, a definite type of low grade infection in which, after even months or years, the pathologic lesion still remains in the knee joint. It is characterized by synovial hypertrophy, bone exudate in the form of marginal osteophytes, various degrees of atrophy of the articular cartilage, hypertrophy of the infrapatellar pad and suprapatellar pouch, and degeneration of the semilunar cartilages. While the knee joint may present the roentgenographic signs suggesting arthritis deformans, yet, clinically, the lesion commonly involves but one joint, and pathologic changes of the soft tissue predominate. Usually the bone proliferation is not extreme, and is manifested only by scattered osteophytes. The changes are not uniform throughout the joint, the terminal stage of joint surfaces articulating with bony and not cartilaginous contact existing only in rare cases. Arrest of the infection seems to occur at any stage. The presence of osteophytes, as seen in the roentgenogram, I have found not to be so serious a prognostic factor as it would seem; and the knee joint, even with a considerable formation of osteophytes, may be made painless and useful by synovectomy.



Fig. 2 (Case 1).—Only moderate hypertrophic changes; predominance of pathologic changes in soft tissue.

REPORT OF CASES

Case 1.—Mrs. J. L. D., aged 55, was examined Sept. 17, 1915, because of pain, swelling and disability of the right knee of three years' duration. The patient had submitted to a tonsillectomy, a panhysterectomy and multiple extraction of teeth. No clear history of injury to the knee joint was obtained, although the patient had had several falls and was in the habit of closing drawers with the knees. She stated that she did not have syphilis, and the Wassermann test of the blood and spinal fluid were negative. Treatment had included crutches, plaster fixation and baking and massage at intervals without relief. The patient was never conscious of elevation of temperature in the joint at any time. The knee had simply gradually increased to its present size over a period of three years. Examination showed no local elevation of temperature, but a chronic effusion and extreme synovial thickening, a hypertrophied infrapatellar pad, and tenderness over both menisci. Full voluntary extension persisted, but only 10 degrees of voluntary painful flexion was possible. Examination of all other joints was negative. Roentgenograms showed moderate lipping and osteophytes on the patella and the articular margins, with lessening of the joint interval (Figs. 1 and 2). The patient was given a Jones' knee cage permitting 20 degrees of flexion and was allowed guarded weight bearing on crutches. A negative search was made for possible infectious foci. The patient was kept under observation for a further period of five months, during which time no other joints became involved, but the symptoms persisted. A total synovectomy was done, Feb. 12, 1916, at which time the retropatellar pad, both menisci and the entire synovia were excised, together with two small exostoses from the inferior surface of the patella. A considerable degree of hypertrophic arthritis out of proportion to the roentgen-ray findings was evident at the articular margins. Both menisci were frayed and fibrillated, having the appearance of dense connective tissue. The total mass of soft tissue excised from the joint filled two ordinary table glasses. The lateral walls of synovia were united by well organized adhesions, and the synovia was everywhere congested and thickened. Only a moderate amount of free fluid was present in the joint, the apparent effusion at examination being due largely to hypertrophy. Pathologic reports showed chronic inflammatory tissue, and cultures were negative and no micro-organisms were found in stained specimens. The patient's convalescence was uneventful. Voluntary motion was begun on the first day, and 45 degrees of voluntary flexion obtained on the third day. Motion progressed under daily physiotherapy, until at the end of six weeks the patient had 90 degrees of voluntary flexion, at which time free weight bearing was permitted. This patient has been reexamined on several occasions. Four years after operation she sustained a severe fall, injuring the right knee, which was painful for two weeks. It is noteworthy, however, that no effusion occurred in the joint. The patient reports, seven years after operation, at the age of 62, that she can walk a mile, ride horseback, and is free from symptoms. She has full range of flexion and extension. It is worthy of note that the patient was not submitted to operation until further conservative measures had been tried and until we were reasonably certain that the arthritis of the knee joint was not the antecedent of a general arthritis deformans.

Bone changes in certain of these cases may be extreme, as shown by the roentgenograms. Marked lipping, almost entire obliteration of the joint interval, and numerous osteophytes would seem to contraindicate any operative interference intended to restore motion, especially when there is added to the clinical picture barely demonstrable joint motion and a gross synovial hypertrophy (Figs. 3 and 4). Because of the extensive changes that were present in the bones, I hesitated to offer synovectomy in the following case; the patient therefore agreed to an arthrodesis if the findings at operation contraindicated an attempt to obtain a movable joint.

CASE 2.—W. H. F., a minister, aged 60, who weighed 230 pounds (104 kg.), was examined May 8, 1919. The family and past history were negative. At 12 years of age he struck the patella with a hatchet, and at that time is presumed to have sustained a fracture of the patella and was on crutches for one year. At 18, while playing football, he injured the same knee and was occasionally conscious of a catch at intervals over a period of years. The knee first became painful five years before I saw him, and had steadily increased in size until it was 2 inches larger in circumference than the opposite knee. He had tried baking and massage and serum, and submitted to multiple extraction of the teeth. Plaster cast fixation, braces, and various forms of joint nursing had not relieved his symptoms. He had been unable to kneel in his pulpit for the last three years. A Wassermann examination was negative, and no infectious foci were demonstrable. Examination of the knee joint revealed 25 degrees of painful flexion, and roentgenograms showed extensive lipping of the articular margins and large exostoses on both condyles of the femur anteriorly. The joint interval was almost obliterated (Figs. 3 and 4). The patient was given the doubtful benefit of further conservative treatment. A Jones cage was applied, permitting 30 degrees of flexion, and joint nursing was continued without relief. At the end of three months the patient asked for operation, which was done, Aug. 7, 1919. The entire synovial membrane was found to be transformed into a mass of short villi. The synovia was everywhere edematous, and fatty pendulous fringes, together with a few loose fibrous bodies, were found. The infrapatellar pad filled the lower anterior joint. The internal semilunar cartilage was entirely absent, and the external cartilage was an irregular mass of fibrous tissue. The articular cartilage of the femur presented several distinct areas of atrophy. Because of the relatively small loss of articular cartilage, in spite of the rather formidable roentgen-ray appearance, I decided to try for motion instead of ankylosis. The total amount of tissue excised from this knee joint filled two ordinary table glasses. At examination two years after operation, the patient had 100 degrees of voluntary painless flexion and, standing on the affected leg, could bear his entire weight in flexion. Three years after operation, at the age of 64, the patient walked fifty-two city blocks and could kneel without effort.



Fig. 3 (Case 2).—Extreme hypertrophic changes and obliteration of articular interval apparently contraindicating any operation to obtain mobility; normal range of motion was obtained in this joint by total synovectomy.

There is a second type of arthritis in which the bone change may be slight or entirely absent, the synovial hypertrophy extreme, forming pedunculated growths of connective tissue—the so-called "lipoma arborescens," or villous arthritis. Painful villous fingers project themselves between the articular margins, with compression of the synovia and constant trauma to the menisci and articular cartilage. The effect of even minor trauma on such a joint is evident. Total excision of the hypertrophied synovia restores early painless function.

CASE 3.—Mrs. E. W. R., aged 29, examined Oct. 15, 1919, had had an injury while playing basketball twelve years previous. The knee had remained always enlarged since that time, and had locked on several occasions. Three years before I saw her, she was treated for rheumatism without relief, and had had osteopathic treatment, splinting, and baking and massage during the past two years. She had submitted to a tonsillectomy, both frontal sinuses had been drained, and many teeth had been extracted. Roentgenograms were negative. Examination showed a chronic synovitis, an enlarged retropatellar pad, voluntary flexion of 50 degrees, soft tissue crepitation, and an increase of one-half inch in circumference of the joint. All other joints were normal. At operation, Feb. 8, 1920, a typical villous synovitis was found. The menisci and the articular surfaces of the joint were normal. Characteristic hypertrophic changes in the synovia, infrapatellar pad and alar ligament were evident. These structures were excised. Her convalescence was uneventful. This patient, reexamined for the purpose of this report, three years after operation, has full painless function without recurrence of symptoms.

I believe that synovectomy is also indicated in a true osteochondromatosis of the knee joint, characterized by the formation of multiple loose bodies. Whitelocke believes that fibrous tags hanging from the synovial membrane become cartilaginous, and that the development of fibrous tissue into cartilage is due to the fact that the early development of the synovial membrane, and the articular and interarticular cartilages of the knee joint, is from the same primitive embryonic layer of the axial blastema. Henderson reports a case in which, on exploring the knee joint, he found the synovia loose, wrinkled and pouched, with multiple fibrous tags hanging from the capsular synovia. The tags were pedunculated, and their bulbous ends covered with cartilage. In this somewhat rare type of arthritis I believe that excision of the synovia from which the loose bodies seem to be derived is indicated. Osteochondromatosis, however, is not to be confused with osteochondritis dissecans, in which, provided no gross changes occur in the synovia, a simple arthrotomy is sufficient.

CASE 4.—R. G., an architect, aged 48, was seen in October, 1917, because of a loose body in the left knee joint. Two years before, fourteen loose bodies had been removed from the same knee joint through an internal lateral incision. The loose body was easily palpable at the inner aspect of the joint. The knee had not locked since his previous operation, but he complained of pain at 90 degrees flexion and full extension. Roentgenograms showed a moderate degree of hypertrophic arthritis. At operation, the patella was split longitudinally, the joint was exposed, and two loose bodies lying free in the anterior joint were removed. The synovia was found to be

thrown into firm redundant folds and with multiple pedunculated fibrous tags. The articular surfaces were normal. On the assumption that the loose bodies were simply synovial in origin, a synovectomy was done, including excision of the retropatellar pad and hypertrophied alar ligament. Five years after operation, the patient reports no recurrence of joint symptoms.

Case 5.—Mrs. F. W., aged 61, was examined, May 12, 1920, because of persistent pain and disability of the left knee. She had had an injury to the knee joint thirty-one years before, at which time she was on crutches for six weeks. During the past ten years there had been gradual loss of motion, increase in pain, and the knee was flexed at 30 degrees, with barely 30 degrees of voluntary flexion. The Wassermann examination was negative. The knee was very much swollen with gross soft tissue thickening, and considerable free fluid in the joint. Roentgenograms showed extensive lipping, numerous osteophytes on the patella and femoral condyles, and marginal osteophytes on the tibia, with the joint interval almost obliterated (Figs. 5 and 6). Examination of all other joints was negative. A total synovectomy was done, June 1, 1920, which included excision of both menisci. Massive synovial hypertrophy and considerable erosion of the articular surface of the femur was found. Active motion was instituted as soon as the patient recovered from the anesthetic, and physiotherapy was continued daily for six weeks, at which time 80 degrees of painless voluntary flexion was obtained. Under an anesthetic, the knee was further flexed and physiotherapy continued for four weeks longer. The patient was permitted crutches on the tenth day, and discharged from active treatment ten weeks after operation. The patient, now aged 64, reports three years after operation that she walks without a limp and with no pain. Extension is complete, and there is 110 degrees of active painless motion. She now engages in any type of exercise that she wishes without inconvenience or support.



Fig. 4 (Case 2).—Extreme hypertrophic changes and obliteration of articular interval apparently contraindicating any operation to obtain mobility; normal range of motion was obtained in this joint by total synovectomy.

Case 6.—J. H., a man, aged 46, was examined, Sept. 13, 1916, because of pain and swelling of the right knee joint of ten years' duration. He had had gonorrhea ten years before, followed by an arthritis in the right knee joint which had persisted, with chronic effusion. He submitted to a tonsillectomy, multiple extraction of the teeth, prostatic massage, serums and vaccines without relief. The right knee was very much swollen, with marked soft tissue thickening and an increase of joint fluid. There was no local heat or tenderness. Motion lacked 15 degrees of full extension, and flexion was not possible beyond a right angle. A roentgenogram was negative except for minor hypertrophic changes. The patient was referred to a competent urologist for further examination of the prostate and seminal vesicles, which were found moderately inflamed. He was given prostatic massage and irrigation, without apparent effect on the knee joint symptoms. He was kept under observation for three years, and submitted to all manner of conservative orthopedic treatment until operation, Aug. 11, 1919. A total synovectomy was done. The synovial hypertrophy was massive, and much free fluid was found in the joint. The articular cartilage and menisci were normal and were not excised. Cultures and stained tissue specimens were negative for bacteria. The synovia showed chronic inflamed tissue. The patient made an uneventful convalescence and remained free from symptoms until Aug. 16, 1921. Reexamination showed a recurrent effusion and 30 degrees limitation of motion in the joint. The patient was put on physiotherapy and antisyphilitic treatment in spite of a negative blood and spinal fluid Wassermann reaction. He reported full function and freedom from symptoms, March 22, 1923.

Case 7.—E. S., a man, aged 30, was examined April 27, 1917, because of persistent pain and disability of the right knee joint occurring at intervals during the preceding six years. He had had several football injuries, and had been treated by plaster fixation and routine joint nursing without relief. He referred the pain to the inner aspect of the joint, and gave the history of several slips. Examination showed a thickened retropatellar pad, much free fluid in the joint, local tenderness over the internal semilunar cartilage, and flexion limitation of 35 degrees. Roentgenograms were negative. Conservative treatment was continued at intervals without relief for three months, during which time the patient submitted to a tonsillectomy. A partial synovectomy was done, July 13, 1917. The internal semilunar cartilage was found detached anteriorly, and adherent to a grossly hypertrophied retropatellar pad. The alar ligament was the size of a lead pencil. The synovial membrane was dense and adherent in the internal half of the joint, and was excised, together with the internal cartilage, retropatellar pad and alar ligament. The patient was discharged from active treatment at the end of the seventh week. Seven years after operation he had normal function in the joint, and stated that the joint had remained entirely free from symptoms, and permitted golf and tennis.

Case 8.—Mrs. H. H., aged 46, was examined, Jan. 10, 1919, because of pain and increasing disability in the left knee joint. Three years before, she felt a slight catch in the left knee when getting up from the table, with some pain but with no immediate disability. The patient noticed, however, that the joint steadily increased in size and motion is now limited to painful right-angle flexion. She stated that the joint had been free from heat and local tenderness. Plaster fixation, physiotherapy, braces and protracted treatment at a hot springs had been tried without relief. The patient had been on crutches for the last ten weeks. She had submitted to appendectomy and tonsillectomy and teeth extractions without any evident effect on her symptoms. The patient was kept under observation for three months, and at her request was submitted to operation, March 20, 1919. The external semilunar cartilage was found loosely attached, the retropatellar pad greatly thickened, and the synovia everywhere hypertrophied. These structures were excised. The patient's convalescence was uneventful, and she was discharged from active treatment at

the end of seven weeks. She reports by letter that her knee has remained entirely free from symptoms and permits full activity.

CASE 9.—Mrs. E. T., aged 49, was examined Jan. 23, 1920, because of increasing stiffness in the left knee joint. The patient gave the history of a fall two years before. She had submitted to a tonsillectomy, extraction of teeth, and six months of osteopathic treatment with some relief. After careful study, no infectious foci were found. The Wassermann test was negative. Roentgenograms showed a moderate degree of hypertrophic changes. Examination showed a persistent synovitis with barely 20 degrees of voluntary painful flexion, much soft tissue thickening and crepitation. A partial synevectomy was done, March 18, 1920, which included excision of the retropatellar pad and hypertrophied synovia. Free fluid in the joint was excessive, but cultures were negative. The usual routine of physiotherapy was continued, and the patient discharged at ten weeks with complete extension and 100 degrees of active painless flexion.

CASE 10.—Mrs. N. M., aged 45, was examined, Dec. 6, 1920, because of disability of the left knee joint. She had had an injury to the knee joint at 13 years of age, when she was recumbent for six weeks, and a similar injury at 16 years and at 32 years. Recovery followed plaster cast fixation. Four years before I saw her the patient had a fall, since which time she had been on crutches and could not extend the leg without lifting it with the other foot. She had had all varieties of treatment, including osteopathic treatment, and had submitted to extraction of all the teeth and a tonsillectomy. She had no evidence of arthritis in the other joints. Roentgenograms were negative except for hypertrophic changes on the inferior surface of the right patella and the anterior articular surface of the right tibia. At operation, Jan 4, 1921, the knee joint was explored through a split patellar incision. Seven minute loose bodies not evident in the roentgenogram were found free in the anterior joint. The degenerated external semilunar cartilage was found dislocated internally, and the retropatellar pad occupied the lower joint. Synovia removed from this joint filled two table glasses. The patient was kept under after-treatment for eight weeks, and discharged with full painless flexion and extension, Feb. 18, 1921.



Fig. 5 (Case 3).—The considerable hypertrophic changes shown in this illustration and Figures 3 and 4 are not the serious prognostic factor as regards mobility that the roentgenograms would suggest; total synovectomy obtained full function.

CASE 11.—Mrs. J. B., aged 60, was examined, Sept. 23, 1921, because of pain in both knees of ten years' duration. She had had chronic disease of the throat, for which she submitted to a tonsillectomy, and she had had all the teeth extracted. The patient had had several minor injuries. She had been on crutches for the last six years, during which time no other joints had become involved. She had been given orthopedic treatment to the feet, which had given her some relief. Roentgenograms of both knees showed a hypertrophic arthritis. Because of the possibility of a progressive arthritis deformans, this patient was kept under observation and study for a further period of six months, during which time she was under the care of a competent internist, and chronic constipation was relieved, but the symptoms in the knee joints persisted. A total synovectomy was done on the right knee, May 24, 1922, which included excision of the retropatellar pad, all synovia and both cartilages. The patient was discharged from active treatment at the end of eight weeks, at which time she had discarded her crutches and at the end of ten weeks gave up a cane. At the end of twelve weeks the patient demonstrated right-angle flexion and asked for operation on the opposite knee joint. A total synovectomy was done on this joint, Oct. 3, 1922, and ten weeks later the patient had right-angle flexion and full extension. When examined for the purpose of this report, March 28, 1923, she had no return of the synovitis, was free from symptoms, and walked without cane or crutches. It is noteworthy that twelve weeks after the second operation she had a subacute arthritis in both wrists and ankles without recurrence of symptoms in either knee joint.

CASE 12.—C. L., a man, aged 52, examined, May 13, 1922, because of a persistent synovitis and a 20 degree flexion deformity of the right knee joint of nine years' duration, had had increasing pain and stiffness in the joint, especially during the past two years following a fall, during which time he had been unable to use the knee with any comfort. Examination showed 30 degrees of voluntary painful motion. Roentgenograms were typical of a hypertrophic osteoarthritis. No infectious foci were demonstrable, and blood examination was negative. It was impossible to determine the origin of the loose body. The femoral articular surface was smooth, but numerous exostoses were present on the lateral margins of the condyles. The retropatellar pad was grossly hypertrophied, and the joint contained considerable free fluid. Both menisci were found degenerated and were excised, together with hypertrophied synovia. The patient's convalescence was uneventful, and he was discharged from active treatment at the end of seven weeks, and reported one year later that he followed a plow on rough ground without symptoms in the joint. At examination in April, 1923, he had full extension and 110 degrees of flexion without pain.

OPERATION

Synovectomy is best done without hand contact and with the help of but one assistant, thus shortening the aseptic chain and lessening the liability of operative infection. Operation is preceded by a forty-eight hour iodin-alcohol preparation. A tourniquet is applied to the thigh, and the leg is clothed in a sterile stockinet, through which the longitudinal skin incision is made. The incision begins a hand's breadth above the patella, and extends to the tibial tubercle. The patella is split slightly to the inner side by a wide osteotome, and the joint capsule incised. The knee is acutely flexed, permitting retraction of the patellar fragments and wide exposure of the anterior joint. The hypertrophied infrapatellar pad is excised, bringing into view the

menisci, both of which may be removed if degenerated or fibrillated. Beginning at the upper part of the joint, the synovial capsule is enucleated by a spreading dissection and excised. Bleeding is free, but requires no hemostasis and ceases when the external fibrous layer of the capsule is cleanly exposed. It is well to begin the dissection from above downward, to prevent the bleeding obscuring the operative field. Excision requires the removal of all the infiltrated and thickened synovia in the joint, and includes all diverticula and reflections of synovia. The fibrous capsule is closed with a single continuous ten day chromic suture, the skin with a continuous dermal suture. Suture of the patella is not required. The knee is swathed in voluminous soft dressings. Splinting is contraindicated, since joint motion is essential and active voluntary motion is insisted on within twenty-four hours.

After-treatment requires daily voluntary motion. By the third day, 30 degrees of painless flexion is usual. Physiotherapy is begun on the sixth day and continued daily. Voluntary extension is restored by the end of the second week, when the patient is allowed crutches and guarded weight bearing. Full function is usual at the sixth week.



Fig. 6 (Case 3).—The considerable hypertrophic changes shown in this illustration and in Figures 3, 4 and 5 are not the serious prognostic factor as regards mobility that the roentgenograms would suggest; total synovectomy obtained full function.

COMMENT

The cases reported were all of long standing. The synovial membrane was dense and thickened, and evidence of trauma was found in almost every joint.

In several cases, quite extensive erosion of the articular surfaces of the condyles was present, the articular surface of the tibia being relatively smooth.

Adhesions were commonly found between the synovial folds in the lateral culdesacs of the superior joint. Synovial fringes, fibrillation and derangement of the menisci, together with hypertrophy of the alar ligaments and retropatellar pad, were almost constant findings. Pathologic reports showed chronic inflammatory tissue. Cultures were negative, and micro-organisms absent in stained specimens. Restoration of painless function occurred in every case. Relapse occurred in one case, badly selected, and recovery followed appropriate antisyphilitic treatment.

Although synovectomy in the treatment of chronic conditions of the knee joint has distinct value, it must be definitely recognized that its application is limited and must be largely directed to the relief of a disabling condition only after persistent conservative methods have failed.

ABSTRACT OF DISCUSSION

Dr. Walter J. Baldwin, San Francisco: I should like to chronicle a mistake I made in my first case. I did it, as I frequently do the operation, under tourniquet and removed two handfuls of synovia and fatty material from each side of the patella, using the same technic as was described by Dr. Jones. I did not move the knee early enough after operation. I waited seven or eight days, and by that time the knee was quite slim in outline, contained no fluid and was free from swelling of any kind. I was afraid of starting an inflammation, not realizing that I had removed all the necessary elements in the knee joint, and consequently could not do a bit of harm by starting movement earlier. We had quite a fight to start movement afterward, and I am sure that this would have been obviated if I had started earlier, even allowing the knee joint to fill with blood. I think that this is an advantage, and that the operation under tourniquet is an advantage. In two other cases I operated without a tourniquet, ending with a swollen knee. I think it is much easier to get full mobility afterward. The operation that Dr. Jones is popularizing is one that is worthy of a better trial by orthopedic surgeons in general.

Dr. Fred H. Albee, New York: I have often been impressed with the immense amount of work that we can do with the knee joint that we were unable to do formerly, and the thoroughness with which we can do it. Three years ago, Dr. Jones told me about these cases and what he had done up to that time. I had under my care at that time a most stubborn case of what we would ordinarily call a recurrent hydrops of the knee of the most persistent type. I operated, following exactly Dr. Jones' method. I was gratified with the result obtained in that case. The pathologic condition was most remarkable. I am sure that if I could have dissected out the synovial membrane intact, without lacerating it, it would almost have retained its former shape when placed on the table, it was so thick. It was about one-third inch thick and leathery in its consistency. I split the patella with the motor saw and the ligamentum patellae and quadriceps tendon as well, so that I could get at the whole synovial membrane and excised it very thoroughly, as Dr. Jones described. I have since then operated in seven cases. One was a case of tuberculosis. I was surprised when splitting the patella to find so much tuberculous matter in the outer side of the knee joint, but practically none on the inner side of the knee. There was a tremendous amount of detritus; I must have resected a cupful and a half of material. I cannot report a final result in this case. The patient has done much better since operation than before. In some other cases I have been impressed with the frequency of disintegration and displacement of the internal meniscus—sometimes the external meniscus also, and I have thought since in all his cases Dr. Jones found evidence, in the history or by operation, of a former trauma, that possibly an important part of the etiology of these cases is an undetected laceration and displacement of one of the menisci,

causing long continued irritation, and possibly complication with a toxic condition.

DR. JOEL E. GOLDTHWAIT, Boston: I have been impressed with Dr. Jones' paper. It seems to me that the first thing for us to remember is the description of the careful selection of cases. This is not an operation for general use, but for selected cases. Enthusiasts in operative technic are sometimes apt to forget this, and have results that are very different from those of Dr. Jones. The number of cases in which this type of procedure is justified is relatively small. The mode of procedure in those cases seems to be admirable. In the Carney Hospital clinic, when we were first struggling with the problem of chronic arthritis, operations were performed in many cases similar to those here reported; while the technic used was not the same as Dr. Jones' because the splitting of the patella operation had not been considered at that time, the general accomplishment was the same. The operation was the incision on each side of the patella, opening both sides and exposing it, and sometimes the mass so taken out was, as Dr. Jones has described, enough to fill a good sized pus basin. The thing that we learned as the result of our technic, and which has been followed ever since in knee joint operations of this general sort, was the very thing Dr. Baldwin has mentioned. In the first place, we gave up using the tourniquet. We did not try to get a dry field, and we did not immobilize afterward. At first we put some legs in casts or fixed dressings. Later these were given up and only large, soft dressings were used.

DR. M. C. HARDING, San Diego, Calif.: I was inspired in 1915 to do something with these exceedingly intractable knees. Immediately on returning from the annual session in 1915 I opened such a knee and found the same condition that Dr. Lowman has presented. I did about the same operation he did and got a most excellent result in a case that had been subjected to every kind of treatment for fifteen or twenty years. Since that time I have done both the complete synovectomy and the partial synovectomy in eight or nine cases such as Dr. Jones described, reserving it for the intractable cases. I have found that a partial synovectomy gives just as good an ultimate result as the total operation; but the after-treatment is considerably more painful. I think we have an injury as one of the causes, and that the constant pain has been a factor in producing inflammation that does not yield to other treatment. I do not know the exact way to choose between the two types of cases, those in which a total, and those in which a partial synovectomy should be done; but after the joint is opened, all the pathologic tissue that seems to be involved should be removed. After a total synovectomy has been performed, the patient is free from pain, no supporting cast or fixation being necessary. I have maintained immobilization too long in some cases and had great difficulty in getting motion started later.

DR. FOSDICK JONES, Denver: This is an operation that should be given very careful and due consideration; but such a radical procedure should never be attempted, except by surgeons who are thoroughly familiar with surgery. The cases must be selected very carefully. The type of so-called progressive arthritis deformans is a very distinct contraindication to synovectomy. This procedure should be considered only after conservative measures have failed. The type of case most suitable for such an operation is osteochondromatosis of the knee joint, which is very common. Only recently I operated in a case. I split the patella and removed from sixteen to eighteen large bodies from the knee joint. I feel that I have only partially improved the condition, because roentgenograms still demonstrate the presence of several large masses in the joint, two months after operation.

DR. FRANK A. LOWE, San Francisco: In the last four and a half years I have assisted in at least ten operations for inflammatory tags and fringes and loose cartilages in the knee joint. In no instance was it necessary to use the splitting of patella incision. No tourniquet is used. The incision, from 3 to 4 inches or more in length, is made parallel to the quadriceps tendon, along its inner border, about three-fourths inch internal to the edge of the patella. Hemostasis is produced by Ochsner hemostats, and no catgut ligatures or sutures are used in the wound. The patella can be dislocated completely from the condyles of the femur externally, thus allowing a complete exploration of the knee joint cavity when the knee is slightly flexed. The synovial pouch extends 2½ inches above the patella. Through the exposure of the joint cavity, a complete or partial resection or synovectomy can be carried out. I use good sharp scalpels to skin out the meniscus. The joint cavity is wiped dry, and then splashed full of 3 per cent. iodin solution. The hemostats are removed, hemostasis being complete. Figure of eight silkworm-gut sutures are used to close the incision, and sterile dressings are applied. The foot, ankle, leg, knee and lower third of the thigh are firmly bandaged with a flannelet roller bandage over cotton. The roller bandage compression of the leg and knee prevents the joint cavity from filling with blood or fluid. Patients are put to bed with the knee slightly flexed over a pillow. No active or passive movements are allowed until after removal of the stitches, in from twelve to fourteen days. After the removal of the stitches, the patient walks about on crutches with some active and passive movements and massage. Possibly a little brisement force may be done at the end of five or six weeks without an anesthetic. These patients get good, movable, functioning joints in three months' time.

DR. ELLIS JONES, Los Angeles: I insist on early joint motion. This operation will prove to be of real value in properly selected cases.

PYELITIS OF PREGNANCY*

HERMAN L. KRETSCHMER, M.D.
CHICAGO

Pyelitis as an obstetric complication should include not only the cases that occur during pregnancy, but also the cases that begin during the puerperium. Although the cases that occur during pregnancy outnumber those beginning in the puerperium, it seems desirable that they should be discussed together.

Pyelitis occurring during pregnancy assumes a more serious aspect than does a simple case of pyelitis, since it concerns not only the patient, but the fetus as well, and, moreover, may influence unfavorably the course of the pregnancy.

PREDISPOSING CAUSES

Some of the predisposing causes are common both to simple pyelitis and to the pyelitis of pregnancy. In addition to these causes, there are certain predisposing factors which are directly due to, or associated with, the pregnancy.

Lesions of the Gastro-Intestinal Tract.—It has repeatedly been pointed out that lesions of the gastro-intestinal tract are most important predisposing factors; constipation undoubtedly heads the list.

Some authors have expressed the opinion that, as a result of intestinal stasis, an increased production of colon bacilli results, which eventually reach the kidney and cause pyelitis. As is well known, many women suffer from chronic constipation during pregnancy, and since this condition results in an increased production of colon bacilli, it is within the realm of possibility that constipation may be a predisposing factor.

As further evidence of the rôle played by lesions of the gastro-intestinal tract, the experience of Trumpp [1] may be mentioned. He found colon bacilli in the urine

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Trumpp, J.: Jahrb. f. Kinderh. N. F. **44**: 268.

of fourteen patients in a series of seventeen cases of follicular enteritis. That gastro-intestinal lesions may be factors in the production of metastatic colon bacillus infections is illustrated by the case of Tavel.[2] He had operated on a patient for goiter. After the operation, the wound became infected with colon bacilli, the



Fig. 1.—Dilatation of the ureter and kidney pelvis.

patient having had a very severe attack of gastro-enteritis. Asch[3] reported four cases in which colon bacilli and casts were found in the urine. These cases were cured by treating only the associated constipation.

These experiences of other authors are similar to my own experience in cases of simple pyelitis. I have found a large number of patients suffering not only from chronic constipation, but also from other lesions of the gastro-intestinal tract, such as spastic colitis, as well as certain rectal conditions, such as hemorrhoids, fissures and fistulas. In a report of 200 cases of pyelitis, a history or findings of gastro-intestinal lesions mentioned above was found in 30 per cent. of the cases.[4]

Dilatation of the Ureter and Kidney, with Resulting Urinary Stasis.—It is universally admitted that nothing is so conducive to urinary tract infection as stasis. The work of Hirsch[5] is particularly interesting in this connection. At the pathologic institute of Munich, he examined the necropsy records of 300 patients who had died during pregnancy and the puerperium. Dilatation of the upper urinary tract was found in about 30 per cent. of the cases and dilatation of the ureters and kidneys in ninety-six cases. In twenty-six cases, only the renal pelvis showed dilatation; in the remainder, either one or both ureters, or both ureters and the renal pelvis. In eighteen cases, the right ureter was involved, and only in two cases the left ureter.

2. Tavel: Beitr. z. klin. Chir. (Bruns') **70.**
3. Asch: Verhandl. a. d. deutsch. Gesellsch. f. Urol., 1911.
4. Kretschmer, H. L.: Treatment of Pyelitis, Surg., Gynec. & Obst. **33**: 632 (Dec.) 1921.
5. Hirsch, quoted by Franke (Footnote 16).

These dilatations can be strikingly demonstrated by means of pyelography. The rapid disappearance of the dilatation after delivery is illustrated in Figure 2.

According to Stockel,[6] obstruction to the flow of urine occurs with predilection at the three points of physiologic constriction of the ureter; namely, at the ureteropelvic junction, in the pelvic brim and near the entrance of the ureter into the bladder. Stockel believes that the most frequent of these obstructing constrictions is at the pelvic brim, a belief based on the fact that when he advanced his ureteral catheters beyond this point he obtained large amounts of urine. He also noted that the urine flowed almost continuously.

Mirabeau,[7] on the other hand, believes that the obstruction resulting in urinary stasis is located in the region of the bladder and that it is due to the swelling and hyperemia of the bladder mucosa during pregnancy.

Of further interest is the question of whether or not the pregnant uterus or the fetal parts are able to produce urinary stasis by direct pressure on the ureter. Opinions on this subject are at variance. According to Waldeyer,[8] the bladder is displaced downward, owing to the pregnant uterus, and, as a result of this downward displacement, the ureter becomes kinked or narrowed at the point at which it crosses the bony pelvis, and in this way produces urinary stasis and dilatation.

Many authors believe that the uterus is incapable of producing pressure and resulting dilatation. Reed[9] calls attention to the fact that occasionally pyelitis



Fig. 2.—Marked diminution in size of pelvis ten days after cesarean section.

occurs before or during the fourth month, at which time compression of the ureter by the pregnant uterus is scarcely possible.

6. Stockel, W.: Ztschr. f. Gynäk. u. Urol. **1**, No. 1.
7. Mirabeau: Zentralbl. f. Gynäk., 1910, p. 1635.
8. Waldeyer: Das Becken, 1899.
9. Reed, C. B.: Surg., Gynec. & Obst., 1907, No. 2.

Of further interest is the theory that there may be some connection between pyelitis of infancy and pyelitis of pregnancy. Some authors are of the opinion that pyelitis of pregnancy is only a lighting up of a pyelitis of infancy and childhood. This might be difficult to prove. The interesting fact remains, however, that if a careful history is elicited, one is able to obtain a history of repeated attacks of bladder trouble, weak bladder, etc., during childhood.

ROUTES OF INFECTION

One of the most interesting phases of this subject has been the discussion of the route traveled by the infecting organism in reaching the kidney. Three possibilities generally considered are hematogenous, lymphogenous and urogenous infection.

1. *Hematogenous Route.*—The theory that colon bacilli are transplanted by the blood stream is the belief of many authors today, although in comparatively few instances has it been possible to isolate the bacilli from the blood stream.

Ayers [10] believes that infection by the blood stream is the rule in nearly all cases, and Klowitz [11] states that this affection is essentially blood-borne in origin. Mayer,[12] in some of his cases, found colon bacilli in the placenta and in the heart blood of the fetus. The number of cases of colon infection recorded in the literature are many, but the cases in which the bacilli have been isolated from the blood stream are very few. Widal and Bernard [13] report two cases of pyelonephritis of pregnancy in which they isolated colon bacilli from the blood and the urine. The agglutination phenomenon demonstrated that the bacilli in the urine and the blood were identical. Similar cases were reported by Blumenfeld and Hamm,[14] and Panton and Tidy.[15]

2. *Lymphogenous Route.*—Since the work of Francke,[16] who made an extensive study of the lymphatics of the large bowel, the lymphatic route of infection has received a good deal of consideration. He was able, by injecting the lymphatics of the large bowel, to prove that the lymphatics on the right side pass over the capsule of the right kidney. According to Stahr,[17] the lymphatics of the kidney capsule communicate with the deep lymphatics of the kidney. Francke believes, therefore, that there exists on the right side, and probably on the left, a direct communication between the large bowel and the kidney by way of the lymphatics.

Another possible lymphatic route that has been suggested is the lymphatics of the ureter. Bauereisen [18] believes that he was able to demonstrate a direct communication between the lymphatics of the bladder and ureter by the lymphatics of the ureter.

3. *Urogenous Route.*—It was proved many years ago by Goldschmidt and Lewin,[19] Markus,[20] and others that under certain conditions antiperistaltic movement may take place in the ureter, causing the contents of the bladder to be propelled into the kidney, and that even a partial filling of the bladder suffices to obliterate the closure of the ureteral orifice, the result being that each variation in the intravesical pressure is transmitted to the renal pelvis.

By means of a series of cystograms made in normal persons by filling the bladder with various solutions opaque to roentgen rays, I have been able to prove that these laboratory experiments also occur clinically. Regurgitation was demonstrated in both normal and pathologic bladders.[21]

ANALYSIS OF CASES

This paper is based on a series of twenty-five consecutive cases.

Previous Attacks of Pyelitis.—As already stated, some authors believe that the pyelitis of pregnancy is merely the lighting up of an old, previously manifest pyelitis. In two of these twenty-five cases there was a history of attacks of pyelitis which were present before marriage. In seven cases the patients had had their appendixes removed without being relieved of their symptoms, and the symptoms for which the appendixes were removed, in the light of more recent experiences, must be attributed to pyelitis.

In two cases, pyelitis occurred during previous pregnancies, one patient having had an attack with each of three pregnancies, and another during her first pregnancy.

Onset.—It is generally believed that pyelitis of pregnancy occurs most frequently during the first pregnancy. My experience seems to verify this statement, as in sixteen of the twenty-five cases the pyelitis occurred during the first pregnancy; it occurred during the second pregnancy in three; the third, in one; the fourth, in two; the fifth, in one, and in two the pregnancy was not stated.

Month of Onset.—The time of onset during pregnancy has been variable, the onset having occurred as early as the first month in one case and during the puerperium in six cases. In this series, pyelitis occurred during every month, from the first to the ninth, except in the eighth month: first, one case; second, two cases; third, one; fourth, five; fifth, five; sixth, two; seventh, one; ninth, one; not stated, one, and postpartum, six.

Subsequent Pregnancies.—It would seem that subsequent pregnancies are a very important phase of the subject, especially from the standpoint of prognosis, since the disease occurs quite frequently during the first pregnancy. Moreover, many patients wish to know whether it is safe to have another pregnancy, and, in case this occurs, just what they may expect regarding a recurrence of the pyelitis.

Painstaking efforts were made to get in touch with the patients in this group in order to ascertain whether attacks of pyelitis developed during subsequent pregnancies. For purposes of studying this question, twenty-three cases were available. Of this number, six patients could not be located, although many attempts were made to do so. Therefore, only seventeen cases could be studied to determine the point under consideration. In eight cases, the patients reported that they had not been pregnant again. Eight of the remaining patients have been pregnant since leaving our observation. Seven of the eight have been pregnant once; four without subsequent pyelitis and the fifth giving birth later to two children without further manifestation of pyelitis. The sixth patient, after two or three treatments with pelvic lavage, went

10. Ayers: M. Rec., 1913, p. 968.
11. Klowitz: Berl. klin. Wchnschr., 1911, p. 801.
12. Mayer: München. med. Wchnschr., 1913, p. 1479.
13. Widal and Bernard: Jahresb. f. Urol., 1912, p. 414.
14. Blumenfeld and Hamm: Mitt. a. d. Grenzgeb. d. Med. u. Chir. 28, No. 4.
15. Panton and Tidy: Lancet, January, 1912.
16. Francke: Ergebn. d. Chir. u. Orthop. 7: 671, 1913.
17. Stahr: Arch. f. Anat. u. Physiol. Anat., 1900.
18. Bauereisen, A.: Ztschr. f. Gynäk. u. Urol. 2, No. 5.
19. Goldschmidt and Lewin: Berl. klin. Wchnschr., 1893.
20. Markus, N.: Berl. klin. Wchnschr., 1911, No. 17.

21. Kretschmer, H. L.: Surg., Gynec. & Obst., December, 1916.

on to spontaneous abortion. Therefore, of the eight patients, three developed pyelitis during subsequent pregnancies.

Symptoms.—The symptoms will naturally vary, depending on whether the patient is seen during an acute attack of the disease or whether she is seen after the acute attack has subsided.

Fever was variable. In one case, during the acute attack, a temperature of 105 F. was recorded. During the remission, the temperature dropped to 93.9, an excursion of 11.1 degrees. Although this is an extreme case, it proves that many of these cases, under what appears to be very desperate circumstances, lend themselves to conservative management. Fever was present in sixteen cases.

TABLE 1.—*Subsequent Course*

Case	Pregnancies	Return of Pyelitis During Pregnancy
1	Died	
2	None	
3	None	
4	One	Yes
5	None	
6	One	No
7	No record	
8	None	
9	No record	
10	No record	
11	One	Yes (abortion)
12	Two	None
13	One	None
14	None	
15	None	
16	Died	
17	One	Yes
18	No record	
19	No record	
20	No record	
21	None	
22	One	No
23	Observation	
24	One	No
25	None	

Associated with the rise of temperature, severe chills were recorded in fourteen cases.

Sweats of a very severe degree were present in four cases.

Pain in the back was present in fifteen of the twenty-five cases.

Urinary Symptoms.—In Table 2 is given a summary of the urinary symptoms of which these patients complained.

Bacteriology.—The most frequent organism producing pyelitis during or after pregnancy is the colon bacillus, according to most of the authors who have reported cases. However, the colon bacillus is not the only offending organism. In twenty of these twenty-five cases, colon bacilli were obtained on culture; in seventeen, only colon bacilli; in three, only staphylococci; in one, only streptococci; in one, only diphtheroids, and in three, colon bacilli and staphylococci.

Side Involved.—Right-sided kidney lesions are supposed to be more common than left-sided lesions, and this statement is also generally held to be true in pyelitis of pregnancy. Various reasons are given for this supposed preponderance of right-sided over left-sided lesions. This, however, has not been my experience. Perhaps, clinically, it is true that a patient may have only right-sided symptoms, but careful bacteriologic studies fail to verify this clinical statement. A careful review of the bacteriologic findings gave: bilateral cases, twenty; right side only, five; left side only, none.

Leukocyte counts were recorded in nearly all the cases. The highest figure recorded was 30,200; the lowest during the attack was 7,600.

TREATMENT

For purposes of discussion, these cases may be divided into four more or less arbitrary groups. One must realize that a case may very easily merge from one group into the other.

GROUP 1.—*Cases in which the diagnosis is not made.* There doubtless are many cases of pyelitis of pregnancy in which the diagnosis is not made. This becomes apparent if one obtains a careful history from the patient. A large number of these cases pass for grip or influenza, and, after treatment, to all intents and purposes, the patients make an uneventful recovery. Doubtless a large number of cases occur in which the symptoms are so mild in degree that there is only a certain amount of indisposition—so slight that the advice and aid of a physician are not even sought. These patients recover without medical aid. In this group one may also consider the cases in which an erroneous diagnosis has been made, such as appendicitis, because of right-sided pain, chills and fever, and in which at operation a normal appendix is found. This error, of course, can easily be avoided by careful urinary analysis, for undoubtedly a large number of cases of so-called appendicitis during pregnancy are in reality cases of pyelitis. On the other hand, cases of acute appendicitis do occur, and one may have a situation so complicated that a differentiation between acute appendicitis and acute pyelitis is difficult or even may be impossible. Under these circumstances, I believe, when in doubt, it is better to operate and remove a normal appendix than to overlook an acute appendicitis in favor of an acute pyelitis and to have the patient die of appendicitis. These remarks are not to be construed and interpreted as suggesting operation in cases in which the differentiation is not difficult, in lieu of careful clinical study and careful physical examination.

GROUP 2.—*Cases in which the diagnosis has been made.* The largest number of cases of pyelitis occurring during pregnancy will be seen by the general practitioner and treated by him. I advise the patients to have complete rest in bed, to drink large quantities of water, and if there is no contraindication due to insufficiency of the heart, to drink from 4,000 to 5,000 c.c. of fluids a day. The condition of the gastrointestinal tract should receive careful consideration. Posture has been recommended as a very valuable adjunct, and I employ it as a matter of routine; and this can be carried out very easily.

TABLE 2.—*Urinary Symptoms*

	Number of Cases
Frequency	18
Nocturia	15
Pus in urine	9
Painful urination	7
Burning on urination	7
Retention	3
Urgency	3
Incontinence	2
Tenesmus	1
Difficulty	.

The use of large wet compresses over the kidneys aids greatly in the relief of pain.

Internal treatment consists of the administration of alkalis; I prefer the use of sodium bicarbonate, giving

he patient a teaspoonful in a full glass of water four imes a day. The patients are started on alkalis and kept on them for a week. If sodium bicarbonate annot be tolerated, one may resort to potassium citrate or acetate. At the end of a week, the alkalis are liscontinued and the patient started on 40 grains (2.6 gm.) of sodium acid phosphate and 40 grains of iexamethylenamin a day. At the end of a week the iexamethylenamin is discontinued and the patient put back on alkalis.

During this time the state of the patient's urine is controlled with litmus; enough alkalis are given to render the urine alkaline and enough acids given to render the urine acid to litmus.

By far the greatest number of cases of pyelitis of pregnancy can be handled in this simple way.

GROUP 3.—When the medical management of hese cases fails, the next step to consider in he treatment is the use of the ureteral catheter and pelvic lavage, this form of treatment being nstituted before an interruption of the pregnancy by mptying the uterus is resorted to. I have repeatedly been able to carry these women through the pregnancy o that at the end they had a living child in spite of he fact that their obstetricians had advised an immeliate interruption of the pregnancy. This has given ne the impression that some of the obstetricians are n too much of a hurry to interrupt a pregnancy without rying other measures which have a definite field of isefulness and which, I believe, should be tried before esorting to more drastic measures.

Ureteral catheterization and pelvic lavage or ureteral atheter drainage combined with pelvic lavage constiutes the instrumental treatment to be followed. My ersonal preference prompts me to advocate pelvic avage, and I have combined this sometimes with catheer drainage.

Pelvic lavage is carried out with a 2 per cent. olution of silver nitrate. Experience has shown that he largest number of cases that fail to respond to iedical treatment, as outlined above, can be handled n this way. The results of this treatment will be iven below.

GROUP 4.—*Operative procedures.* A very small umber of cases in which pelvic lavage fails and in hich surgical intervention becomes necessary should e recorded here. The question of handling this type f case belongs distinctly to the field of obstetrics, and shall not discuss this phase of the subject. In view f the fact that striking results can be obtained with elvic lavage, I do not believe that operative procedures n the kidney for pyelitis of pregnancy are ever justied.

It is possible that a hydronephrosis which is resent before pregnancy may become infected and are up during gestation, or that a pus kidney or some ther acute renal condition may demand surgical treatient during pregnancy; therefore, my remarks should ot be construed as opposing the proper surgical proedure in these types of kidney complications. But I iterate that in pyelitis of pregnancy surgical intention is rarely, if ever, justified.

RESULTS

Of the twenty-five cases, all received at least one eatment with silver nitrate, that is, pelvic lavage, nce it was no additional trouble to inject patients that ere seen at the same time for purposes of diagnosis.

There were two fatal cases in this series—patients who were seen but once, and were then in a critical condition. They were not subjected to systematic treatment; hence they will not be considered in a discussion of the results. Of these two patients one, in a desperate condition, was seen in a psychopathic hospital; it was evident that nothing could be done with any hope of effecting a cure. She died a few days later. The second patient, the wife of a physician, was suffering from puerperal sepsis, the pyelitis being a complication. Cystoscopy was performed for differential diagnosis; she was given one injection of silver nitrate at the time of cystoscopy and ureteral catheterization.

There remained twenty-three patients that were subjected to more or less systematic pelvic lavage. Six of these were cases in which the pyelitis began during the puerperium. These patients were all cured; that is, they were discharged with the urine free of pus and sterile.

Of the remaining seventeen cases, twelve patients were carried to term and delivered of living babies. One patient stopped treatment, one is under treatment, and one had a spontaneous abortion.

In only two cases of the entire twenty-three was pregnancy terminated. One patient left the city after one treatment and later had an induced abortion, but further details relative to the reason for this interruption of the pregnancy in this case are lacking. Hence only in one case of this series, one under my absolute control, was it necessary to empty the uterus. In this patient it was deemed wise to empty the uterus because after pelvic lavage had been carried out three times an acute dilatation of the heart and a very severe jaundice developed.

SUMMARY

1. There undoubtedly are a large number of cases in which the pyelitis is not recognized and the patients recover without treatment.

2. The largest number of cases of pyelitis of pregnancy can be handled in the conservative way as outlined above.

3. In cases that fail to respond to this treatment and in which the patient's condition is such as to demand treatment, pelvic lavage with silver nitrate, with or without ureteral catheter drainage, is the most rational and logical as well as the safest and most successful form of treatment.

4. Failure of this form of treatment, after a thorough trial, probably calls for a rapid termination of the pregnancy.

5. Surgical procedures on the kidneys, such as nephrotomy or nephrectomy, are rarely, if ever, justified in pyelitis of pregnancy.

122 South Michigan Avenue.

The Visiting Teacher.—The work of the visiting teacher has grown out of a recognition of this need. With the twofold training of a teacher and a social worker, the visiting teacher is a member of the school staff who seeks, on the one hand, to interpret to the school the outside life and interests of the child and, on the other hand, to inform the parents of the aims and demands of the school and the reaction of their children to them, in order that they may be able to cooperate with the teacher in giving their children the consistent and wholesome twenty-four-hour-a-day education essential to their full development.—H. W. Nudd: *Hosp. Social Service* **8**:156 (Sept.) 1923.

A CONTRIBUTION TO THE STUDY OF PYELITIS IN PREGNANCY*

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Pyelitis occurring in the pregnant woman is an important complication of pregnancy. Its importance is based on (1) the effect of the infection on the general health of the mother; (2) the local changes in the urinary tract; (3) the potential invasion of the puerperal uterus, and (4) its tendency to produce abortion, stillbirth, and prematurity in the fetus.

It is not my purpose to present the entire subject in this paper, but to offer certain facts for consideration that have received little attention in the present literature.

There has been marked divergence of opinion as to the mode of entrance of the infecting organism into the pelvis of the kidney in pyelitis of pregnancy. Most French authorities assert that the organisms invade the blood stream from some focus in the body, usually the intestinal tract, and particularly when a coexisting chronic constipation is present. In support of this view, they point to positive blood cultures, which, however, have been reported only in cases of active infection. Also, there has been noted the cultivation, from the urine, of specific organisms causing general infections, such as the typhoid bacillus, pneumococcus and streptococcus.

The German school, on the other hand, believes that mechanical factors causing compression, stasis in, and distortion of, the ureters, result in favorable conditions for the growth and multiplication of organisms present in the lower urinary tract.

Mirabeau [1] has shown that there is an edema of the mucosa of the ureter and trigon of the bladder in normal pregnant women which he believes to be due to the general congestion of the pelvic organs associated with the pregnant state.

The edema and obstruction also give rise to dilatation of the ureter, which has often been observed anatomically. Thus, Kendirjy [2] quotes Olshausen as having found dilatation of the ureter at necropsy in pregnant women in twenty-five out of thirty-four cases; Löhlein, in eight out of thirty-two cases, and Polak in thirty-five out of 130 cases. Franz [3] emphasizes the pressure of the enlarging uterus on the ureter, especially where it crosses the white line. Cumston [4] says that the ureter is never dilated below the brim of the pelvis. The normal tendency of the uterus to deviate to the right is thought to account for the fact that the infection is most frequently seen on this side. Olshausen found ten out of twelve cases of pyelitis affecting the right side. Jolly [5] found that in 75.6 per cent. of his cases the right side was infected; in 6 per cent., the left side, and in 18.3 per cent., both sides.

Volker,[6] has shown that collargol injected into the bladder can be detected in the pelvis of the kidney a short time after, and explains this by assuming an antiperistaltic wave set up in the ureter by the irritation of the bacterial toxins produced in the bladder in the presence of a cystitis.

Curtis [7] has recently called attention to the importance of residual urine in various gynecologic conditions, and suggests its importance in relation to the pyelitis of pregnancy.

In order to throw some light on the subject of the presence of organisms and residual urine in the bladder of normal pregnant women, I took ten patients who had no symptoms or signs of bladder infection and had them void spontaneously. They were then placed in the lithotomy position and catheterized immediately, after careful preparation, and the amount of urine was noted. A culture of the urine was made in broth and on agar plates. Hanging drop slides were also examined immediately to detect the presence of motile organisms. The twenty-four hour cultures were examined for the presence and identification of organisms.

The average amount of residual urine was found to be 4.1 c.c. Bacteria were seen in the hanging drop in eight out of the ten specimens. A positive culture was obtained in six cases. The colon bacillus was found six times, and *Staphylococcus albus* four times, and always in symbiosis. Four of the specimens gave negative cultures. Three loopfuls of uncentrifugated urine on an agar plate gave an average of four colonies for each plate.

Therefore, it would seem that there is usually present in pregnant women, otherwise normal, residual urine in the bladder containing organisms capable of producing pyelitis. Coupled with the alterations of the urinary tract previously mentioned, pathologic changes might easily be initiated.

Most of the observations on the dilatation of the ureter have been made on necropsy material which may or may not reveal the true state of affairs. I have attempted to gather some evidence from the capacity of the ureter as determined by pelvic lavage and by necropsy findings. The capacity of the ureters on the side affected was increased above the normal in ten cases examined, and varied from 10 to 90 c.c. This dilatation was not a permanent condition, since it was found that the patient with the largest ureteral dilatation, several months after labor, had what was practically a normal pelvic capacity. I am indebted to the urologic service for assistance in these measurements. Further evidence on the alteration of the ureter is shown by the work of Kaltenschnee,[8] who found, after injecting a dye, that it appeared, on an average, thirteen and one half minutes later on the affected side than on the sound side. He also noted that the contraction interval of ureteral peristalsis averaged seventeen and three-tenths seconds longer on the affected side.

I should like in this connection to point out certain statistics relative to the frequency of pyelitis in girl babies and to its resistance to medical management. Kermauner [9] quotes Gopperts as having found pyelocystitis in 89 per cent. of nursing girl babies, and that 20 per cent. had relapses after treatment. Several had persistence of the infection without symptoms. Jeffreys [10] reports that out of sixty cases, only twenty-

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2. Kendirjy: Gaz. d. hôp. **41**: 44, 1904.
3. Franz: Bull. Klin. Wchnschr. **32**: 52 (Aug. 10) 1914.
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7. Curtis, A. H.: Management of the Female Urinary Bladder After Operation and During Pregnancy, J. A. M. A. **80**: 1126 (April 21) 1923.
8. Kaltenschnee: Ztschr. f. gynäk. Urol. **3**: 187, 1911.
9. Kermauner: Ztschr. f. gynäk. Urol. **2**: 291, 1911.
10. Jeffreys: Quart. J. Med. **4**: 267, 1910-1911.

ne were cured. It is therefore apparent that in these tent infections, a pyelitis of pregnancy might light up later life when the normal changes incident to dvanced pregnancy have occurred in the urinary act. What percentage of these patients have had a receding pyelitis it is hard to determine, and none of ur patients have given such a history. This, however, of little significance, since the condition is frequently isdiagnosed in children, and usually is acute at such n early age that the patient has totally forgotten it.

The effect of pyelitis on the mother varies with the everity of the reaction in the individual case. There ay be no clinical evidence of the infection except the resence of the organisms in the urine and possibly me slight frequency of urination. As a rule, in our ases giving symptoms, we have noted a marked loss weight from a few pounds to 20 or 30 pounds. his is more marked in the patients who have a high ever. The recovery of this weight following delivery remarkably fast. The etiology of the weight loss not clear, but is probably associated with the anorexia, lood ferment reaction, and general malaise that accompanies a severe sepsis.

Little has been said about the blood findings in these ases, although a rather characteristic picture presents self. The leukocytosis, which is nearly always present, is usually low, rarely exceeding 15,000; our average in nineteen cases was 9,000. We noticed a rather arked secondary anemia. The red cells averaged ,300,000, and in many cases showed poikilocytosis and nisocytosis. The hemoglobin averaged 63 per cent., ut was much lower in the patients suffering from cute symptoms.

The relative rarity of puerperal sepsis following elivery in these cases led me to study the immune eactions of the serum. It is inconceivable that woman with pyelitis can be delivered vaginally ithout contamination of the vagina by organisms in ne urine. When these organisms are virulent enough o produce the clinical reactions seen in pyelitis, it is ard to conceive of a woman so infected not developing uerperal sepsis, unless some unusual mechanism is eveloped for her protection.

We therefore cultivated the colon bacillus from the rine in several cases of pyelitis of pregnancy and performed typical Widal reactions with the serum. The eactions were controlled in all cases by serum from ormal pregnant women. There was a positive Widal eaction in all cases in a dilution of 1:40, and in some istances a reaction in a dilution of 1:320. We were lso able to demonstrate a cross-agglutination between ne organism of one patient and the serum of another yelitis case, but the titer of serum was always lower ith cross-agglutination. Furthermore, we were able o show that the serum of the fetus at birth, obtained rom the umbilical cord, would agglutinate the organm infecting the mother in a dilution as high as 1:80.

We found that the highest titer of serum was present those patients showing the greatest clinical reaction. s a rule. We next tested the bacteriolysins. hree loopfuls of an eighteen-hour broth culture of ne patient's organism were placed in 1 c.c. of the atient's fresh serum and a culture taken immediately nto plain melted agar, which was then plated. Other lates were inoculated and poured in the same way in ne, two, four, eight, twelve and twenty-four hours. control using the same organism in a normal pregant woman's serum was made in the same way.

The plates were examined at twenty-four and seventy-two hours, and the number of colonies on each counted. The results show definite inhibition in the serum of the pyelitis patient over the control in practically all cases.

There are very few references in the literature to studies of this kind. Widal and Bernard [11] report two cases of pyelitis showing a titer of 1:3,000 and 1:200, but did not point out its clinical significance. Weibel [12] demonstrated agglutinins in one out of four cases; but he found a positive complement fixation test in all four cases.

The value of these immune bodies to the maternal organism is obvious during delivery and the puerperium, and has a very important bearing on the method of treatment to be employed in a given case, either in emptying the uterus prematurely, which, fortunately, is rarely necessary, or during delivery. Several cases of cesarean section have been reported, the indication for which was fear of puerperal sepsis if delivered from below. I believe that, in the light of clinical observation backed up by these immunologic studies, it is questionable whether this operation is ever indicated for this reason. Furthermore, in this connection, it may be said that in patients with severe febrile reaction, it is usually very easy to induce labor by any of the recognized methods if necessary, owing to the irritability of the uterus under these circumstances. This is probably explained on the same basis as the tendency to abortion which Franz [3] noted in a third of his cases.

There is one other rather curious phenomenon that has been mentioned in the literature, which we have been able to substantiate in a few cases: A woman with pyelitis of pregnancy in one pregnancy does not necessarily have a return of the symptoms in subsequent pregnancies. Indeed, it has been noted that these women seem to have a better prognosis, even though there may be just as many organisms in the urine as before. It would seem that this clinical fact might well be explained in the light of these observations on the basis of an increased resistance, local and general, on the part of the mother, due to the development of immune bodies. We have had two cases in which the titer of agglutinins in the serum was high during a second pregnancy, although that was no clinical manifestation of the disease.

Voorhees [13] cites an interesting case in this connection, in which a woman had four pregnancies; the first two aborted at about six months, and the third and fourth went to term. Cragin says, in discussing this case, that the condition rarely recurs.

Little has been said on the prognosis for the baby when the mother has pyelitis. Some idea of the significance of the infection for the baby can be derived from the figures of Mayer [14] and Chauffard,[15] who state that one third of all cases are premature. Leavitt says that 40 per cent. of all cases are miscarriages.

In forty cases, we have noted a fetal mortality of 28 per cent., due either to spontaneous abortion in the earlier months or death following in a few hours after premature delivery. In addition, 17 per cent. of the patients came to the hospital with a diagnosis of pyelitis and threatened abortion whose symptoms were relieved by treatment and who were discharged, and not fol-

11. Widal and Bernard:, J. d'urol. méd. et chir. **1**: 317, 1912.
12. Weibel: Arch. f. Gynäk. **99**: 243, 1913.
13. Voorhees, J. D.: Am. J. Obst. **61**: 501, 1910.
14. Mayer, A.: München. med. Wchnschr. **6**: 1479, 1913.
15. Chauffard: Rev. gén. de clin. et de thérap. **27**: 533, 1913.

lowed to delivery. It is safe to say that some of these, at least, did not go to term, and that, of the babies born at or near term, a few, at least, did not survive the first year.

It is undoubtedly true that many of these babies are born at term well nourished and developed, but one should always be prepared for the possibility of abortion or the delivery of a premature infant, and give a guarded prognosis.

CONCLUSIONS

1. There is present in the bladder of normal pregnant women a certain amount of residual urine, plus, in most cases, colon bacilli or staphylococci, or both.

2. Dilatation of the ureter, and edema of the mucosa of the bladder and ureter, together with an antiperistaltic action of the ureter, probably play an important predisposing part in the causation of pyelitis of pregnancy.

3. Bacteriolysins and agglutinins are increased in the blood of most patients who are reacting clinically to this infection, and these antibodies are transmitted to the fetus.

4. This acquired immunity has an important bearing on the failure of these patients to develop puerperal sepsis.

5. Cesarean section should not be practiced to avoid contamination of the uterus by infected urine, except, possibly, in cases in which it can be demonstrated that the usual antibody formation is lacking.

6. A marked loss of weight is common in these patients.

7. A low leukocytosis and a moderately severe secondary anemia are commonly seen in this infection.

8. Dilatation of the ureter to a varying extent is the rule in these patients, but this dilatation usually decreases after pregnancy.

9. Recurrence of the symptoms may be totally absent in succeeding pregnancies, and this may be due to the immunity developed during the primary pregnancy.

10. The prognosis for the fetus is not very favorable, owing to abortion, prematurity or underdevelopment in a considerable proportion of the cases.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. KRETSCHMER AND FALLS

DR. L. A. EMGE, San Francisco: Pyelitis of pregnancy is one of the most outstanding of our present-day ideas of prenatal care. It is much more common than has been supposed. In the women's clinic of the Stanford University School of Medicine from 5 to 6 per cent. of all patients have pyelitis. One of my colleagues told me that with his patients it was 10 per cent. My records show 7 per cent. What does this mean? It means that we are giving better prenatal care. I think we diagnose cystitis too often when there is a pyelitis. No matter what causes it, we must believe that the majority of patients with pyelitis have had a preexisting infection. Pyelitis in itself does not constitute a menace to the fetus if the case is properly managed. In the last ten years we had to resort to abortion but once. In all other cases we were able to carry women through labor and through the puerperium and to follow them for a long period afterward until we were sure that the pyelitis was cured. Abortions occur spontaneously only when a high fever is allowed to progress for a certain length of time. In regard to the treatment, we are taking a very definite stand. We feel that once a woman shows a cellular increase in the voided specimen she must be catheterized. A cystoscopy should be done and the specimen examined. If it is found that an infection exists, we irrigate the kidneys for four weeks, at the end of which time we make another culture. We use silver nitrate; not that it kills the organisms, but the reaction that is set up in the lining of the kidney and ureter is better able to cope with the infection. That is especially true with the colon bacillus. Silver nitrate penetrates the main cellular spaces. The simpler dyes have not been successful because they do not set up the local reaction that is necessary. If at the end of four weeks the culture still shows a growth of organisms, this course of treatment is repeated, accompanied by the usual medical management, as outlined by Dr. Kretschmer and Dr. Falls, depending on the type of organism. We also feel that if these women show a continued infection during the puerperium, the treatment should be taken up at once, while in the hospital, and that they should not be allowed to go home and go on for six weeks without treatment, because puerperal sepsis then becomes a factor.

DR. RUDOLPH W. HOLMES, Chicago: The presentation of this topic from the point of view of the obstetrician and from that of the genito-urinary surgeon is invaluable, especially as their views coincide in essential details. The etiology of pyelitis is various: First, we must concede that it frequently is hemic in origin—this may be particularly true when the organism responsible is one of the cocci. That is, focal infections may be the cause of the kidney infection. During the years that true ureteral ascending infection was decried, I thought that such opinion was contrary to the theory of the spread of infection by contiguity. For years it was taught that the "ascending infection" was brought about by lymphatic distribution, not by direct migration of the bacteria upward through the ureter. The life history of the colon bacillus speaks against its migration through the blood stream. The preponderating evidence that the colon bacillus is the principal bacterium involved in pyelitis bespeaks a true ascending infection. The sagging of the pelvic floor in early pregnancy, and the consequent sacculation of the bladder, with the retention of residual urine, clears much of the uncertainty in our knowledge of bladder and kidney infections. The study of frozen sections makes the allegation of ureteral pressure as an etiologic factor largely untenable. For many years, my opinion has been that there are two types of pyelitis in the child-bearing woman: one, the pyelitis of pregnancy, the other in pregnancy. The pyelitis in pregnancy does not originate during the pregnancy, though it may be lighted up during this period. A careful study of the life history of the patient will usually elicit recurrent attacks of illness, going back even to infancy, with some vague pain referable to the kidney region, with, perhaps, the finding of pus in the urine, or even a definite diagnosis of pyelitis. In such a woman the exacerbation in pregnancy is rarely fulminating, as she has secured some immunity to the bacteria responsible for the recurrent attacks. Not rarely, the amounts of pus are out of all proportion to the evidences of illness. The woman with a pyelitis of pregnancy generally will have a rather sudden onset, with high thermal curves. She is very acutely ill, and with a definite severe pain referable to one or the other kidney. Such cases, when right sided, may easily be diagnosed incorrectly as acute appendicitis, if a careful urinalysis is not made. It has been my misfortune twice to make such a tentative diagnosis offhand, only to have the correction made by a microscopic examination of the urine. The fact that pyelitis is almost always bilateral is extremely important. The general lines of treatment suggested by the authors are those used by me. I am loath to employ ureteral catheterization and lavage, except when urinary suppression is marked. Few cases require it. I would add my strong protest to the custom of performing therapeutic abortion in this connection. It rarely is indicated. Induction of labor at the thirty-sixth week has its good use.

DR. HAROLD A. MILLER, Pittsburgh: It is important to remember that the pregnant uterus at or near term is subject to lateral rotation in the abdomen, and, following a suggestion made by Dr. Aufhammer and some experiments at the Magee Hospital, Pittsburgh, it is my opinion that this rotation of the uterus is often the cause of ureteral torsion, slowing or obstructing the flow of urine, and if a focus of infection exists in the individual, pyelitis results. Ureteral catheterization at times has to be resorted to, but the patients

will recover if the foot of the bed is elevated 12 inches, causing the uterus to fall toward the upper part of the abdomen, thereby correcting the uterine rotation and the ureteral torsion. Interruption of pregnancy is rarely, if ever, indicated. On the contrary, such patients should be protected against all vaginal examinations, and after delivery put in the Fowler position in the same manner as all septic, or potentially septic cases should be placed.

DR. FREDERICK HOWARD FALLS, Iowa City: Regarding bilateral pyelitis, I am much interested in Dr. Kretschmer's findings. The necropsy reports have emphasized the fact that right sided pyelitis is the variety seen. Olshausen found ten out of twelve cases showing right sided pyelitis. I think it is possible to get a culture from either side without having pyelitis. A culture of organisms from the ureter does not necessarily mean that that patient has pyelitis even if there are a few pus cells in the urine, any more than a few organisms and pus cells in a bladder constitute a diagnosis of cystitis. At the University of Iowa, about 6 per cent. of the cases show evidence of pyelitis of pregnancy. I think there is a very distinct menace to the fetus. Series have been reported showing as high as 30 and 40 per cent. of abortions in cases complicated by pyelitis of pregnancy. Whether the local irritation or the general reaction of the pyelitis was the cause is beside the point. The fetus was expelled and dried, and the mother had pyelitis of pregnancy. It is probable that the high fever that occurs is the cause of the premature expulsion of the fetus in many cases. Regarding puerperal sepsis, I did not mean to imply that it does not occur, but what I wanted to bring out was, Why does it not occur in 100 per cent. of the cases? The urine is loaded with pus and virulent organisms, which cannot be kept out of the vagina. Why is it that these patients do not always develop puerperal sepsis? It seems certain that they must have an acquired immunity. Regarding pressure on the ureter by the uterus, some help is gained in the treatment of these cases by posture. If these women are put in the Trendelenburg position, very frequently, without pelvic lavage or anything else, the ureters will start to drain, the temperature will go down, and the patient will be improved greatly. Whether the pressure is caused by the uterus or not, there is something causing retention, which is often relieved when the patient is put head down.

DR. HERMAN L. KRETSCHMER, Chicago: As to dilatation of the ureters and pelvis of the kidney, Hirsch at the Pathologic Institute of the University of Munich proved that many women who died during pregnancy or confinement and came to necropsy had dilatation of varying degrees of the upper urinary tract. We have been able to prove this by means of pyelograms. As to the relative frequency of involvement of the right and left sides: the largest number of cases reported in this paper presented a bilateral pyelitis, contrary to the view that most of them are right sided. I feel that if these patients have pus and bacteria in the urine and the pyelogram shows dilatation, the patient has pyelitis. The statement that it is unilateral has been handed down by past generations, owing to the fact that these patients were not studied urologically. The dilatation disappears rapidly after the patient goes into labor. We have made pyelograms as early as the tenth day after labor, and they showed that the dilatation had almost completely disappeared. Many women give a history of having or having had weak bladders, and I think that most of them have pyelitis. Those who practice pediatrics remember the work done in Switzerland in a particular town where the inhabitants all intermarried and the observer was able to check up the after-life of many of his girl patients who had had pyelitis in infancy; he found that many of them developed pyelitis of pregnancy later on. Dr. Emge said something about cystitis and pyelitis. I think we shall make fewer mistakes if we assume that the woman who has pus and bacteria in the urine has a pyelitis and not a cystitis. Cystitis in women is very rare. Silver nitrate produces a definite local reaction in the mucosa, and I believe that this reaction has something to do with the curative effect of silver nitrate, which we do not get with drugs such as flavine and mercurochrome-220 soluble. Dr. Holmes is perfectly right in saying that many of these cases go back to infancy and childhood. I believe that some of these cases are due to ascending infections and some of them are hematogenous in origin. If we bear in mind the fact that the ureterovesical valve is not closed all the time, and that a regurgitation of fluid up the ureter is possible, we will readily understand why a patient who has pus in the bladder may later have a renal infection. Dr. Miller's point about focal infection I did not emphasize because these patients were all examined by internists and all foci were corrected. Some of the patients had as much as 150 c.c. retention in the kidney pelvis. Whenever there is urinary stasis, one of the essentials for the occurrence of infection is present. In these twenty-five cases, we had only one case in which abortion was induced. I believe the reason that abortion is resorted to so frequently in the treatment of pyelitis of pregnancy is that the cases were not handled properly. These patients should be treated until the urine is sterile and free from pus.

COMBATING THE INFECTIOUS DISEASES ARISING IN THE ORAL CAVITY AND THEIR SEQUELAE

WITH SPECIAL REFERENCE TO THE DENTAL PROBLEM *

GUY S. MILLBERRY
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Accepting as a premise Dr. Charles H. Mayo's statement [1] that 80 per cent. of children's diseases arise from infections of the mouth, nose and throat, and that 90 per cent. of the deaths result from infections arising in the same area, or their sequelae, what procedure shall we follow to prevent these infections and increase longevity?

The tendencies in dental education and dental practice are not widely divergent, though there are incompatible differences of opinion in each field with regard to procedure in this problem. Let me say that the dental educators appreciate their responsibility more than the general practitioner does, and that the educators are perhaps taking the lead in attacking it.

Confronted, as the dentists are, with the care of a suitable harbor for practically all forms of infectious organisms, with no enforceable quarantine regulations to prevent or inhibit the entrance of these organisms into this port, and with a daily demand for importations of food and drink and air, either laden with infection at the original source or, in the instance of food, frequently reinfected after having complied with sanitary and food law inspections, we must cope with this problem every hour. Several methods present themselves for our consideration I have chosen to discuss them as professional, educational and economic methods.

Dental professional procedure, stimulated by an active interest in the medical profession, during the last decade, has endeavored to cope with the problem in two distinct ways: (1) by extracting all teeth under suspicion, including others not infrequently, and (2) by retaining and treating suspected teeth by surgical or therapeutic means.

Again, influenced by medical opinion, the conservative procedure is dominant, for while 90 per cent. of the deaths may be attributed to oral infections, we do not learn positively that 90 per cent of human ailments

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* Read before the Section on Stomatology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Mayo, C. H.: Dental Cosmos **44**: 1206 (Nov.) 1922.

are caused by these infections, nor are they cured by the extraction of the teeth.

Our professional activity is being directed toward that primary function of the practice of dentistry; namely, saving teeth; first saving teeth by taking charge of the children's mouths early in infancy, even extending beyond that to the prenatal period, during which a discussion of the diet and the condition of the oral cavity of the mother is entered into with her in an effort to supply the elements necessary to the development of the dentition and to prevent the absorption of toxins that may impair that development.

During the period of the first and second dentition, the teeth are carefully looked after through hygienic measures and operative procedures, if necessary, and a regulation of the diet. The child can be successfully carried through to maturity with practically sound teeth. This is the best method of saving teeth that we know of, and is the one we are teaching in our dental schools today. It will probably find its place in our curriculum under the designation of preventive dentistry, and will, I hope, soon supersede the reparative work as a major subject.

The second professional effort in saving teeth is to examine carefully the periodontal membrane for the earliest signs of detachment and injury, and to remove the cause, thus preventing the onset of that common physical disorder called pyorrhea, which finds its incipience from ten to thirty years before the serious manifestations are apparent; and to diagnose and remove incipient dental caries, substituting suitable and properly formed materials now available to the profession. This constitutes the volume of dental service required by the public today, the demand for which is far beyond the ability of the dental profession to supply.

The third professional procedure is to endeavor to remove infection from pulp chambers or canals of teeth and the alveolar areas beyond, and from pyorrheal pockets surrounding the teeth, thus restoring them to normal function and appearance.

This is the debatable field in dental practice; but ample clinical and laboratory evidence justifies the statement that it has been and can be successfully accomplished by careful technic. This statement should not be interpreted to imply that all teeth should be saved. The element of judgment based on a large experience is the determining factor, as it is in every other field of medical science.

Dental professional procedure is supplemented by a wide activity among other health groups, chiefly health officers, public health nurses and dental hygienists, whose personal and professional experiences have wedded them to the dental health program, the only one that is universally and unequivocally sold throughout the country.

All these activities are inseparably connected with the educational activity of the dental profession, which tells its message in simple form, "Save your teeth," and which at the same time endeavors to protect the health of the oral cavity so that this portal, so frequently abused and disregarded, may become a sign of potential health and beauty.

Educational procedure includes all the usual forms of presentation; lectures, illustrated or not; moving picture films, scientific or humorous; demonstrations in schoolroom or clinic; literature, ponderous volumes or pamphlets; all of which carry the message, "A clean mouth, sound teeth and healthy gums."

One hundred per cent. of the people need this information; the larger part of them, regardless of race, creed or color, are anxious to obtain it. The care of the teeth is practiced in some manner or other by people of all ages in the remote mountain villages and in the magnificent city home. It is a topic of daily conversation in every community, and every periodical or daily paper published in the United States contains some reference to the teeth. Beautiful teeth and a clean mouth are indicative of culture and refinement, and of strength and forcefulness of character.

The educational program is erroneously believed to be an expensive one. Beginning with the individual activity of the dentist in his practice, who adopted a plan of encouraging his patients to return at frequent intervals for preventive service, a method that has been strongly urged in general medical practice, it spread to the community clinic, the public schools, the county health department and the state board of health, and has now reached the Children's Bureau of the Department of Labor, at Washington, D. C. Thousands of communities in this country have accepted or adopted this program in the United States.

California established an excellent program in 1921, and during the last biennium succeeded in carrying the message of oral health to three fourths of the counties of the state, resulting in the establishment of many county agencies for this purpose. Seventy-five thousand persons, chiefly school children, were addressed or interviewed by two officials of the division of dental hygiene of the state board of health during this interval, and 350,000 more enjoyed the privilege of witnessing dental health exhibits presented by this division. Unfortunately, an economic administration has determined to deprive our people of one of its most valuable health agencies this year.

The terms economics and economy are frequently confused in the minds of the average person, and I approach this phase of the discussion with a realization that it may range from the distribution of samples of tooth paste to indigent children to the control of the food industries of the world. The latter is perhaps deserving of our greatest consideration.

The food law has accomplished much in the prevention of the efforts of unscrupulous men to profit at the expense of the public; and, since food is so essential in building resistance to infection, it should be our duty not only to assist in the enforcement of this law, but also to secure amendments from time to time that are in keeping with the later developments in the science of diet and nutrition in order to protect the public.

Manufacturers of foodstuffs are not wholly concerned with the health and nutrition values of their products. Their primary concern is to utilize everything they buy and convert it into dollars. Economy in costs of operating, efficiency in production, reduction of waste, and publicity, on which, more than anything, depends the sale of their products, are the objects of direct concern. People buy or eat food because it looks good, or tastes good, or a description of it sounds good. Therefore, our activity can well be directed toward educating the public in a more thorough understanding of the food and drug law and food labels, and of the relative values of foods.

While the dental educational program has been declared an extravagance, its economic value has never been analyzed in its true light. We are rapidly learning that it is far less expensive to keep well than to get well. Dental service is no exception to the rule when applied

to the family purse or the public coffers. Laying aside the savings in the home budget, with which all are familiar, the saving in cost of reeducating retarded pupils in our public schools, the average being about 40 per cent., is enough to justify the introduction of a school hygiene program, including dentistry, in every county in the Union.

The leaders in dentistry believe this and are encouraging an economic and educational program that will ultimately modify its practice or limit its demand, with a full understanding and hope that sooner or later this may be realized.

The limitations of dental practice today are small, when gaged by the area of human economy assigned to the care of the dentist, but they are correspondingly large when gaged by the responsibility in health and efficiency.

The eradication of such diseases as find their origin in the oral cavity, and the prevention of such others as are transmitted from a septic mouth to other parts of the body, are the dentist's problems and, with the cooperation of the physician, he will cope with these problems successfully by hygienic, dietary and professional methods, through the channels of health education.

ORAL PROPHYLAXIS AND PREVENTIVE DENTISTRY

WHAT THE PHYSICIAN CAN DO TO HELP *

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The opportunities of the physician for lending his aid in establishing better dental conditions are many. In fact, it is possible to give advice concerning the teeth to nearly every patient whom he is called on to treat.

The great majority of persons seek the services of a dentist only when compelled to do so for relief from pain or discomfort. Much unnecessary suffering, inconvenience and expense could be spared if it was possible to advise the patient to have his teeth examined and treated before serious trouble had developed simply from neglect.

It is a recognized fact that nine persons out of ten will heed the advice of a physician when he recommends that their teeth be given proper attention when perhaps they have disregarded timely advice from a dentist. The question of health makes a stronger appeal, usually, than a matter of appearance or even comfort, and will be the deciding factor.

The average physician, although he may be a skilled diagnostician, is not well informed in regard to the teeth. He has not made a study of the anatomy and histology of the teeth and their supporting structures, and is not in a position to interpret correctly a dental roentgenogram. Familiarity with normal osseous structure is necessary in order to diagnose a departure from the normal. Many errors in diagnosis have been made from an incorrect reading of a film of the teeth and maxillary bones, and the patient has been made to suffer the loss of teeth that should not have been extracted.

The average dentist is not qualified to make a physical diagnosis. His training in laboratory methods is deficient. Blood counts and urinalysis are beyond his ability, and the diagnosis of a cardiac lesion has not been routine practice with him. The dentist who has not had the advantage of medical training will do well to leave these things to the physician. But with the cooperation of the physician who is skilled in physical diagnosis and the dentist who should be well qualified to pass judgment on dental pathology, the patient may expect to receive intelligent and efficient service. The practice of dentistry is becoming more complex, and the work is becoming more specialized. The time has passed when a dentist is expected to be efficient in all the various branches of dentistry, and the successful dentists of today are those who recognize their own limitations and are broad enough to refer cases that they do not feel competent to manage to some one who is especially qualified in that particular line of work.

Fortunately, the dental profession is being educated to consider dentistry more from the standpoint of health and prophylaxis. We have been filling cavities and trying to prevent decay of the teeth, but the ravages of dental caries continue. The dental profession has awakened to the realization that we must find the cause. With that end in view, investigation and research are being carried on. The questions of diet in its relation to the development of the teeth and influence of the teeth in the health and development of the child are being studied scientifically, and much good will result. The great aim of the medical and dental professions is prevention.

The prevention of dental disease is unquestionably the greatest problem confronting the stomatalogist today. Where is the logical point to begin this great work? Authorities agree that the proper time to inaugurate prophylactic measures is with the mother before the child is born. This is where the physician can help right at the beginning. At this time the responsibilty rests within himself. The expectant mother consults the physician, and, if she follows his simple instructions intelligently, the foundation will be laid for better teeth for her child.

Both the medical and the dental professions have recognized for a long time the influence prenatal conditions exert on the teeth, and efforts have been made to correct unfavorable conditions by giving proper advice to expectant mothers.

At the meeting of the American Dental Association, held in Los Angeles a few months ago, the Minnesota State Dental Association presented a dental health exhibit which attracted great attention. It was the most complete and comprehensive exhibit of its kind that has been shown.

The physician should be familiar with the periods at which the deciduous teeth erupt, and that at the age of 3 years the child should have twenty teeth: just as many teeth as he has fingers and toes. The mother should be advised to use great care in keeping these teeth clean. At about the age of 6 years the first permanent molars appear and take their places back of all the others. These 6 year molars are perhaps the most important of any of the teeth and, if they are not in their proper position, may cause a disarrangement or malocclusion of the permanent teeth.

All of this may seem rather rudimentary and out of place in the Section on Stomatology; but if we are to combat dental disease successfully we must necessarily start at the beginning rather than wait until the

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* Read before the Section on Stomatology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

damage is done and then make frantic efforts to remedy conditions that might have been prevented.

The physician may caution the mother against child habits which tend to malformation of the maxillary arches. Thumb sucking and lip or tongue sucking tend to malformation of the jaws, and the custom of providing the child with a "pacifier" just to keep him happy and contented between meals should be discouraged. It is not only insanitary but tends to narrow the dental arch and affects normal development of the bones of the head and face.

With the work that is being done in every state in the Union by dentists and dental organizations and with the cooperation of public school and municipal authorities, the teeth of children of the rising generation should be greatly benefited and the results of early preventive measures will be apparent in later years, not only in better teeth but in better health and increased efficiency.

Oral prophylaxis is receiving increasing recognition and support from the medical profession, and it is only through the complete cooperation of physicians and dentists that the desired results will be secured. The physician's responsibility lies in using his best efforts to give the child a fair start in life. The dentist's responsibility lies in establishing and maintaining oral prophylaxis, and in this most important work the aid of the physician is necessary.

The curriculum of every medical school should include a course of study in dental anatomy and histology, together with the bacteria of the oral cavity and dental pathology.

Dental colleges have increased their curriculum, which now covers a period of four years and will, no doubt, in the course of time be further extended to allow a more complete medical training for the dentist. This is necessary if he is to render the highest service to his patients.

WHAT THE PHYSICIAN CAN DO TO HELP IN THE WORK OF ORAL PROPHYLAXIS

1. The prospective mother should be advised regarding her own teeth, and suggestions should be made as to diet during pregnancy. The old theory that dental operations during this period are harmful has been exploded.

2. The mother should be instructed as to the periods of eruption of the deciduous teeth, if she has not received such information from her dentist, and should be advised regarding the importance of early care of the child's teeth.

3. Inquiry should be made of each patient as to the condition of his or her teeth, and a routine inspection of the teeth, gums and oral mucous membrane should be given.

4. Early recognition of narrow, contracted dental arches, and a crowded condition of the teeth, with malocclusion, may lead to the correction of the deformity before serious consequences result.

5. Care of the teeth and oral cavity during illness and convalescence adds to the comfort of the patient and promotes prophylaxis. Carious teeth may harbor the germs of contagious disease.

6. By giving consideration to the foregoing suggestions on oral prophylaxis and preventive dentistry, the physician may help in a remarkable degree and will add to the comfort, health and longevity of humanity.

307 Dodworth Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MILLBERRY AND WRIGHT

DR. F. W. KROLL, San Francisco: Two things in these papers strike me forcibly: Dr. Millberry stated that dentistry now is conservative in the management of dead or "pulpless" teeth. I have been interested in the relation of infected teeth and oral sepsis to medical conditions for a number of years. I am radical, but that radicalism has been the result of experience. Conservative dentists admit that they are getting away from killing the pulp in teeth. Evidently they are beginning to realize that if they devitalize a tooth it must be a potential source of future harm. Medical men want to conserve health; therefore if we realize that a pulpless tooth is a potential source of harm, why should we not prevent that in the first place? That is the one big thing I hope the dentists will appreciate, that pulpless teeth have no place in any one's mouth. Dr. Millberry also spoke about the edentulous patients apparently being rather sickly. That has not been my experience as a practitioner of medicine. Dr. Wright said that medical men, as a rule, know nothing of dental pathology. That is quite true. Since I have been studying dental conditions in association with the conditions of patients, I have been amazed. If medical men will spread the gospel of studying in association with dentists, as well as other medical confrères, health conditions will be greatly improved.

DR. ROBERT BURNS, JR., San Francisco: The great problem before dentistry today is the proper education of dentists. There are two types of mind, the purely dental mind, which is more a mechanical mind, and the medical mind, which recognizes that dental ills and general pathology should not be viewed as things apart. One of the things that redound to the discredit of the medical profession was its refusal to accept Chapin Harris when he wanted a branch of dentistry in a purely medical school. The future education of the dentist is going to be fundamentally medical, and coincidentally the technical end will be developed more as the profession of medicine and orthopedic appliance makers are connected now. Not one of us would not rather do something constructive than destructive; rather save teeth than extract them. But some of us are confronted with the errors and mistakes of practice of a past generation. Those conditions must be dealt with as they are. It is a very serious matter to tell a person who may be ill with a serious systemic condition that it is better to save a tooth. It is better to save his health or possibly his life and lose his tooth. Focal infections are very serious. Great harm may be done by any focal infection, dental or otherwise. I do not say that the presence of a dead tooth is indicative of harm, but I do say that it is a potential source of harm. No man can say that dead teeth are not harmful. When we are confronted by systemic manifestations, it is unwise to take chances. Better be sure than sorry. Better lose the dead teeth. We might agree that it would be almost criminal malpractice deliberately to devitalize a tooth. It is a debatable question, at least, whether any one can devitalize a tooth and sterilize it so that it will remain sterile, and then seal the aperture so that the dentin will not remain as a source of danger. This is the position I assume. When I see patients who are ill, I say to them, if the dental roentgenogram is not positive—and in the presence of serious general symptoms this is not of a great deal of value—if you want to gamble on your powers of resistance, if you want to put the responsibility solely on your ability to withstand possibility of harm, you can take a chance with that tooth. If you would do as I would do, then that dead tooth should be removed. I think that is a conscientious attitude to assume. I would not have in my mouth a dead tooth irrespective of the condition of my health or the findings of the roentgen ray.

DR. GUY W. CLARK, San Francisco: We do not know what happens during the course of pregnancy. Something must be done before we can say with any certainty what the pregnant mother shall receive as a diet for the good of the child and for her own good. Fruits and vegetables are essential, not only from the standpoint of the minerals they contain, but also because leafy vegetables contain vitamins, which are

essential for calcium and phosphorus. Spinach and lettuce rank very high. Butter fat or some fish oils, such as cod liver oil and shark liver oil, are also very rich in vitamin. I think that we fail to realize the needs of a growing child. The growing youngster deserves his vitamin between meals. We should use some discretion in what we give between meals, but a piece of bread and butter, with a little jelly or honey, is a good thing to give that youngster.

DR. HERBERT A. POTTS, Chicago: It is necessary that we have ideals. However, we cannot overlook the present needs that are important; consequently, as our best efforts will be directed along the line of prevention, we should not neglect the sickly children and the infants. The dietary problems and these problems which we have urged are all in the right direction; but, in the meantime, as oral disease in the child has been demonstrated, and as it has also been demonstrated that by the simple care of the local conditions in the child's mouth we can lessen the number of communicable diseases immediately, we should not neglect the hygiene and dental care of the child while we are studying these dietary problems. We are endeavoring in Chicago, in the school with which I am connected, to establish the children's clinic. We have the child under our direct supervision from his entrance into the public school all the time during his school life. We are taking care of the children which are brought to us every six months, for a number of years. That is the main thing. Dentistry has been more or less of a luxury. If we can keep watch of the child during its school life, keep its mouth free from cavities, teach it to brush its teeth and reduce the communicable diseases—and we can do that—it is one of the great things which can be accomplished economically.

DR. JOSEF NOVITZKY, San Francisco: Dr. Millberry speaks of combating systemic disease by mouth inspection of school children and by a campaign of educational propaganda. We are aware of this "propaganda." Not long ago an article, written by an associate of Dr. Millberry, entitled "Health Hints," in the San Francisco *Examiner*, advised people to go to their dentist and urge him to spare no expense in the treatment of their dead teeth. I notified the newspaper that the article gave bad advice; that all research work to date indicated that dead teeth should be removed, not "treated." I was told by the newspaper that my conclusions did not matter, that they had to look to the recognized leaders of dentists for their information. I wish to leave one thought with you—tooth pulp removal and the substitution of a rubber plug for nerve tissue and blood vessels is an unnatural procedure. When a dentist speaks of treating a pulpless tooth, he means attempting to embalm the tooth. Pulp devitalization is a national menace. In the face of the overwhelming evidence accumulated against dead teeth, it appears hardly necessary to ask now, What shall be done with pulpless teeth? The problem concerns not the coming generation but this generation. Are we going to condemn this generation to struggle along with its dead teeth? Infection present in pulpless teeth is not a transient infection. It is a permanent bone infection recognized as most virulent. Food infections and fleeting respiratory infections are not comparable to the health menace from dead teeth. Dentists speak of hermetically sealing the pulp canals of teeth. But Weston Price, working under a grant from the National Dental Association, demonstrated that the materials used by dentists failed utterly to seal the canal. A recent article characterized my work, which shows infection in all pulpless teeth, as "a malicious falsehood." The very illustrations used in this article to show "sterile" dead teeth indicated cavitation at the root ends. It would be utterly impossible for such teeth to be sterile. College men, feeling their responsibility more than men in private practice, should undertake investigations of pulpless teeth under supervision of a competent committee.

DR. C. H. FARMAN, Los Angeles: This matter of pulpless teeth is certainly a vital one and I want to say emphatically that I have not any reason to justify the retention of dead teeth in the mouth. They always should be extracted, but the trouble is that we do not discriminate between a pulpless tooth and a dead tooth. The health of the peridental membrane is the worth of the tooth. We can treat a root that has decayed below the gum scientifically and properly, the same as we remove infection in every other part of the body. If research has established any one thing, it is that the general principles of infection apply to all parts of the body. It would be poor practice for a surgeon to amputate limbs when, by removing the infection, he could save those limbs. That principle applies to the human tooth. An infected tooth can be cured by sterilizing it, and by sealing it properly. I am proud of the record of dentistry in its assistance in the work of preventive medicine. When I am saving an infected tooth and restoring it to health, I am contributing a great deal to preventive medicine. Of course, there is such a thing as going too far. It is not the tooth that is important in the infection, it is the organic matter in the tooth. When that infection is removed, it is wonderful how those teeth will respond.

DR. S. B. MCKERRIHAN, Portsmouth, Ohio: I have been a victim of bad dentistry. I have had an abscess in the superior maxillary sinus, and I could not find a dentist or a physician in a town of 40,000 who would tell me what was the matter with me. I finally had treatment. I am still alive. Long ago I found fault with the dentist in not having studied oral infections. I once heard it said that Dr. Rosenow told the dental profession of a source of infection which affects the entire body, and that the dentists have not had the idea that it was due to infection around diseased teeth. Dentists, like medical men, have much to learn. A dentist should be well versed not only in the physiology of the mouth but in the nerve supply especially. An earache may be caused by an abscess at the root of a tooth. The question is not one of finding fault with these papers, but it is a step in the right direction. The toxins from a diseased tooth, the gums and the tonsils and the adenoids are all connected. We should stand together. The general practitioner and the dentist should work hand in hand, with as full knowledge of the anatomy, physiology and pathology of the oral and nasal cavities as is possible, to render justice to our patrons.

DR. H. A. TUCKEY, San Francisco: The effort to treat and conserve chronically infected, pulpless teeth, regardless of the fact that they become a menace as soon as the potency of the drugs used to sterilize them cease to act, has attempted to divide dental thought into two classes—conservatives and radicals. The dental surgeon sees the hopeless clinical picture of diseased teeth, and the surgeon agrees entirely with Dr. Millberry and Dr. Wright's papers so far as they concern diet, prevention of caries and biochemical processes; but when Dr. Millberry says our function is to "conserve the teeth," regardless of their potential source as focal infections, the surgeon cannot agree. Not only are long standing pulpless teeth infections in themselves, but infection from the teeth passes into the jaw bones, where it may get beyond our control, as it frequently does, resulting in grave systemic infections. We know very little about this diseased bone so far, but clinical "mass evidence" shows that in cases in which the teeth and affected bone are surgically removed, the patient is markedly benefited. Dr. Kroll, in his discussion, emphasized the fact that the medical and the dental practitioners must work together and not try to help patients simply through each other's own limited field.

DR. GUY S. MILLBERRY, San Francisco: In a general discussion of the pulpless tooth problem, San Francisco is the open arena on this question. Dr. Kroll stated that I had made the statement that edentulous people were weak and sickly. I did not. I said that people with good teeth were generally healthier. You may draw your own inference. One of our graduates spent many years in the Philippine Islands, and he reports that the natives frequently die of oral infections in the fourth decade of their lives, but that if they lose their teeth, they live to the ripe age of 55 or 60. In this country we are saving teeth and keeping people alive to 70 or 80. One gentleman spoke of difficulty of securing service from dentists he consulted in his locality. He was unfortunate in the selection of his dentist, and we might ask him this question. You say, the dentist failed to tell you what was the matter with you. Do all of the physicians tell their patients what is the matter with them? I am sure you are not familiar with the situation in dental education. It has been my experience

during the last twenty-five years in educational work that almost every man who comes out of a medical or a dental school believes in the educational work going on in that institution by the time and conditions existing when they were there. We are not concerned with the pulpless teeth. We wish to save teeth, and we are concerned with preventive dentistry as the most effective procedure in obtaining this result.

Dr. Percy B. Wright, Pasadena, Calif.: Regarding the bite between meals, I was quoting. I thoroughly endorse that idea. I was allowed to eat between meals and, whereas I developed physically, my teeth went to pieces early. I am allowing my own children to eat fruit between meals, but I keep them away from pastry. One thing the physician can do in preventive dentistry is to advise patients about tooth brushes. We have all had the experience of going into private homes and seeing an array of tooth brushes which shows an amazing amount of economy in that line. Recently I came across the continent in a Pullman and one passenger had two or three kinds of tooth paste, and a tooth brush like a worn out feather duster. It was the worst tooth brush I ever saw, and he was attempting to clean his teeth with it. That is one thing we can do, suggest to the patient to be liberal in the use of good tooth brushes.

INVERSION OF THE UTERUS*

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Inversion of the uterus is one of those extremely rare conditions which only a few surgeons have seen. When one is confronted with this situation, it becomes a very real problem. The case in point will illustrate some of the pitfalls in the diagnosis and will, I trust, be helpful to those who are yet to encounter this condition in which the uterus is upside down and inside out.

It is not my intention to discuss the vexed question of the etiology, but it is of interest to note that, of 641 cases of inversion of the uterus compiled from the literature by Thorn [1] from the entire world, 81.2 per cent. were obstetric in origin, 13 per cent. were due to uterine tumors, 2.2 per cent. occurred postmortem, 2 per cent. were idiopathic, and 1.6 per cent. occurred after abortions or premature labors.

In the obstetric group, the rarity of this accident is variously reported. The average incidence, according to Jones,[2] whose study of this subject has been exhaustive and from whom I shall quote occasionally, is one case in about 128,000 full-term labors. Yates [3] comments that the statistics collected from large obstetric clinics, in which all possible precautions are taken, are less likely to give the true average incidence of this condition, which is more likely to occur in private practice, in patients cared for in their homes and by men less skilled in the practice of obstetrics.

The factors generally considered necessary for the production of this state are pressure from above, traction from below and localized thinness or paralysis of the uterine wall, with possibly some exciting cause, such as implantation of the placenta at the fundus, short umbilical cord, too early or improper use of the Credé method, manual extraction of the placenta, or intra-abdominal pressure.

Inversion of the uterus may be classified in four degrees: (1) simple dipping in, depression or cupping of the fundus; (2) descent of the fundus to the cervical orifice; (3) descent of the fundus through the cervix, or (4) complete inversion with prolapse; in some cases this may be so exaggerated as to invert the cervix and part of the vagina.

The first two are incomplete, and the last two are complete inversions. These cases may also be divided into (1) the acute or common type occurring soon after labor and due to it, and (2) the chronic type, which is a continuation of the acute type or may be produced by the gradual expulsion of an intra-uterine tumor acting as a foreign body.

The symptoms in the acute cases are those of hemorrhage or shock, though the degree of shock is out of all proportion to the amount of blood lost. In the chronic cases, the predominant symptom is hemorrhage, which is irregular and varying in amount. This, in time, leads to secondary anemia with its train of symptoms. Backache and bearing down pains are noted in the majority of cases of complete inversions, and in all of those cases in which the inversion is sufficiently complete to constitute a prolapse of the uterus. The prognosis is always doubtful. The figures average about 40 per cent. mortality within the first seventy-four hours. In this connection it may be added that Marion [4] believes that complete inversion of the uterus is much more common than reported, and that many deaths reported from postpartum hemorrhage are probably due to inversion of the uterus.

The diagnosis should be made essentially from the physical signs. In an analysis reported by Jones of 191 obstetric inversions, nineteen were diagnosed immediately postpartum; forty-four were diagnosed immediately after delivery of the placenta, and 141 were diagnosed within twelve hours. An analysis of 158 cases diagnosed later showed that sixty-seven were discovered within six weeks; fifty-two, within six months, and forty, after one year. The error in these cases, according to the data, was due to neglect in making an examination rather than misinterpretation of the diagnostic signs.

When a complete inversion occurs directly postpartum or immediately after delivery of the placenta, the diagnosis is obvious, and the indication is for immediate or early reinversion. This has been accomplished many times and easily by taxis. But the following case, which puzzled me, may be helpful to one confronted with somewhat the same situation.

REPORT OF CASE

Mrs. C. Q. H., aged 23, born in Massachusetts, admitted to the Truesdale Hospital, Aug. 6, 1922, was a primipara in active labor. Her family history was not remarkable, except that her mother died of cancer of the uterus. Her past history was unimportant except that in the sixth month of pregnancy she had had a sudden severe flowing spell without pain, which soon subsided. Her physician, however, kept her in bed for three weeks.

Labor was not remarkable, and the patient was easily delivered by low forceps by her physician. The placenta was expressed soon afterward without difficulty. Her physician reported that there was little more than the average amount of blood lost. The uterus contracted well and the patient's general condition seemed satisfactory. About an hour later, a sudden change in the patient's condition occurred. She was blanched and pulseless at both wrists, and appeared to be exsanguinated, although there had been no excessive flowing

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* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Thorn, W.: Zur Inversio Uteri, Samml. klin. Vortr. Leipzig, 1911, No. 625 (Gynäk., No. 229), 101.
2. Jones, W. C.: Inversion of the Uterus, Surg., Gynec. & Obst. **16**: 632-650, 1913.
3. Yates, H. W.: Inversion of the Uterus, Am. J. Obst. **80**: 712 (Dec.) 1919.
4. Marion, H. E.: Boston M. & S. J. **111**: 424, 1899.

reported. She complained of general numbness, but no pain. She was not restless. The uterus was firm and of normal size above the symphysis, and could be as readily grasped by the hand as normally. The foot of the bed had been elevated, and the patient was given the routine treatment for shock.

About this time I saw her with her physician; the picture was one of extreme shock for which there was no apparent cause. The uterus was exactly as one would expect to find it in size, position, shape and firmness, with one exception: there was an indefinite irregularity in the contour of the fundus extending down the posterior wall about two inches. There was no depression and no cupping. It seemed highly probable, in the absence of visible hemorrhage or inversion, that there had been a rupture of the uterus with internal bleeding, though no dulness in the flanks could be made out. The situation was very disquieting.

A transfusion of 500 c.c. of blood was given, her husband being used as the donor; under a local anesthetic, the abdomen was opened in the median suprapubic line. Through an incision 2 inches long, an examination was quickly made. There was no rupture of the uterus, and the slight irregularity was not pronounced enough to arouse my suspicion of the true condition. The abdominal wound was closed quickly, and the patient was put to bed in a much improved condition as a result of transfusion, and no worse for the exploration.

It was then generally considered by those in consultation that she must have lost a relatively large amount of blood volume. During the next few days, her general condition improved rapidly, and after a convalescence, uneventful except for protracted, though slight, flowing, she was discharged from the hospital three weeks after delivery. Examination at the time of discharge revealed no complications.

During the next month her weight and strength increased markedly, but she complained of a constant bearing down sensation in the pelvis. She had a blood-tinged discharge from the vagina most of the time, and occasionally passed a small clot. During the last week of this month, the flow increased considerably, but otherwise she felt very well. Vaginal examination now showed a spherical mass 2 inches in diameter protruding through the cervical ring. Bimanual palpation showed the fundus absent from its usual position. The diagnosis of complete chronic inversion of the uterus was obvious.

In reviewing this case, it would seem clear that soon after delivery an incomplete inversion of the uterus of the first degree had occurred. Although this diagnosis was considered, together with shock and hemorrhage, it was incorrectly ruled out. The patient's life, however, was saved by a transfusion. And within a month of the time that she had left the hospital the inversion had increased, protruded through the cervical opening, and become complete.

METHODS OF RELIEVING THE CONDITION

The operations employed for the relief of chronic inversion of the uterus are numerous. They fall naturally into two groups, those approached by laparatomy and those performed by the vaginal route.

The advocates of the abdominal route claim, for its superiority and simplicity, that: (1) if an incision is needed, it is shorter than the one required in the vaginal route; (2) bleeding, if it occurs, is more readily controlled; (3) the uterine wall can be more accurately sutured, and (4) traction on the round and broad ligaments may help reposition.

The advantages of the vaginal route are: (1) less danger from infection; (2) less shock from operation; (3) as easy control of bleeding, if any occurs, as by the abdominal route, and (4) accomplishment of suspension, if needed, by vaginal fixation of the round ligaments.

The abdominal procedures consist in dilating the cervix from above, and then, with the fingers in the vagina, making an attempt to replace the inverted fundus. This is successful in about one third of the cases. In the rest of the cases, reinversion is accomplished by cutting the cervix to relieve the constriction, and pushing the uterus up from below. The incision can be enlarged upward if necessary until reinversion is accomplished. Some surgeons incise the posterior edge of the cervical ring, while others cut the anterior lip of the cervix. The anterior incision is more easily sutured, and the suture line is less likely to be the cause of troublesome adhesions.

The vaginal operations for chronic inversion have been well summarized by Day.[5] They are divided into two groups, those in which a posterior incision is made, and those in which an anterior incision is made.

In the posterior group, Browne's operation is done with an incision through the posterior wall of the uterus above the cervix. Through the incision, the constricting cervical ring is dilated, and reinversion is accomplished after suture of the incision.

Kustner's operation consists in a transverse opening first into the pouch of Douglas; through this opening an attempt is made to dilate the ring and then by taxis reinvert the fundus through the ring. In case this fails, an incision is made in the posterior wall from 2 cm. above the external os to 2 cm. below the fundus. Reinversion may then be accomplished through this opening, and the incision in the uterus sutured through the transverse cut in the culdesac. Piccoli modified Kustner's operation by cutting the posterior wall from the external os nearly to the fundus, and then reinverting it and suturing the incised wall through the vagina.

In the anterior group there are two well recognized operations. In Kehrer's operation, the anterior wall is incised from the external os for a varying distance upward toward the fundus as far as is necessary. The fundus is reinverted and the incision sutured as far as the internal os before being pushed through the severed ring. The remainder of the incision is then sewed up from the vaginal side.

Spinelli's operation, which is favored by the majority of the advocates of the vaginal route, consists in drawing down the fundus with tenaculum forceps on each corner of the uterus, making a transverse incision where the anterior vaginal wall is reflected from the cervix, and pushing the bladder up out of the way, thus exposing the whole uterine wall. The anterior margin of the cervix is seized on each side of the middle line by volsella, and the uterus divided between them with scissors. As soon as the incision is carried into the body of the uterus sufficiently high, reinversion is easily accomplished. Traction is made on the volsella already attached to each side of the incision in the cervix. At this stage, Peterson[6] suggests shortening of the broad ligaments. The incision in the uterus is then closed, and the peritoneal edges are approximated. The vaginal incision should then be closed completely, or partially closed and drained.

Amputation of the uterus and complete vaginal hysterectomy may be necessary in rare instances, owing to sloughing of the strangulated fundus. A spontaneous cure is reported to have been effected by nature in one case of this sort.

5. Day, H. F.: Boston M. & S. J. **167**: 361-364, 1912.
6. Peterson, R.: Surg., Gynec. & Obst. **5**: 196, 1907.

In the case previously described, it was my intention to do the Spinelli operation. But the tissue was so very friable that the examining finger broke through the posterior culdesac. This made the beginning of a transverse posterior incision. It was therefore deemed advisable to change to Piccoli's modification of Kustner's operation; this was done without further difficulty. A glass stem pessary was inserted through the sutured cervix and kept in place until the day the patient left the hospital. Convalescence was uneventful, and she was discharged thirteen days after operation.

On the day of discharge, the fundus could be readily felt bimanually in fairly good position; the vaults were free, and there was no flowing.

When last examined, two weeks ago, ten months after operation, the uterus was retroverted to the first degree, and the cervix was shorter posteriorly than anteriorly; otherwise the examination was not remarkable. Menstruation is regular, rather more profuse than formerly, and only slightly painful.

SUMMARY

Inversion of the uterus is a very rare condition. It is not infrequently overlooked as an emergency complication of labor.

Incomplete inversion of the uterus should be borne in mind in any case of postpartum shock, especially in the absence of hemorrhage.

Manual reposition becomes more difficult in direct ratio to the length of time the inversion has existed.

Prompt treatment to combat shock should take precedence over prolonged efforts to accomplish reduction.

Blood transfusion, promptly employed, will appreciably decrease the mortality.

ABSTRACT OF DISCUSSION

DR. RUDOLPH W. HOLMES, Chicago: The problems of inversion of the uterus cannot be discussed authoritatively by any one, because no one has had any real experience; that is, it is such an extremely rare obstetric complication that no one has had the opportunity to observe a sufficient number of cases to offer convincing observations. However, the accumulated experiences have given invaluable contributions to the treatment of the condition. Inversion generally takes place immediately after the birth of the child, with the placenta still attached to the uterus, or very shortly after the third stage; rarely will it occur later in the puerperium. The first principle in the treatment is immediate replacement; the second principle is that there shall be an intra-uterine tamponade applied immediately after replacement that there shall not be a recurrence—ergot and pituitary extract should be given for some days. Dr. French has dwelt on the operative, surgical treatment. Probably most chronic cases of inversion must be treated operatively. In acute inversion, my impression is that repeated taxis will generally accomplish results. The cardinal principle in performing taxis is that the introcedent portion which inverted last must be the part first to be returned; in this way two thicknesses of uterine wall will be included within the constricting cervix and lower segment (retraction ring). If an attempt is made to return the fundus first, there will be four thicknessess of uterine wall to pass the constricting ring, making reversion impossible. I have seen three cases of inversion. Observers have attested to the fact that it is better with women who have inversions of some days' duration, with infection, to leave them alone until the sepsis has subsided, rather than undertake operative procedure. The reduction in the presence of acute infection is dangerous. Taxis will often accomplish wonders in chronic inversions. This may be done by hand, by hydrostatic dilators, or better by mercurial pressure, or the "egg-beater" contrivance of Aveling.

DR. FRANK W. LYNCH, San Francisco: Occasionally one will meet cases which cannot be reduced as early as two weeks after labor. I have recently seen such a case. A woman, aged 18, possessing a perfectly normal pelvis, had difficulties at delivery. She had a hemorrhage of 700 or 800 c.c., and reacted so markedly to the trauma of labor that it did not seem wise for her attendant to attempt to remove a small piece of placenta which he felt might be retained in the uterus. The next day he made a firm pressure on the fundus, and expressed a small lobe of placenta scarcely wider than a 25 cent piece. The woman did well for a week, and presented no complications until she sat up in bed. Then she started to bleed. I saw her four days after. She had lost much blood. In spite of every effort of taxis by the hand, tampons and bags, in fact, everything except the egg-beater of Aveling, we could not replace the uterus. We had also tried the knee-chest position and the monkey walk. Inversion was complete. We had excellent exposure at operating, since we made a paravaginal incision; yet we were not able to reduce the uterus even after hysterotomy; and, since we were not able to cut the cervix, we were compelled to do a hysterectomy. This case was in marked contrast to two which I had previously seen in which replacement was ridiculously easy.

PNEUMOCOCCUS SEPSIS IN THE ABSENCE OF PNEUMONIA

REPORT OF CASE DUE TO PNEUMOCOCCUS TYPE 1*

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AND
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The frequency with which the penumococcus is found in the blood stream during the course of lobar pneumonia is well known. Cole[1] states that about 25 per cent. of his 728 cases gave positive blood cultures. On the other hand, pneumococcemia in the absence of a primary pneumonia, with or without the subsequent secondary involvement of lungs, meninges, endocardium or joints, is of much less frequent occurrence, with regard to which relatively little has been written. Such a case has recently come under observation, and seems to warrant the present communication.

REPORT OF CASE

A white woman, aged 22, admitted to the Johns Hopkins Hospital, Oct. 21, 1922, complained of severe headache, chills and general malaise. Her antecedent history was essentially negative. Her general good health had been interrupted by occasional attacks of acute tonsillitis, and she had always been rather susceptible to mild upper respiratory infections. She had had otitis media in childhood, but no mastoid or paranasal sinus infections. Rarely had she had mild bronchitis following an attack of rhinopharyngitis. She had never had pneumonia. For one week prior to the onset of the present illness, she had had a slight coryza with mild pharyngitis, but this did not interfere with the execution of her daily activities. Feeling quite well in the evening, she awoke the following morning (the day of admission), with chilly sensations which increased and shortly gave way to a frank rigor, lasting for fifteen or twenty minutes. Simultaneously with the chill she developed a severe generalized headache and general malaise, and became prostrated. She felt nauseated, but did not vomit. During the day she was annoyed by an unproductive cough, and she had slight discomfort referred to the right chest, which was not increased on deep breathing or coughing.

On admission to the hospital, the patient appeared acutely ill and distressed. The temperature was elevated to 102.6; the respirations were rapid, 34 a minute, but shallow and not labored, and were not accompanied by an expiratory grunt. There was an occasional cough without sputum. There was

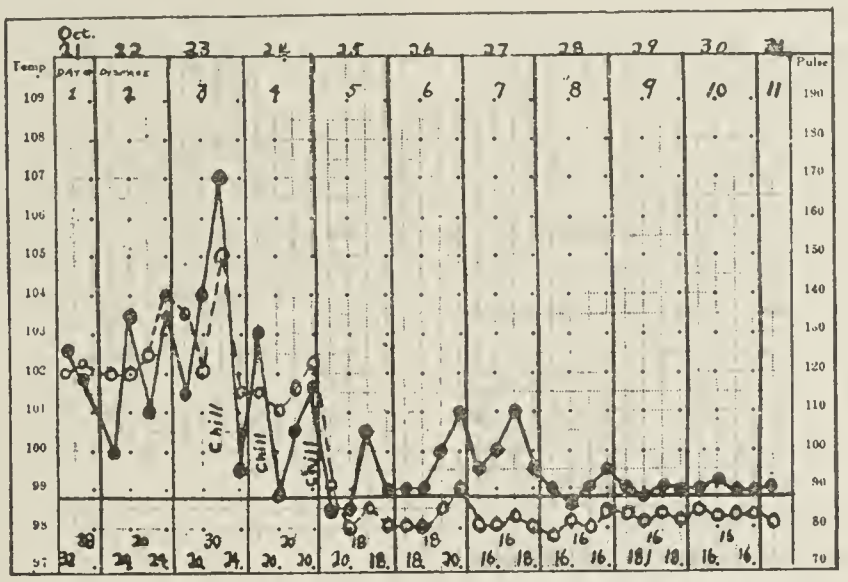
* From the Biological Division of the Medical Clinic, Johns Hopkins University and Hospital.

1. Cole, Rufus: Nelson Loose Leaf Medicine **1**: 248.

no cyanosis or herpes. A few nodes in the left anterior cervical triangle were a little enlarged and tender, but no other glandular enlargement was noted. Percussion and pressure over the paranasal sinuses and mastoids caused no discomfort. There was a slight rhinitis, but no nasal or postnasal discharge. The pharynx appeared somewhat red, but the tonsils were not swollen, and no exudate was present. There was no cervical rigidity. The heart was normal; the pulse, 124 a minute, was of good quality. The lungs were entirely clear; there was no alteration in the respiratory murmurs and no friction; no râles were to be made out. Except for slight voluntary spasm in the right upper quadrant, the abdomen was negative. Reflexes were normal; Kernig's sign was negative.

Blood examination on the evening of admission showed 5,600,000 red cells and 90 per cent. hemoglobin; 24,300 white cells, with the following differential formula: polymorphonuclears 83 per cent. (total number 20,385); basophils, 0.7 per cent.; eosinophils, 0.7 per cent.; lymphocytes, 14 per cent. (total number, 3,400), and large mononuclears and transitionals, 1.5 per cent. Except for the increase in neutrophilic polymorphonuclears, no abnormal features were noted in the stained smear. A blood count done the next day was essentially the same. The urine was normal. In the absence of any localized signs, no diagnosis was to be made on admission, other than that of an acute infectious process.

A blood culture made on the night of admission showed after thirty-six hours a heavy growth in broth, and on agar plates there were about two colonies per cubic centimeter of blood of a gram-positive diplococcus which was bile-soluble and was agglutinated by Type 1 antipneumococcus serum. Throat cultures on two successive days showed a normal flora. Sputum, which the patient thought came from the lower air passages, but which later proved to be postnasal discharge, was cultured on the second day and yielded a predominance of pneumococcus Type 1.



Temperature of the patient: The chill in each instance followed the administration of antipneumococcus serum. The curve with hollow dots represents pulse rate.

On identification of the organism found on blood culture, the patient, proving to be insensitive to horse serum, was immediately given 80 c.c. of antipneumococcus serum Type 1. Very shortly after serum administration there was a severe chill, with vomiting; fever reached a peak of 107, and then rapidly fell. It is interesting to note that blood cultures taken immediately before and shortly after this administration remained sterile after a five-day incubation.

On the same day, rhinopharyngoscopic examination showed a profuse, greenish, purulent discharge coming from the ethmoid cells on both sides. This pus yielded an abundance of pneumococcus Type 1 in pure culture. The antrums on transillumination appeared slightly clouded, but material obtained on irrigation was practically sterile and contained no pneumococci. The nasal mucosae were well shrunken to assure free drainage.

October 24, the lungs were perfectly normal according to physical and roentgenographic examination, and the patient felt better. Ethmoid sinuses discharged moderately. Roentgen-ray examination on the sinuses showed an old antrum infection. In spite of the patient's improvement, two more serum treatments were given, totaling 130 c.c., though again, blood taken before and after injections proved later to be bacteria-free.

October 25 to 27, there was a general improvement, with a fall in temperature. Further study of the chest by physical and roentgen-ray examinations was negative.

October 28 to November 2, the patient became afebrile and asymptomatic. The nasal discharge practically disappeared, and thereafter neither by mouse inoculation nor by ordinary culture methods could pneumococci be isolated from the nasal secretions.

November 3, the patient developed serum disease, which for about ten days ran a characteristic course, and showed the typical phenomena associated with the condition, i. e., transient urticaria, and edema, glandular enlargement, fever and arthralgia. The patient was discharged well, November 23.

In summary, a healthy person suddenly developed severe constitutional symptoms of a generalized infection, without at first presenting any signs of a localized focus. Repeated physical and roentgenographic examinations of the chest failed to show any evidence of a pneumonic process. A general blood stream infection by a fixed-type pneumococcus was demonstrated, the source of which was determined by subsequent culture of the purulent discharge from the posterior pharynx and from the ethmoid cells. Rapid subsidence of the whole process was coincident with active treatment of the local infection and with specific serum therapy.

COMMENT

In the last few years, considerable attention has been paid, particularly by French observers, to so-called "primary pneumococcus sepsis," that is to say a blood stream infection by the pneumococcus in which no primary focus is recognized, and in which pneumonia, if it occurs at all, is secondary to the pneumococcemia in much the same sense as is the occurrence of meningitis, arthritis or endocarditis — a metastatic phenomenon. Brouardel and Renard [2] reported, in 1921, a case of a woman who was suddenly taken in midwinter with chills and severe pain in the back, with coincident development of high fever, marked prostration and frontal headache. Physical examination on the third day after the onset revealed practically nothing save for the general picture of an acute infection. Blood culture, however, showed the presence of organisms which morphologically were pneumococci, and were pathogenic to mice, though no typing was done. Between the fifth and seventh day the temperature, which had remained elevated, fell rapidly, with the general disappearance of symptoms, and the patient made a prompt recovery. No focus of infection and no pneumonia were demonstrable. The authors refer to the condition aphoristically as the "picture of pneumonia without pneumonia." Menetrier and Levesque [3] recorded a somewhat similar case which they regarded as true primary pneumococcus sepsis. In December, 1920, a woman, aged 30, who for several days previously had been indisposed, with headache and malaise, was sized with a sudden attack of rigor, and then became greatly prostrated, with high fever and sweats, insomnia, headache and fatigue. She had no cough, dyspnea nor pleural pain. On the day of admission to the hospital, the third day of the disease, the patient had nasal epistaxis, and the high fever and general prostra-

2. Brouardel and Rénard: Bull. et mém. Soc. méd. d. hôp. de Paris **45**: 328, 1921.

3. Menetrier, P., and Levesque, J.: Bull. et mém. Soc. méd. d. hôp. de Paris **45**: 85 (Jan. 28) 1921.

tion continued. Physical examination was negative throughout. Blood culture taken on the day of admission showed pneumococcus Type 1. On the sixth day after the onset, the temperature took a critical drop within twenty-four hours to normal. Two days later the patient had the symptoms and signs of a mild pleurisy which lasted for about a week without any definite evidence of pneumonia, and then disappeared, the patient making a complete recovery to health. Serum treatment in the case was not favored in view of the mildness of the course of the infection.

However, such a benign brief course and satisfactory outcome are not the invariable rule. Bourges and Marcandier [4] describe a case observed by them of a sailor who entered the hospital with a diagnosis of "grip." In spite of the general evidence of a severe infection, the lungs showed only a diffuse bronchitis, and no localizing signs were made out. A blood culture positive for pneumococcus (untyped) was obtained on the third day after admission, and on the fifth day signs of meningeal and joint involvement became manifest. Many joints were involved in rapid succession, and a purulent meningitis due to the pneumococcus developed. Repeated blood cultures showed the same organism. Finally, the endocardium became infected, and the patient died on the sixteenth day. Throughout the course, the lungs remained clear.

In contrast to these cases of relatively short duration giving the "picture of pneumonia without pneumonia," cases of primary pneumococcus sepsis prolonged over a period of from one to two months have been reported by d'Espine and Reh,[5] Desoil,[6] de Jong and Magne,[7] and Oettinger and Deguignard.[8] Many of these cases simulated at first the picture of typhoid fever, and were so regarded until the blood culture showed the presence of pneumococcus. When metastatic localization in joints, lungs, endocardium or meninges did not occur, the outcome was usually favorable.

The term "primary pneumococcus sepsis" as used in the literature conveys the idea that the offending organism passes through some portal of entry, and lives and multiplies in the blood stream, without conceding the existence of a focus of infection which is continually draining its living bacterial discharges into the circulating blood. This seems to be an unfortunate conception, and probably an incorrect one. Such a phenomenon necessitates the successful opposition against the strong defensive mechanisms of the body of a single discharge of a relatively small number of bacteria into the vascular system; for the occurrence of repeated discharges would, ipso facto, concede the presence of an extravascular focus. It seems highly unlikely that such bacterial vegetative activity could occur in any except the most debilitated patients or as an agonal event; and it is generally believed that when a true septicemia exists, i. e., when pyogenic bacteria are actually multiplying in the blood, the defenses of the body are down, and the parasite has gained the upper hand—with a prospect of a fatal outcome in a short time.

In brief, it is likely that in most cases of blood stream infection persisting over a period of days, a focus which is sending in new organisms to take the place of those destroyed, probably exists somewhere in the body. It seems of great practical importance that this hypothesis be accepted, for it indicates the direction toward which therapy should be pushed—the search for, and cleaning up of, the focal reservoir. In a few reported cases, such as that of Caussade and Tardieu,[9] in which sepsis followed pneumococcal dacryocystitis, the focus was apparent, and these were designated as secondary pneumococcus sepsis. But in a larger number of cases, the focus is concealed, and may not be found even after careful search. On this point, however, the careful investigations of Darling [10] are of peculiar interest and importance, particularly in relation to the case here reported. Darling found, in a series of necropsies performed on patients dying of all types of pneumococcus infections, that 92 per cent. showed pneumococcus inflammation of one or more paranasal sinuses, and four out of five patients with pneumococcus sepsis were shown to have pneumococcal sinusitis. Had the study included the investigation of the mastoids, the percentage of local infections might have been higher. Further unpublished studies extending these observations over a much larger series confirmed the findings of the earlier paper.[11] Darling, therefore, concludes that the portal of entry of the pneumococcus is in most cases an accessory nasal sinus.

SUMMARY

In a case of sepsis due to pneumococcus Type 1, the interesting features of which were the absence of pneumonia and the existence of a focus of infection in a paranasal sinus, treatment of both the local and general infection resulted in prompt recovery.

4. Bourges, H., and Marcandier, A.: Bull. et mém. Soc. méd. d. hôp. de Paris **45**: 631 (May 6) 1921.
5. D'Espine, A., and Reh, T.: Rev. méd. de la Suisse Rom. **38**: 413 (July) 1918.
6. Desoil: Echo med. du nord **18**: 229, 1914.
7. De Jong, S. I., and Magne, G.: Paris méd. **7**: 289 (Oct. 13) 1917.
8. Oettinger and Deguignard: Bull. et mém. Soc. méd. d. hôp. de Paris **45**: 159 (Feb. 11) 1921.

THE IMPORTANCE OF THE PATIENT'S POSITION IN STUDYING LUNG EXCURSION *

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Judging from some recent publications on physical examination of the lungs, there seems to be a want of appreciation of the nicely balanced relation between the muscles of inspiration and bilateral extensibility of the lungs.

All the physical signs we seek in lung examinations are directed toward the study of three attributes; namely, volume, density and extensibility. Extensibility is the quality that is first modified in all diseases of the pleura, parenchyma and bronchial tree. Alterations of volume and density of the lungs come as later changes in disease. The student of pulmonary physical signs will find inspiratory extension of the thorax a very rich field for clinical study. For number and variety of signs and satisfaction in clinical observation, the interrelations between the actions of inspiratory muscles, the excursions of different parts of the pulmonary boundaries and the extensibility of the lung are more productive sources than any other physiologic function.

According to Hippocrates, "prenoia," the art of interpreting the past and future course of disease by direct observation and without being told anything, was

9. Caussade, G., and Tardieu, A.: Bull. et mém. Soc. méd. d. hôp. de Paris **45**: 300 (March 4) 1921.
10. Darling, S. T.: The Accessory Nasal Sinuses and Pneumococcus Infections, J. A. M. A. **47**: 1561 (Nov. 10) 1906.
11. Darling, S. T.: Personal communication to the authors.

* From the Department of Medicine of Western Reserve University, at Lakeside Hospital.

the highest accomplishment of a physician. Prenoia is better served in cardiorespiratory diseases by excursion of the thorax in its circumferential and longitudinal dimensions than by any other physical signs. The rate, rhythm, magnitude of excursion, intensity of muscular activation, regional extensibility of the parts of the lungs, the contours of the visible circumference of the thorax and of the unseen central and lateral areas of the phrenic arch, are all united in a constructive picture that shows to the physician's mind the volume and extensibility of the different parts of the lung and also the volumes of the ventricles and of the right auricle. With these data the diagnostician is furnished with valuable material to construct the history, diagnosis and prognosis of cardiorespiratory disease.

The study of thoracic excursion comprises interpretations of the functions of the scaleni, intercostals and diaphragm, and the exquisitely nice balance of their powers that is disturbed in many diseases. It is obvious that, if we are to study the balanced functions of these three groups of antagonistic and accurately integrated muscles, there should be no interference from other muscular functions. The thoracic excursions should portray the balanced functional results of these three groups of muscles acting against the extensibility of the underlying lung. The nicety of the tests depends on the freedom of interference from other factors. What we are really seeking is the uncomplicated exhibition of these functions under automatic control; if the act of breathing comes into the patient's field of consciousness, the automatic balance between the different groups of muscles may be disturbed, and should the conscious respiratory effort be too strong, then the fine differences between degrees of extensibility in symmetrical parts of the lungs may be obscured.

Suppose that an incipient inflammation at the apex of one lung slightly impairs its extensibility; then to reveal asymmetry of excursion with the other side it is obvious that a moderate automatic activation of the intercostals and scaleni will better portray the fine difference in extensibility between the two apexes of the lungs than would a powerful action of these muscles. By this procedure we compare the excursions of symmetrical lung areas that have unlike extensibility when there is moderate lowering of intrapleural pressures.

The analytic chemist requires a much more delicate balance than the grocer; and, for the same reason, if a physician wishes to study the slight inequality in extensibility of symmetrical lung areas, there must be no obscuration by gross actions of the muscles involved, nor should there be any restraint to sternocostal excursion by muscles not involved in the display of pulmonary extensibility. Therefore, to study the comparative extensibility of the upper parts of the two lungs, the patient should lie squarely on his back with his abdominal muscles relaxed. If the patient stands erect, as one recent writer advises, the large recti and the oblique and transverse muscles of the abdomen pull the entire sternum with the attached ribs in a caudad direction, and thus obscure any fine differences in excursion there may be in the upper lungs.

Furthermore, a strong activation of the inspiratory muscles may mask disparities in excursion that are clearly perceived with more moderate respiratory effort. Recently, a very good instance of this came under my observation in a man who had partial obstruction of the bronchus going to the upper left lung. As the patient lay on his back employing tranquil automatic breathing, the disparity in excursion between the two upper lungs was very distinct. When asked to breathe more forcibly, there was no visible difference between the excursions of the two sides. The reason for this is obvious. When there was a moderate lowering of intra pleural barometric pressure, the amount of air entering the upper left lobe was less than on the opposite side and not sufficient to distend fully the involved lobe; but when the barometric pressure was lowered to a larger degree on both sides, there entered into the stenosed bronchus a sufficient amount of air to provide for the maximum excursion of the affected lobe (more could not enter the normal right lobe), and therefore the lung excursions on the two sides were equal.

The same is often seen in cases of incipient lung tuberculosis. In the early stages, before percussion resonance is diminished and before râles are audible, the lessened extensibility of the affected lung may be demonstrated by comparing the excursions of the two sides in moderate automatic breathing; but if the patient makes an effort at deep breathing, the two sides move to a like extent.

If the examiner wishes to study respiratory movements of the costal borders for the purpose of gaining some conception of the contour of the median and lateral parts of the arch of the diaphragm, then it is still more obvious that all interference from the abdominal muscles should be avoided by having the patient lie on his back with the abdominal muscles relaxed; for there is exhibited in the costal border movements a very accurate index of the balance of power between diaphragm and intercostals. The costal margin is composed of the ends of the ribs with their connecting cartilages; so each costal segment of the borders portrays the movement of the end of its respective rib. The force, extent and direction in which each segment moves reveal with remarkable accuracy any alteration in the balance of power between the intercostal muscles and that part of the diaphragm attached to the end of the ribs in question.

In fact, to study the respiratory excursion of the anterior inferior or lateral aspects of the thorax, the patient should lie on his back. The upright position should be assumed only to show the excursion of the posterior aspects of the thorax. Any who are interested in the subject may find assistance in my former publications on the subject.[1]

1. Hoover, C. F.: The Functions of the Diaphragm and Their Diagnostic Significance, Arch. Int. Med. **12**: 214-224 (Aug.) 1913; Diagnostic Lung Signs, ibid. **20**: 701-715 (Nov.) 1917; Tracheal and Bronchial Stenosis as Causes for Emphysema, ibid. **29**: 143-167 (Feb.) 1922; Functions and Integration of Intercostal Muscles, ibid. **30**: 1-33 (July) 1922; Diagnostic Significance of Inspiratory Movements of Costal Margins, Am. J. M. Sc. **159**: 633 (May) 1920.

Semmelweis, the Writer.—It is a pathetic yet irritating picture that Sinclair draws of Semmelweis, of a man who was his own worst enemy; with a passion for work and a tender heart for his patients, but so imperfectly educated that he, an Hungarian living in Vienna, never mastered the German tongue. Too proud to acknowledge his weakness and obtain help from others, for long years he refrained from publishing his results. He was content to have distinguished friends like Skoda and Hebra write on his behalf; he was either too loyal or too heedless to complain or correct when they, not unnaturally, published incomplete statements, yet he was foolishly indignant when others at a distance, basing their contributions on these imperfect representations of his views, were unable to accept them as an adequate survey of the whole ground. After four years he gave a full description of his work . . . before the Vienna Medical Society, but then instead of handing in his paper for publication, he left it to the secretary to publish an epitomized report.—Adami.

COMPOUND FRACTURES OF LONG BONES OF THE EXTREMITIES

A REPORT OF THE TREATMENT AND RESULTS ATTAINED IN SEVENTY-FIVE CASES

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These cases are reviewed merely to call attention to certain points in the technic which should be considered of vital importance. The seventy-five patients in this series are at present earning their livelihood at their ordinary occupation as before injury, or at some lighter occupation, depending on the results obtained. The series covers a period of three years.

It is of interest to note that in the seventy-five cases reported, it was necessary to amputate in only two, once because of a slowly developing gangrene, and the other on account of nonunion with painful ankylosis of the ankle joint.

In every case it was considered that conservation was thoroughly justified so long as a limb could be secured that the patient could walk on or use without pain, regardless of ankylosis. I considered that any limb in which fair function could be accomplished would be superior to any artificial appliance. With this idea in mind, it was possible to secure results in what seemed almost hopeless cases.

The series of cases is divided into fractures of the femur, twelve; of the tibia and fibula, forty-four; of the humerus, 8, and of the radius and ulna, eleven. Eighty per cent. of these fractures were in the lower third of bone, and in a large proportion, neighboring joints were involved; in almost 70 per cent. there was considerable destruction of soft parts. Ninety per cent. of these fractures were comminuted, and in more than 25 per cent. of these cases there was a decided question as to whether amputation was justifiable.

The average time spent in the hospital for fractures of the femur was forty-seven days; the tibia and fibula, forty-nine days; the humerus, twenty-nine days, and the radius and ulna, thirty-five days—a general average of forty days in the hospital. These figures could have been improved, except for the fact that a great number of our patients are unmarried men living in boarding houses or in surroundings not conducive to good results. We feel that general building up of the patient's condition is well worth while.

The average number of days lost from work, figuring from the day of injury to the day of return to work, is, for fractures of the femur, 163 days; tibia and fibula, 201; radius and ulna, 121, and humerus, ninety-seven.

The routine treatment in these cases is as follows: Immediately after arrival at the hospital, morphin is given, if necessary. After immediate inspection of the wound, and after the extremity has been properly splinted, temporarily, the patient is prepared for major operation, if the physical condition is good. In cases of shock, the patient is put to bed and given physiologic sodium chlorid solution subcutaneously in large quantities, or blood transfusion, if necessary, and other usual routine treatment used in cases of shock. As soon as the condition warrants, the patient is taken to the operating room.

As a routine measure, a thorough débridement is done, consisting, of course, in the excision of all macerated and severely traumatized soft parts, with the removal of entirely loose pieces of bone and foreign material of any kind. It is an important point in these cases not to remove bone with periosteal or muscular attachment. In a number of instances there were small pieces of bone which it seemed almost useless to leave, but which later united and largely helped in the formation of proper callus. It is better to take the chance of having to do a later sequestrectomy than to sacrifice bone uselessly. I am thoroughly convinced that delay in healing and in bone union is more often caused by the leaving of traumatized soft parts than by the presence of poorly attached bone fragments.

Following the cleansing of the wound and the excision of traumatized soft parts, bone fragments are approximated as carefully as possible, usually by periosteal suture with chromic catgut or kangaroo tendon. When this is impossible on account of extensive comminution, muscle suture should be depended on for approximation. For some time past I have filled these wounds, after proper approximation, etc., with dichloramin-T, and proceeded with careful layer repair, closing the wound completely except for a small tube drain in the lower angle of the wound, not extending much below the external fascia, which should be removed within a period of from twenty-four to thirty-six hours after the operation.

Absolute control of hemorrhage in these cases following excision of traumatized soft parts is extremely important, and the end-result largely depends on it. As soon as the operation is completed, fixation apparatus is applied, usually in the form of a molded plaster splint for fractures of the leg or forearm, or a Thomas splint for fractures of the femur or humerus, combining, of course, the use of the Balkan frame, with proper traction.

The patient is kept as comfortable as possible with morphin, and every case is carefully inspected at least once a day, with frequent check with the roentgen ray, using the portable machine instead of moving the patient to the roentgen-ray room, if he is in traction apparatus. When the roentgen-ray and physical examinations show that enough callus has formed to prevent the slipping of bone, the plaster splint is frequently removed and active and passive motion, with massage and hot baths, is used.

I am thoroughly convinced that the sooner this secondary treatment is begun, the better are results, although one must be sure that there is sufficient union to prevent slipping of bone ends before regular massage is begun.

It is impossible to expect to get good results in either simple or compound fractures without very frequent inspection between the time of the receipt of the injury and the time of the final discharge of the patient. These patients cannot be placed in a solid plaster cast and be forgotten without frequent failures, and results that make them an eyesore to the surgeon as well as a burden on the community.

Perseverance and patience in treatment are most essential. One should not be discouraged if there is failure to get immedate union in all cases. When one operation has been done, and the surgeon is absolutely sure that he has no interposition of muscle flap, and when the roentgen ray shows reasonable approximation, union will finally be secured in the vast majority of cases. I recall one patient now earning his living who had been under observation for two and a half

years before final union was secured. This case was one of bone graft, following great loss of substance of the tibia, with failure of union for many months, but ultimately union was secured, and this man, instead of being a patron of an artificial limb house, is earning a normal livelihood on his own leg. He made frequent applications for amputation, but finally was persuaded that union would ultimately be secured.

It is an interesting fact that in over 90 per cent. of this series of fractures, the Wassermann test was positive on a blood specimen taken on the date of injury; but that the second specimen, taken from ten days to two weeks after the injury, was negative in a vast majority of cases. In cases in which the second test was positive, a course of antisyphilitic treatment was administered.

The vast majority of compound fractures seen in our industrial work are much more severe than those seen in ordinary walks of life. The compound fractures of the recent war were somewhat similar on account of the severe lacerations to the soft structures and the severe bone comminution so frequently seen in both types of injury.

SUMMARY

These cases depend on the careful and complete carrying out of:

1. Immediate inspection of wound, proper dressing and temporary splinting.

2. The use of every possible means to combat shock, such as morphin, the application of external heat, the subcutaneous administration of physiologic sodium chlorid solution and blood transfusion

3. Careful and complete débridement, under gas oxygen anesthesia, as soon as the condition of the patient will permit. I feel that every one of these cases should be regarded as an emergency for immediate operation at the first possible moment.

4. The flooding of all wounds with dichloramin-T before closure, followed by complete closure, except for a single small drain extending just below the external fascia, which should be removed within twenty-four to thirty-six hours.

5. The careful application of retention apparatus, such as molded plaster splints and the Thomas splint with suspension. The type of retention apparatus used must vary with every case and must be carefully studied.

6. Daily careful inspection of every case in regard to the condition of the wound, the position of bone fragments and the condition of retention and traction apparatus, with a frequent check by the roentgen ray.

7. The early removal of retention apparatus, as soon as sufficient callus has formed to prevent slipping of bone.

8. The early use of active and passive motion, hot baths, massage, etc.

The care and proper handling of these cases should constitute a most important branch of major surgery, and one that is much too frequently neglected. The proper handling of a compound fracture is a much more difficult procedure than many so-called major surgical operations. Perseverance and patience are essential, and every compound fracture should be approached with the single thought in view that conservation of the injured limb is ten times as difficult as its amputation.

759 Parkway.

UNUSUAL COMPLICATIONS OF ACUTE TONSILLITIS

REPORT OF CASE *

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Serious complications from a mild grade of acute follicular tonsillitis are infrequent, and yet they do occur. This case is reported because of its interest in that it represents the possible complications following acute tonsillitis, and in order to stimulate the realization that mild grades of acute tonsillitis are potentially very serious and, therefore, require constant observation.

As so frequently happens, the personal side of this tragedy was most pathetic. The patient, in excellent health, accompanied her family here for operations. Her husband was operated on for duodenal ulcer, and tonsils and adenoids were removed from her two children. When all were ready to go home, the patient, herself, became ill.

REPORT OF CASE

Mrs. S. W. J., aged 31, was admitted to the Worrell Hospital, April 30, 1923, with an acute streptococcic tonsillitis of twenty-four hours' duration. The tonsillitis subsided, the temperature dropped, and the patient appeared to be recovering satisfactorily.

On the fourth day, an acute left otitis media developed. The drum was incised. On the sixth day, the patient became totally deaf in the left ear; the temperature rose to 105, and remained between 102 and 105 during the next week. A pyelonephritis next developed. The white blood count rose to 24,000; blood culture was negative. On the eighth day, there was pain in the posterior cervical and occipital regions. On the ninth day, the headache increased. There was rigidity of the neck and a questionable Kernig sign. The spinal fluid contained 290 cells, 244 mononuclear lymphocytes and forty-seven polymorphonuclear leukocytes. Daily spinal fluid drainage was instituted. On the tenth day, there was total aphasia, and the patient was in a semistuporous condition. During the following six days, 200 c.c. of Dr. Rosenow's encephalitis antibody solution was given subcutaneously. The daily spinal fluid drainage was continued, and the patient appeared to be improving. The paralysis of the right side of the face, arm and leg, evident since the eleventh day, became less marked. The fundi were within normal limits. On the twenty-first day, the cerebral spinal fluid count was 8 mononuclear lymphocytes and 2 polymorphonuclear lymphocytes. It was thought that an abscess of the left temporosphenoidal lobe was probably forming.

On the twenty-second day, the patient became dull, the weakness of the right side of face, arm and leg increased, and two days later (the twenty-sixth day) the patient became stuporous. There was complete paralysis of the right side. A diagnosis of abscess in the left frontoparietal region was made. A trephine opening in the left frontoparietal region exposed an abscess in the left frontal lobe, encroaching on the left motor convolution. One-half ounce of thick, ropy, odorless pus was evacuated. Two small rubber tubes and a strip of iodoform gauze were inserted. That evening, the patient could use the right arm and leg.

Recovery was slow at first, but after the packing was removed, the progress from day to day was definite. Two weeks after the evacuation of the abscess, the patient spoke. Two weeks later, she could hear a loud voice in the left ear. The hearing steadily improved, and today the patient can hear a low whisper in the left ear. The otitis media has subsided and there is no unilateral weakness. The head wound is almost healed. Throughout the illness there was not at any time an indication for surgical treatment of the mastoid. The patient was discharged, June 27, cured of her many complications from a rather mild form of acute follicular tonsillitis.

* From the Section on Otolaryngology and Rhinology, Mayo Clinic.

COMMENT

This case is of particular interest because of the unusual number of complications following acute tonsillitis: the various stages of left otitis media, pyelonephritis, meningitis, encephalitis and cerebral abscess, and because of the ultimate recovery following operation.

HOME MANAGEMENT OF THE DIET IN NEPHRITIS*

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AND
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There are few fields in medicine in which the available facts are so little known and utilized by the practitioner as in nephritis. He continues to make the diagnosis of this disease by the finding of albuminuria. The patient's progress is measured by the amount of this albumin, and the treatment is prescribed in a similar way. There is, perhaps, a reasonable excuse for a lack of knowledge of tests of function and fine details of our modern knowledge. But there is absolutely no excuse for ignorance about those simple principles of pathologic physiology and elementary dietetics that are of immediate use to our patients.

We all ought to know that in nephritis the body has more or less difficulty in handling water, salt and nitrogen. We know that if we give much water or salt these substances will be retained and the swelling increased in the edematous types of the disease. In the hypertensive case we are certain that too much protein intake will be followed by an accumulation of nitrogen in the blood. If this is so why do we not make use of these facts in treating our nephritic patients? Why force 3,000 c.c. of fluid on kidneys that can scarcely handle 600 c.c.? Why give 100 gm. of protein when the patient can take care of only 40 gm.? Why give 6 gm. of salt when 4 gm. of it is going to be retained?

A case in point is typical of what we are seeing day after day in hospital and private practice. We have in the clinic a young girl with subacute nephritis. Her physician, a well trained man, treated her for three months without improvement. He then became discouraged and sent her into the hospital. In telling us about the case, he said, "This girl continues to swell in spite of the best treatment I know. She has been continuously in bed, and has been given almost no protein and absolutely no salt." Apart from the lack of mention of the amount of fluid, this prescription sounded pretty good; and yet when we analyzed what she was actually getting, we found that she was averaging 3 quarts of milk a day plus bread, crackers and cereal. We calculated that she was getting upward of 100 gm. of protein, 5.6 gm. of salt and about 3,000 c.c. of fluid in the milk alone. This physician had evidently forgotten that milk contained either protein or salt or water. It is worthy of mention that although the patient was getting 3,000 c.c. of fluid, she was unable to handle much more than 500 or 600 c.c. It is also worth while stating that a milk diet similar to the one used in this case is a very poor diet for the average patient with nephritis.

In prescribing diets for our nephritic patients, we must think of quantities. It is not at all difficult to give them quantitative diets without having to educate them in the complex calculations of calories and grams of carbohydrate, protein and fat. A few years ago, Walsh and one of us (O'H.)[1] conceived a scheme which has proved a very practical method of prescribing approximate diets for nephritic patients. This has been used for a long time in our clinic and in private practice, and of late has been used within the hospital, where approximate diets were sufficient. The method consists of a diet sheet similar to the one reproduced here.

NEPHRITIC DIET

Any combination of the foods listed below may be selected.
Foods not listed below must not be taken.
In Groups 1 and 2 there is a restriction in the total amount.
The foods in these groups must be served in full or half portions.
A full portion in Group 1 counts 1.
A full portion in Group 2 counts 2.
In Group 3 the quantity of each is not restricted, although you are urged to use discretion.
Points on recipes to count as indicated.

YOUR TOTAL SCORE FOR THE DAY SHOULD BE.....
YOUR TOTAL AMOUNT OF FLUID SHOULD BE.....PINTS.

Do not add salt or spices to the food after it has been cooked.

GROUP 1
(Each full portion counts 1)

	Full Portion	*Vegetables, Etc.*	*Full Portion*
Bread (white)	1 av. slice	Baked beans	1 tbsp.
Bread (graham)	1 av. slice	Lima beans	1½ tbsp.
Uneeda biscuit	5 crackers	Potato, creamed	1 tbsp.
Shredded wheat	1 biscuit	Potato, mashed	1½ tbsp.
Graham crackers	5 crackers	Potato, baked	1½ med.
Cereals, Etc.		Potato, boiled	1½ med.
Oatmeal	2 tbsp.*	Canned corn	2½ tbsp.
Boiled rice	3 tbsp.	Green peas	2 tbsp.
Cornmeal mush	4 tbsp.	Beets	5 tbsp.
Cream of wheat	6 tbsp.	Spinach	4 tbsp.
Farina	6 tbsp.	Bananas	2 large
Macaroni	4½ tbsp.	Cream, heavy	⅔ cup

GROUP 2
(Each full portion counts 2)

	Full Portion	*Fish*	*Full Portion*
Milk	1 glass	Cod, boiled	1" x 1" x 1½"
Egg	1 egg	Haddock, boiled	1" x 1" x 1½"
Eggs (scrambled)	1½ tbsp.	Halibut, boiled	1" x 1" x 1½"
Flour, sifted	⅔ cup	Mackerel, boiled	1" x 1" x 1½"
Meats		Salmon, boiled	1" x 1" x 1½"
Lamb chop, broiled	⅔ chop	Smelt	½" x 1" x 3"
Lamb, roast	3" x 2½" x ¼"	Oysters	7 oysters
Beef, roast	3" x 2" x ¼"	Crabmeat, canned	2 tbsp.
Beef steak, broiled	2" x 1" x 1"	Salmon, canned	1½ tbsp.
Chicken, roast	3" x 3" x ⅛"	Shrimp, canned	6 small

GROUP 3
(No restriction)

Vegetables	*Fruit*	*Miscellaneous*
Asparagus	Apple	Sugar
Cabbage	Apricot	Maple sugar
Carrots	Blueberries	Syrup
Cauliflower	Cherries	Honey
Celery	Cranberries	Candy
Cucumbers	Grapefruit	4 dates a day
Lettuce	Grapes	3 Sunshine arrowroot cookies a day
Mushrooms	Muskmelon	Cornstarch
String beans	Lemons	Arrowroot
Tomato (fresh)	Oranges	Tapioca
Tomato (cooked)	Peaches	Post-toasties
Onions	Pears	Butter
Squash	Pineapple	Olive oil
Turnips	Plums	
	Prunes	
	Raspberries	
	Strawberries	
	Watermelon	

* All tablespoonfuls are "rounded."

On this sheet are most of the ordinary foodstuffs used in any home. These foods are divided into three groups according to the amount of protein in them. In Group 3, there is so little protein that one can ordinarily ignore it. In Group 1, each full portion (indicated to the right of each foodstuff) contains approximately 4 gm. of protein. In Group 2, each full portion contains approximately 8 gm. of protein. To make it still simpler, we avoid mentioning grams and instruct the patient that

* From the Medical Clinic of the Peter Bent Brigham Hospital.
* Read at the meeting of the Tri-State District Medical Association, at the Peter Bent Brigham Hospital, Boston, April 17, 1923.

1. Walsh, E. F., and O'Hare, J. P.: A Nephritic Diet Sheet, Am. J. M. Sc. **159**: 883 (June) 1920.

each full portion in Group 1 counts one point. In Group 2, it counts two points. The number of points for the day is inserted in the blank space left for that purpose at the top of the sheet. A low protein diet would be represented by seven points (28 gm.). A very generous protein diet—for a nephritic patient—would be equivalent to fifteen points (60 gm.). Another blank line for the prescription of the amount of fluid is placed immediately under the prescription of protein. The physician may use his own discretion about allowing tea or coffee or substitutes for these. The patients are not allowed to add salt to the food after it comes to the table. The average patient under this regimen does not get more than 4 or 5 gm. of salt a day. If he is edematous, we can still further decrease the salt by ordering fresh butter, salt-poor bread, vegetables, meats, etc., boiled free from salt, and, if necessary, the use of distilled water whenever water is used in the diet. The former method reduces the salt intake to approximately 2.0 gm. a day, and the latter to perhaps as low as 0.5 gm. a day.

2. It restricts the patient's intake of protein, water and salt to the amounts desired by the physician.

3. It gives the patient great freedom of choice in the selection of his menu. This is one of its most valuable assets.

270 Commonwealth Avenue.

NEPHRITIC RECIPES

Vegetable Soup—0 Points

2 tbsp. onions, chopped.
2 tbsp. carrots, chopped.
2 tbsp. turnips, chopped.
3 tbsp. celery, chopped.
2 tbsp. butter.
1 pint water.

Cook all the vegetables in butter for 3 minutes. Add the water and boil ¾ hour or until vegetables are soft.

Creamed Vegetable Soups—1 Point

½ cup strained vegetables from Group 3.
½ cup milk.

Thicken with 1 or 2 tsp. cornstarch moistened in 1 tbsp. cold water.

Cup Cakes—2=1 Point

3 tbsp. butter.
¼ cup (scant) sugar.
½ egg.
¼ cup milk.
⅔ cup flour.
⅓ tsp. vanilla.
1½ tsp. baking powder (Ryzon or Dr. Price's).

Make into 6 cakes.

Short Cake—2=1 Point

1⅓ cup sifted flour.
2 tbsp. lard or butter S. P.
½ cup (scant) milk.
2 tsp. baking powder.

Mix as biscuits and make into 8 biscuits.

Individual Pie—1 Point

⅓ cup flour.
1⅓ tbsp. lard.
⅛ tsp. baking powder (Ryzon or Dr. Price's).

Ice water to make a stiff dough.

This pie may be made with any fruit from Group 3 for filling. Cornstarch instead of flour should be used for thickening.

Blanc Mange—1 Point

2½ tsp. cornstarch.
¾ tbsp. sugar.
½ cup milk.
2 tbsp. cold water.
¼ tsp. vanilla.

Heat milk in double boiler, add cornstarch moistened in cold water and sugar. Cook until well thickened, add vanilla and chill. Fruit from Group 3 may be added.

Bavarian Cream—1½ Points

1 tsp. granulated gelatin.
1½ tbsp. cold water.
¼ cup cream, whipped.
1 tsp. lemon juice.
2 tsp. sugar.
¼ canned peach chopped fine.
¼ cup boiling water.

Soak gelatin in cold water, dissolve it in boiling water; add lemon juice and sugar and chill until it is the consistency of heavy molasses. Stir in peach pulp or other fruit from Group 3; fold in whipped cream. Chill.

Baked Custard—2 Points

½ cup milk.
½ egg.
¾ tbsp. sugar.
Flavor with caramel or vanilla.

Beat egg slightly; add milk and other ingredients. Pour into mold and bake in moderate oven with mold standing in pan of water. NOTE: This custard may be steamed or boiled.

Rice Pudding—2 Points

¼ cup boiled rice.
¼ cup milk.
½ egg.
2 tsp. sugar.
2 tsp. raisins.

To the slightly beaten egg, add milk and other ingredients. Bake in moderate oven until lightly browned.

Tapioca Cream—1 Point

¼ cup milk.
1 tbsp. (scant) tapioca soaked overnight in 3 tbsp. cold water.
¼ tsp. vanilla.
⅓ egg.
1 tbsp. sugar.

Drain tapioca, mix with sugar and add slowly to milk scalding in double boiler. Cook till tapioca is clear. Stir in gradually the beaten ⅓ egg yolk; fold in lightly the beaten ⅓ white.

Pineapple Mousse—½ Point

⅓ cup cream, heavy.
1½ tbsp. shredded pineapple.
½ tsp. lemon juice.
1 tbsp. sugar.

Whip cream, then fold in other ingredients, previously mixed. Pour into mold, cover, and pack in 3 parts ice to 1 part salt, for 1½ hours or until frozen through.

Ice Cream—1 Point

⅔ cup cream flavored as desired with fruit from Group 3 and sugar.

Water Ice—0 Points

Any combination of fruit from Group 3 sweetened and frozen.

Nephritic Dressing—0 Points

(As used on salad, does not count any points).

1 egg yolk.
1½ cups salad oil.
4 or 5 tsp. lemon juice.
1 tsp. sugar.

Beat the egg yolk, add 1 or 2 drops of lemon juice. Then drop by drop beat in the salad oil. Thin down with the lemon juice, adding only part of it at a time. Add sugar last.

This scheme is entremely flexible, and foods may be added or subtracted from the list at will. The physician, in response to the patient's request, can fairly easily insert a given foodstuff in its proper space. Indigestible foods and foods not desirable for the given patient may be strück off the list. If the urine has a trace of sugar, the high carbohydrates may be cut out. Again, to reduce the weight of the patient, the high fats and carbohydrates may be removed. Foodstuffs with an acid ash may, if desired, be scratched off.

The new edition of this diet sheet has been enlarged so as to include recipes for mixed dishes. These should be serviceable adjuncts to the main sheet when the patient begins to weary of the monotony that comes with long use of any diet.

Some of these recipes count nothing. Some count one point, some two.

The advantages of this nephritic diet sheet are three:

1. It is so simple that any one of any intelligence can follow it anywhere.

GRANULOMA COCCIDIOIDES

A NOTE ON THE DISEASE, WITH REPORT OF A CASE

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AND
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SAN FRANCISCO

Ophuls,[1] in 1905, described a granulomatosis caused by a fungus resembling coccidia and the oidia, and suggested the name granuloma coccidioides. Dickson,[2] in 1915, reviewed the literature on the subject, compiling forty cases that had been recorded. Of the patients who figured in the reports, twenty-seven had lived in California previous to their infection.

The condition usually has its initial lesion in the skin or respiratory tract, and may become generalized, involving in addition to the abdominal viscera, the bones and joints, and the meninges. The granulomas progress to pus formation in the dense tissues, and to cavity formation in the lungs. The course is protracted, and is usually terminated by death. Therapy, other than surgical intervention in suitable cases, has been unsuccessful.

The fungus produces coccidia-like bodies in the tissues, and grows in them apparently only by endosporulation. On culture mediums, it resembles the oidia and the trichophytons. Some cultures have many

1. Ophuls, William:, Further Observations on a Pathogenic Mold Formerly Described as a Protozoan, J. Exper. Med. **6**: 443, 1905; Coccidioidal Granuloma, J. A. M. A. **45**: 1291 (Oct. 28) 1905.
2. Dickson, E. C.: Oidiomycosis in California, with Especial Reference to Coccidioidal Granuloma, Arch. Int. Med. **16**: 1028 (Dec.) 1915.

of the gross characteristics of an old culture of *Bacillus tuberculosis;* also of a culture of *Actinomyces.*

When sputum or pus from affected persons is injected into laboratory animals, the pathologic changes are striking and characteristic, including the development of granulomas containing the sporelike bodies. A predilection toward testicular involvement is as definite as that noted in glanders.

REPORT OF CASE

History.—J. F. W., a man, aged 56, a merchant seaman, was admitted to the marine hospital at San Francisco, March 22, 1923, with the complaint of a swollen, painful knee joint of one month's duration. His father died at 52, with pulmonary tuberculosis. His mother died at 40, with pulmonary tuberculosis. One brother was living and in good health. The patient, at 12, had a three months' illness diagnosed as pulmonary tuberculosis. He apparently recovered and remained well until 21, when he contracted a gonorrheal urethritis, complicated by cystitis, and with the sequel of painful joints for the period of the following five years. At the age of 30 he contracted typhoid fever. At 38 he developed night sweats, fever and hemoptysis (probably a pulmonary hemorrhage).

At 50 he was treated at the U. S. Marine Hospital, Staten Island, N. Y., for pulmonary tuberculosis, without the finding of tubercle bacilli in the sputum. He was transferred to the marine hospital at San Francisco, in March, 1917, at which place the note was made, "Sputum scanty, mucopurulent; tubercle bacilli, plus." He was subsequently transferred to the marine hospital at Fort Stanton, N. M., and during an eighteen months' residence there his sputum was negative for tubercle bacilli. He lived at Taft, Calif., for one year, twelve years ago. The first diagnosis made of pulmonary tuberculosis during his adult life was made six years after his residence in Taft, which is located within the area in which granulomatosis coccidioides has been previously found.

In November, 1922, he fell on both knees, striking the deck of the ship hard enough to make an abrasion on the right knee. In January, 1923, he began to have pain in various joints. No joint was painful for more than a few days until February, 1923, when the left knee joint became so painful and stiff that he was obliged to quit work and place himself under the care of a physician.

Examination.—When he entered the marine hospital at San Francisco, March 22, 1923, he complained of pain, stiffness and swelling of the left knee. He had no cough or night sweats, but his fever ranged from 38 to 38.4 C. (100.4 to 101.5 F.).

The tissues surrounding the left knee were diffusely swollen, but the skin was neither greatly reddened nor heated. A fluctuating area, very tender to pressure, was found laterad to the patella. An aspirating needle inserted here disclosed sanguinopurulent material, and a free incision evacuated about 50 c.c. of bloody pus. The joint cavity was not explored digitally, but ample drainage seemed to be established.

There were moist râles, persisting after expiratory cough in both pulmonary apexes. Roentgenologic examination showed findings typical of tuberculosis in all lobes of the right lung, the upper lobe of the left, and the upper part of the left lower lobe. Roentgenograms of the knee showed slight haziness, but no lesions typical of tuberculosis in the tibia or femur. The patella was slightly "moth eaten" on the posterior surface and the lower pole.

The blood and urinary findings were as follows: The leukocyte count was 14,350; small mononuclears, 14 per cent.; large mononuclears, 5 per cent.; eosinophils, 6 per cent.; neutrophils, 75 per cent. The Wassermann reaction in the blood serum was negative. The urine showed a faint trace of albumin, no casts, a few leukocytes and no organisms. Repeated microscopic examinations of the scanty sputum failed to show tubercle bacilli or spore bodies. Sputum treated by a strongly alkaline solution of sodium hypochlorite and inoculated into animals produced generalized tuberculosis in them, but did not produce granuloma coccidioides.

Progress.—There is now, several weeks subsequent to surgical treatment, little spontaneous pain in the knee, and the drainage has decreased to about 5 c.c. daily. The swelling is much reduced. The fever has gradually subsided, though it still shows an occasional afternoon rise to about 37.8 C. (100.2 F.). Occasional râles are to be heard in both pulmonary apexes.

Laboratory Observations.—Examination of smears of the pus from the knee showed a few double contoured, sporelike bodies staining doubtfully positive by Gram's method. No tubercle bacilli were found. Agar cultures made of the pus on microscopic slides revealed hyphae sprouting from the sporelike bodies. Cultures made on agar tubes yielded an oidium-like growth in four days. The individual colonies coalesced and developed an appearance similar to a very heavy growth of tubercle bacilli and resembling somewhat the growth of *Actinomyces.*

Microscopic examination of this growth exhibited septate mycelium with chlamydospores. Transfers of this culture on plain agar, sugar agars, glycerinated agar and potato slants yielded a growth resembling *Oidiomyces* with ground and aerial hyphae, but without conidia. Many of the aerial hyphae were clubbed in a manner characteristic of *Basidiomycetes.*

Male guinea-pigs were injected with the pus, one subcutaneously and one intraperitoneally. At the point of subcutaneous injection a small nodule developed, and was excised on the ninth day after injection. This nodule was a typical granuloma containing several areas resembling tubercles, but scattered through these were double contoured, sporelike bodies taking a poor hematoxylin stain. Among these bodies some were dividing into smaller similar bodies, by a process of endosporulation, but no budding was observed. No tubercle bacilli were found in this tissue.

Cultures from the area about this nodule developed growths similar to that obtained from the pus from the knee.

Three weeks after injection intraperitoneally, the pig so treated was weak and apparently about to die. The testes were swollen and inflamed, and the superficial inguinal glands slightly enlarged. He was killed and examined. The gross pathologic anatomy was typical of a generalized tuberculosis in guinea-pigs, with the addition of a purulent orchitis. The peritoneum was studded with small tubercles, including the seminal vesicles, intestines, kidneys, liver and spleen. The omentum was rolled up to the stomach and was full of nodular masses. Each of the pleural cavities contained several cubic centimeters of a turbid fluid, and the visceral pleura was mounted with numerous pearly like nodules similar in appearance to those found in perlsucht of cattle.

Microscopic smears of the pus from the testes and abdominal viscera contained many sporelike bodies and some pus cocci, but no tubercle bacilli. Cultures from these organs and the lung exhibited oidium-like growths, and growths of pyogenic cocci.

Histologic examination of the tissues exhibited tuberculosis-like granulomas containing the spore bodies, some of which were dividing by endosporulation, but no tubercle bacilli. The second pig developed a small sinus at the site of the excision of the nodule. This persisted for several weeks. At the end of the third week, he also developed swollen, inflamed testes, with small phlyctenules on the scrotum. The inflammation subsided toward the end of the ninth week from the date of injection; the pig was later killed and examined. The histologic findings were similar to those described in the first pig.

COMMENT

This is an undoubted case of granuloma coccidioides. It is believed that the initial lesion was probably in the respiratory tract, and the joint involvement probably a metastatic infection from the lung, rather than the primary focus. It is probable that the patient has had the disease for a period of several years, coincident with pulmonary tuberculosis. Attention, however, is invited to the fact that though roentgenograms indicate an extensive involvement of the lung, the sputum has been scanty, and there has been but one report of the finding of tubercle bacilli, though the patient was in three marine hospitals, one of which is devoted to the

treatment of tuberculosis, and in all of which frequent examinations of the sputum were probably made. The disease has been previously found coincident with tuberculous affections, and is one that may readily be mistaken for tuberculosis, both in man and in experimental animals.

Clinical Notes, Suggestions, and New Instruments

PEANUT IN THE LOWER AIR PASSAGES

SAMUEL SALINGER, M.D., CHICAGO
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The dangers attending the lodgment of a foreign body in the lower air passages are greatly enhanced when the body in question happens to be of a friable nature. Peanuts are particularly dangerous for several reasons: 1. Owing to its size and shape, a peanut may effectually plug a bronchus so as to produce bronchiectasis affecting a major portion or even an entire lobe. 2. Being smooth, it is liable to frequent displacement from its original location, giving rise to continued irritation of the bronchial mucosa, with attendant swelling and profuse secretion. 3. Being permeable to the roentgen ray, it cannot be located by fluoroscopy. 4. It is frequently inhaled in fragments, which scatter through the various fine bronchioles where they can neither be located nor removed, and where they set up a fatal pneumonia. 5. Being speedily softened by the secretions, they offer no resistance to the grasping forceps, and are extremely difficult to remove.

These dangers are well illustrated in three cases which came into the Cook County Hospital recently, one of which was handled by a colleague and the other two by myself, and in two of which the fatal issue could scarcely have been avoided.

CASE 1.—D. R., a boy, aged 4 years, had had a severe choking spell the night before while eating peanuts, following which there was considerable difficulty in breathing, persistent cough and hoarseness. The child appeared to be having considerable respiratory embarrassment. There was quite marked retraction in the episternal and substernal regions. There were some scattered, loud, sonorous râles. Otherwise the findings were negative. Upper bronchoscopy was done with a No. 5 Bruening's tube. A peanut was found in the trachea, grasped with forceps and all withdrawn together. As the peanut reached the larynx it came off the forceps, and the patient cried out, "I can't breathe." He became cyanotic. An immediate tracheotomy was done, and artificial respiration instituted, but he could not be resuscitated. The peanut was removed post mortem through the tracheotomy wound. There was no necropsy.

CASE 2.—J. N., a boy, aged 21 months, came in with marked dyspnea bordering on cyanosis, and in a semistuporous condition. The symptoms began twelve hours previously, when the child was taken with a violent fit of strangling while eating some peanuts. By direct inspection with the Jackson speculum, the arytenoids and ventricular bands appeared reddened and swollen, and below the glottis on the right side there appeared to be a pinkish mass which almost completely blocked the air passage. A bronchoscope was passed through the glottis, exposing the mass more clearly. It was seized with Tucker peanut forceps and readily extracted. The tracheal mucosa was already deeply injected and swollen so that the rings were no longer discernible. Careful search of the major bronchi failed to disclose any additional fragments. The portion removed was about a fourth of a whole peanut, and its sharp edge had evidently been lodged in the fold of mucous membrane directly below the vocal cord, to which Jackson recently directed attention. The child made an uneventful recovery.

CASE 3.—E. R., a boy, aged 12 months, previously in good health, while eating peanuts a few hours before, was seized with a severe coughing spell lasting a few minutes, after which he became listless and noisy in his breathing. General examination proved negative except for numerous diffuse, moist râles. Cyanosis was slight, but increased when the child was placed in the recumbent position. When the bronchoscope was passed, nothing was encountered in the larynx or trachea except a general diffuse redness of the mucosa. Both main bronchi contained a great deal of mucus. Suction was applied and the bronchoscope passed into the right main bronchos. A violent spasm of coughing ensued, on which several small fragments of peanut were expelled. Suction was again applied and the tube removed, the examination having lasted twenty minutes. The breathing seemed less stertorous, and cyanosis less marked. Within twenty-four hours, however, the child became very toxic; the breathing was very noisy, and the lungs were filled with loud, moist râles. The temperature rose rapidly, and death ensued within forty-eight hours. Necropsy was not granted.

In all of these cases, no anesthetic was employed.

A striking feature of these cases to which attention should be directed is the extreme youth of the patients. It would seem to have been rank carelessness or stupidity on the part of the families concerned to permit children of such a tender age to indulge in a food which requires so much care in mastication. It points out one more of the dangers that beset the infants and young children of the poorer families in which ignorance and loose supervision in matters of hygiene so frequently lead to needless suffering and fatality.

25 East Washington Street.

RELIEF OF LOWER TOOTHACHE BY COCAINIZATION OF THE NASAL (SPHENOPALATINE-MECKEL'S) GANGLION *

L. E. TONEY, M.D., BALDWIN, MO.

Some interesting and surprising clinical phenomena have been reported as the results of cocainization of the nasal ganglion. The relief of toothache in the lower jaw by this means has, however, not been recorded.

Mrs. L. E. T., aged 35, was seized with severe toothache, Dec. 12, 1922, because of exposed pulp of the right lower third molar. The attack came on at 1 a. m. No dentist was easily available.

Sluder has stated that cocainization of the nasal ganglion will stop the pain of surgical wounds of the lower jaw made by the extraction of teeth. He also stated that he had not had the chance to know whether the pain of exposed pulp could be controlled in that way. Remembering this, I thought the experiment worth the trial, and placed an applicator with one drop of saturated aqueous cocain solution on the mucous membrane covering the right sphenopalatine foramen (just posterior to the posterior tip of the middle turbinate). It will be recalled that this is the site of the nasal ganglion in the pterygomaxillary fossa, and that it is usually superficial under the nasal mucous membrane. It is apparently easily affected by cocain soaked into the membrane at this point. To our mutual surprise and delight, in five minutes the pain had all stopped, and did not return for that night. This was repeated for ten nights. Other parts of the nose were cocainized experimentally without relief. The tooth was extracted on the tenth day.

The nasal ganglion is the sympathetic, or, in the newer nomenclature, the autonomic ganglion of the maxillary division of the trigeminus. That upper jaw and tooth pain should be relieved by cocain applied to it is less surprising than that lower jaw and tooth pain should be relieved in this way. The otic ganglion, it will be recalled, is the autonomic ganglion of the mandibular division of the trigeminus.

* From the Laryngological Department of the Washington University Medical School.

Small Families.—The average number of children of the graduates of Harvard is less than two, and the record of Yale is no higher than this. The showing of various other colleges and universities is but little better.—Holmes: Studies in Evolution and Eugenics, New York, 1923.

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SATURDAY, NOVEMBER 10, 1923

SENSORY STIMULATION AND THE EPINEPHRIN OUTPUT OF THE SUPRARENALS

The suprarenal glands have a supply of sympathetic nerve fibers that come to them by way of the splanchnic nerves. Through direct stimulation of these fibers, the output of epinephrin from the glands appears to be increased. This observation, which seems to have been fairly well established for some time, has become the basis for the assumption that the discharge of the potent hormone of the suprarenals into the circulation is regulated through definite secretory nerve fibers. It has furthermore involved a very natural step to expect that, in view of this apparently well arranged neurosecretory mechanism, impulses of varied sorts, initiated through sensory channels or starting from central nervous agencies, should affect markedly the "secretion" or discharge of epinephrin. Consequently, it has been asserted and widely taught that sensory stimulations of various kinds, strong emotional excitement and other conditions cause a reflex stimulation of the suprarenals resulting in an increase in the concentration of epinephrin in the blood. Thus distributed, the hormone would naturally affect many physiologic functions involving blood pressure and blood supply to the organs, glycogenolysis leading to increased sugar content of the blood, and other functions.

Cannon of Harvard, in particular, has formulated an interesting hypothesis of the emergency function of the suprarenals. Emotional states induced by fear or anger, for example, are assumed to cause a stream of reflex impulses adequate to arouse the glands to unusual secretory activity. In interpreting this in harmony with Cannon's view, Stiles remarks that an emotional occasion is an occasion for action. This, he adds, was universally true under primitive conditions of life among men, and it is true in the lives of the lower animals. Fear is the prelude to flight. Anger is the impulse to attack. Under the experience of pain there are efforts to escape from the cause of suffering, when this is possible. There is need for the fullest command of all bodily resources in these crucial exigencies. It can be demonstrated that epinephrin helps to realize such a command.

The experimental basis for the determination of this "emergency" augmentation of suprarenal output rests on the assay of the output of the glands under the different conditions of rest and nervous excitation. Stewart and Rogoff and their collaborators at Western Reserve University in Cleveland, using an independent technic, have repeatedly denied the augmentation reported by the Boston school. They assert an absence of increased secretion of epinephrin under various forms of sensory stimulation. Should this be true, the prop under the "emergency" function hypothesis would be removed. The status of the vigorous and prolonged debate has frequently been made the subject of comment in THE JOURNAL. The details involving important minutiae of the experimenter's art are beyond the critical analysis of any but an expert. A competent physiologist has recently summarized the situation by stating that "the question of reflex and central control of this suprarenal nervous mechanism is unsettled. Competent investigators have reported absolutely contradictory results, and clinical opinions bearing on the question are mere guessing." [1]

It is fortunate that reinvestigations of the problem are being reported from independent sources. Perhaps the "scientific deadlock" will thus be broken. Kodama [2] of the Tohoku Imperial University at Sendai in Japan has repeated the experiments of the Cleveland investigators without corroborating their negative conclusions. He has, in fact, been able, in contrast with them, to detect a distinct increase of the rate of epinephrin output from the suprarenal glands by sensory stimulation. Thus, the chief experimental opposition to Cannon's finding is put in jeopardy. Perhaps, after all, the pendulum will swing back to rest about the beautiful theory of the emotional mobilization of physiologic forces. However, Stiles [3] has remarked of the reaction thus set into play that, although the bodily changes induced are admirably suited to the needs of animals and cave men, they are not so well suited to the restrained life of civilization. When we experience emotion we try to refrain from manifesting it violently. It is not unlikely that the physical accompaniments are harmful when no application of them is made. Yet a life deficient in emotion is a life lacking important elements of training as well as of interest. The conclusion is, to quote Stiles again, that emotion should not be excluded, even though that were possible, but that it should be given reasonable expression—made a motive for action. When we work off our anger or express our happiness in deeds, we are true to our remote biologic inheritance.

1. Carlson, A. J.: Hypofunction and Hyperfunction of the Ductless Glands, J. A. M. A. **79**: 101 (July 8) 1922.
2. Kodama, S.: Effect of Stimulation of the Sensory Nerves upon the Rate of Liberation of Epinephrine from the Suprarenal Glands, Tohoku J. Exper. Med. **4**: 166 (June 30) 1923.
3. Stiles, P. G.: Human Physiology, Ed. 3, Philadelphia, W. B. Saunders Company, 1922, p. 387.

THE MENACE OF "MOONSHINE" WHISKY

In the days before the passage of the Volstead Act, the query, "What is whisky?" rarely awakened serious reflections. According to the current definition, the term whisky is applied to distilled spirit made from grain, colored and flavored by storage in charred barrels or by addition of caramel and suitable flavor. It usually contains from 40 to 50 per cent. of alcohol. The untoward results of overindulgence in a beverage of this description have usually been ascribed to its alcoholic content, although now and then ill defined "by-products" of fermentation present in the distillate have been charged with a toxicity out of all proportion to the quantities ordinarily present. In protesting the innocence of alcohol, the defenders were wont to point to the indefinite "fusel oil" or to furfurol as the pernicious ingredient—usually without convincing evidence. In properly made and suitably aged whiskies, such constituents could at most play only a minor part in the intoxications produced. All of the carefully considered incriminations pointed to alcohol itself as the harmful or intoxicating agent.

The present illicit liquor traffic is a menace to health, and worthy of consideration. While alcoholism is today less prevalent than it was a few years ago, its attendant and after effects on its victims are more serious. The impression is broadcast that this result is due to the "moonshine" liquor which has found a distribution that was practically impossible so long as a legitimately made product was readily procurable. There can be no question about the danger of methyl alcohol, or methanol, which has taken a large toll of disasters in the form of deaths or blindness in recent years, usually through sheer ignorance rather than malicious or murderous intent on the part of the dispenser. The ever present menace through the machinations of the unscrupulous will be appreciated when it is realized that many of the denatured alcohols contain a varying percentage of methyl alcohol ranging from 2 to 10. Attempts to "rectify" these by redistillation for beverage purposes are not likely to remove the danger in the illicit distillate.

It is not against such obvious contaminations that the impeachment of "moonshine" whisky is directed. Analyses made by the investigators on the numerous samples secured in connection with raids on "moonshine" sugar, grain or fruit distilleries have usually shown a high content of acetaldehyd. The "ranker" the liquor, the higher the aldehyd content. The reason for this has been set forth by government chemists,[1] who have pointed out that the impossibility of fermentation control by the moonshiner results in a considerable oxidation of the ethyl alcohol into acetaldehyd and even acetic acid. Whereas, in an earlier chemical study of whiskies in this country by Crampton and Tolman,[2] the average aldehyd content for legitimately made new products was 3.9 parts per hundred thousand, the modern "moonshine" may contain as much as 100 parts. The content of fusel oil is not essentially different in the whiskies of varied origins.

However, there is considerable agreement on the opinion that the peculiarly harmful effects of new whisky are not due to its fusel oil or its higher content of alcohol. The aldehyd, on the other hand, has long been an object of criticism. As whisky ages there is presumably a polymerization of aldehyds which decreases the toxicity. But "moonshine" cannot wait long to reach its prey. Without care to eliminate the first running of the distillation, with its abundance of acetaldehyd, and the last run or tails, richer in fusel oil, efforts at refinement by fractionation and redistillation are minimized. Little wonder, then, if Doran and Beyer [1] present a serious indictment against the simple pot still and the eagerness for more profits in not discarding heads and tails. These chemists remind us that a large element of the present drinking public, alarmed by the recorded and published effects of drinking methanol mixtures, is disposed to resort to the liquor of seemingly known and recent origin under the impression that, being locally or home made, it is at least safe and pure. The results of many thousands of analyses of this character of liquors show that this may be a fallacy. The evident stupefying or knockout effects of this liquor, in addition to the ethyl alcohol effect, point to the same conclusion.

1. Doran, J. M., and Beyer, G. F.: Character of Moonshine Liquor, Am. J. Pub. Health **13**: 831 (Oct.) 1923.

2. Crampton and Tolman: J. Am. Chem. Soc. **30**: 98, 1908.

IMPOUNDED ANIMALS FOR THE SERVICE OF MEDICINE

Medical investigators are endeavoring to lessen disease and prolong life. In their hands, animal experimentation has proved a highly effective method for securing these results. It is reasonable to ask all citizens to support their efforts. This means, among other things, facilitating the supply of the necessary animals. The best source of the larger animals needed for laboratory service is the public pound, which contains homeless strays, most of which must be put to death. Unless animal experimentation is to be absolutely suppressed, there is every reason why animals that must be killed in any case should be used humanely, on their way to death, to help their fellow creatures. Further, if vagrant dogs and cats were available, there would be no allegation that such animals are obtained in an unwarranted manner. These are the arguments, for using impounded animals for the laboratories, that have long been made by the upholders of animal experimentation.

The reasonableness of these arguments does not appeal to persons who sentimentalize over the vagabond animals of the streets, and who picture the laboratory procedures as orgies of monstrous cruelty. Conse-

quently, mild efforts that have been made in various cities to secure animals from the pound have encountered vigorous resistance from antagonistic societies and from prejudiced members of the humane societies. Two recent events, however, have shown that these extremists do not represent the general public opinion.

The first occurred in St. Louis, in 1922. The aldermen were appealed to for the right to obtain vagrant animals from the city for use in the medical schools for teaching and research. This move was warmly supported by the local medical society. In turn, the College Club, an organization of 600 women, the Chamber of Commerce, the Jewish Women's Council, the Negro Republican League, the Association of Methodist Ministers, the local branch of the American Federation of Labor, and the Catholic Women's League all came to the support of the measure, which had been first advocated by the physicians. After some of the aldermen had visited the laboratories, a public hearing was held at which advocates of each side presented their case. Thereupon the aldermen voted, 22 to 4, in favor of turning over stray dogs to the medical schools. This was a signal victory, not only for medical education and research, but also for common sense. It indicates that if our profession will effectively call the attention of communities to the dangers to medical teaching and investigation that are threatened by the activities of those opposed to animal experimentation, a great majority of the people will support the physicians, the investigators and the teachers rather than their fanatical opponents.

Confirmation of this inference has recently come from Dallas, Texas. The Baylor University College of Medicine had been securing condemned animals from the city pound. This custom was protested against by persons having the ignorance and prejudice characteristic of those opposed to medical progress. A great deal of excitement was aroused so that the issue was described in the daily press as "burning" and "seething." The mayor referred the question to the Humane Society for action. The medical side of the case was presented to the society by a representative of the Baylor University College of Medicine. After hearing the arguments on both sides, the Humane Society divided evenly on the question. The president then ruled that the matter be referred again to the city authorities, whereupon the mayor and commissioners directed that the laboratories should have animals from the city as needed. The important newspapers of the city gave the College of Medicine whole-hearted support. Indeed, the only opposition came from the extremists in the Humane Society.

The active support that St. Louis and Dallas are giving to medical teaching and research should be an example to other communities. The people of these two cities have shown an enlightened and thoroughly sensible attitude toward a question which for too long a time has been answered loudly in the negative by a relatively small group opposed to the beneficent methods of medical progress.

YELLOW SPINAL FLUID

Since Quincke, in 1890, published the technic of lumbar puncture, our knowledge of the condition of the spinal fluid in various pathologic states has increased greatly, until now this procedure has become almost a routine in the examination of cases of nervous disease. Under certain conditions the fluid may be yellow instead of colorless, this, according to Scully,[1] having been reported first in 1897 by Busch and shortly after by Schroeder. In 1903, Froin[2] described a combination of yellowness, spontaneous coagulation soon after withdrawal, and lymphocytosis, which has since come to be known as Froin's syndrome. It has been observed in connection with diseases, such as intraspinal tumors and adhesions from meningitis, that obstruct the spinal canal and interfere with the circulation of the fluid. The syndrome is not always complete; lymphocytosis may be absent, and coagulation may be slight or delayed. Nonne has shown also that in cases of intraspinal tumor, even when the fluid is colorless and there is no lymphocytosis, there is frequently a marked increase in the globulin content, demonstrable by his Phase I reaction. This is probably a milder degree of the same change that constitutes the Froin syndrome.

Yellow spinal fluids without much increase in globulin and without spontaneous coagulation have been observed in a variety of conditions. In 1912, Mestrezat reviewed the reported cases and reached the conclusion that these changes are due to hemorrhage into the fluid; they are sometimes spoken of for that reason as erythrochromia. The Froin syndrome, on the other hand, occurs only when the fluid is dammed off in a culdesac by some obstruction. As the result of the stasis, the fluid slowly approximates blood plasma in composition by transudation from the dilated veins. The degree of the alteration depends on the completeness and duration of the block. This view of the mechanism has been quite generally accepted and, as a corollary, it has been concluded that the Froin syndrome indicates that the needle has entered a culdesac below an obstruction in the spinal canal.

Recent investigations by Cushing and Ayer,[3] however, have established that a similar fluid, usually with a less degree of change, may be found above as well as below an obstructing tumor. Such a finding was made in five cases, and entirely negatives the value of the

1. Scully, F. J.: Yellow Spinal Fluid: Its Origin and Significance, Arch. Neurol. & Psychiat. **10**: 83 (July) 1923.

2. Froin, G.: Inflammations méningées avec reaction chromatique, fibrineuse et cytologique du liquide céphalo-rachidien, Gaz. d. hôp. **76**: 1005, 1903.

3. Cushing, Harvey; and Ayer, J. B.: Xanthochromia and Increased Protein in the Spinal Fluid Above Tumors of the Cauda Equina, Arch. Neurol. & Psychiat. **10**: 167 (Aug.) 1923.

syndrome as a guide to localization of the tumor, though without altering its diagnostic significance. Fortunately, there are, as these authors point out, other means for determining whether the needle has been inserted above or below the obstruction, all of which depend on the dynamics of the fluid. The pressure of the fluid below a tumor, as determined by a manometer, is low; cardiac and respiratory excursions are feeble or absent, and compression of the jugulars, as pointed out by Queckenstedt, causes no rise in the pressure. If the needle is above the obstruction and the fluid is collected in successive fractions, the earlier portions will be more changed than those that escape later; this is not true for fluid drawn from below. In cases of doubt, recourse may be had to simultaneous lumbar and cisternal punctures or to combinations with epidural injections at the sacrococcygeal junction, in accordance with the technic that has been developed by Ayer, in order to compare the equality of the dynamic conditions of the fluid at the different levels.

Cushing and Ayer are not quite in accord as to the mechanism by which the changes in the fluid above the tumor are produced. The former suggests that the approximation to plasma may result from transudation from the surface of the tumor; whereas Ayer inclines rather to the view expressed by Mestrezat concerning the change below an obstruction, and ascribes that above equally to transudation from dilated veins. These theoretical considerations are relatively unimportant; the practical bearing of the observations for the surgeon is great, if errors in localization are to be avoided.

Current Comment

SOME NEWSPAPERS AND THE PRACTICE OF MEDICINE

In the correspondence column this week is a letter which shows how poorly informed some newspapers are with regard to the conditions of medical education and licensure in the United States and what has been accomplished in the last two decades. A St. Louis paper suddenly discovers that a coterie of men in Missouri is selling counterfeit medical diplomas, and takes it for granted that the entire medical profession needs to be reformed. It might as well say that because a nest of counterfeiters is discovered, our national currency system should be revised. The editor is evidently unaware of the rapid evolution which, mainly through the work of the American Medical Association, has been going on in medical education during the last twenty years—improvements which have had their echo in similar reforms in the professions of law and dentistry, and which have blazed the way for rapid improvements also in the field of liberal arts education; he may not know of the prolonged and continuous propaganda carried on by the Association to rid the country of medical quacks and diploma mills. As shown in a recent comment,[1] the existence of this medical diploma ring in Missouri is merely an incident compared with the fact that, through the work of the medical profession, such diplomas are now worthless in forty-six states, and will be of no value whatever just as soon as the other states secure the necessary legislation. Meanwhile, it is significant that this diploma-mill ring is in the state in which, two years ago, the medical profession struggled in vain to prevent the emasculation of the medical practice law by which the very diploma mills now being exposed are enabled to carry on their barter in diplomas more freely and "legally." The recent disclosures, indeed, were not unexpected, since they involve medical schools which for several years have been rated by the American Medical Association in its lowest classification. It is sincerely hoped, nevertheless, that the publicity given to the affair will result in the establishing of adequate legal safeguards against all such medical impostors, and particularly in two states, Arkansas and Connecticut, where such safeguards are most seriously lacking. For many years the medical profession has struggled, and with considerable success, to secure better educational qualifications for physicians and greater efficiency in the practice of the healing art.

ANTONY VAN LEEUWENHOEK (1632-1723)

Two hundred years ago occurred the death of Antony van Leeuwenhoek, the father of protozoology and bacteriology. A self-educated man who worked and thought alone, a person of extraordinary perseverance and much ingenuity, a student neither bound nor stimulated directly by the usual influences that are associated with academic life, he left nevertheless a profound impress on the history of science. Wherever the microscope is used, the name of the distinguished Dutchman must be associated with the pioneer contributions of man's aid to his natural eyesight. One reads with astonishment and admiration of his unflagging industry in the perfection of the instrument that is the ever present help to the physician of the twentieth century. The great microscopist of Delft had 247 microscopes with 419 lenses, most of which he himself ground. The task was not a futile one. Here are the resultant accomplishments, as Garrison has summarized them in his History of Medicine: Leeuwenhoek was the first to describe the spermatozoa (originally pointed out to him by the student Hamen in 1674); gave the first complete account of the red blood corpuscles (1674); discovered the striped character of voluntary muscle and the structure of the crystalline lens; was the first to see protozoa under the microscope (1675); found micro-organisms in the teeth, giving, for the first time, accurate figurations of bacterial chains and clumps as well as of individual spirilla and bacilli (Sept. 17, 1683); and demonstrated the capillary anastomosis between the arteries and veins, which Malpighi had already seen in 1660 without attaching much importance to it. It was Malpighi's discovery and Leeuwenhoek's thorough work on the

1. Barter in Medical Diplomas, Current Comment, J.A.M.A. **81**: 1445 (Oct. 27) 1923.

capillary circulation that finally completed Harvey's demonstration. Van Leeuwenhoek appears to have had the true *gaudium in labore perpetuo* that makes for the greatest happiness in scientific endeavors. A sympathetic biographer [1] has remarked that Leeuwenhoek studied the protozoa and the bacteria with evident delight, and called them all "little animals," "beasties" or "little creatures." It appeared to him obvious that they must be organized in the same way as larger animals, and this often led him to make curious comparisons and sometimes to draw ludicrous deductions—as, for example, when he gravely calculated the probable magnitude of the capillary blood vessels in a bacterium. But, as Dobell adds, he never professed to have seen such things, and he always drew a clear distinction between his observations and his inferences, his accounts of the former being almost invariably prefixed with "I have observed," and of the latter with "but I imagine" or "I figure to myself"—an admirable example, indeed, for the coming generation of scientists.

CONNECTICUT'S CHANCE FOR A HOUSE-CLEANING

For several years, as shown regularly in the State Board Numbers of The Journal, men whose educational qualifications are known to be inferior or entirely lacking have found an easy way to obtain licenses to practice medicine in two states; namely, Arkansas and Connecticut. This, in both states, has been through the boards of eclectic medical examiners. The Connecticut Eclectic Medical Board from 1917 to 1920, inclusive, licensed nine notoriously unfit candidates; but in 1921 and 1922, the numbers suddenly jumped to sixty-six and seventy-four, respectively. As shown in our state board statistics,[2] during these six years the Connecticut Eclectic Board had regularly licensed graduates of the Kansas City College of Medicine and Surgery, a low-grade, nominally eclectic institution, which is reported as not recognized by the licensing boards of forty-four states. In 1921 and 1922, however, this Eclectic Board registered also sixty graduates of certain regular medical schools, who applied to the Eclectic Board for the evident reason that the colleges were not recognized by the Connecticut (Regular) Board of Medical Examiners. A score or more of applicants were registered also for whom there is no evidence in our files to show that they ever secured a bona fide medical education anywhere. Last July an investigation by the commissioner of health of Connecticut resulted in the invalidation and recall of fifty-three of the licenses granted by the Eclectic Board. Thereupon the Connecticut legislature passed a bill validating the licenses of these candidates. The bill was wisely vetoed, however, by Governor Templeton.[3] The recent disclosure of the Missouri diploma-mill ring has led to an investigation of its activities in Connecticut by States Attorney Alcorn of Hartford. As shown on another page,[4] a Connecticut physician is reported to have confessed that he obtained, by fraudulent means, a license to practice medicine in Connecticut, and told how he secured a medical diploma from the St. Louis College of Physicians and Surgeons, and purchased a certificate of preliminary education. His statements in regard to this college are interesting in connection with the Meelbusch matter, published recently [5] in The Journal. In the light of these disclosures, it is hoped that Governor Templeton will not rest until he has closed forever in Connecticut the door against impostors and illiterates, who for many years have so easily secured the legal right to prey on the sick and injured people of that state. The only way to do this is to eliminate the eclectic examining board, leaving the licensing of physicians in the hands of a single, nonsectarian board.

1. Dobell, C.: A Protozoological Bicentenary: Antony van Leeuwenhoek (1632-1723) and Louis Joblot (1645-1723), Parasitology **15**: 308 (Sept.) 1923.
2. State Board Statistics, J. A. M. A. **80**: 1233, 1242 (April 28) 1923.
3. Connecticut Sees the Light, Current Comment, J. A. M. A. **81**: 216 (July 21) 1923.
4. Connecticut Investigation of Medical Diploma Scandal, this issue, p. 1631.
5. Medical Diplomas While You Wait, J. A. M. A. **81**: 1463 (Oct. 27) 1923.

Association News

THE CHICAGO SESSION

Section on Orthopedic Surgery

To Fellows of the American Medical Association:

Any Fellow who desires to present a paper before the Section on Orthopedic Surgery at the Chicago session is requested to write to the secretary before Jan. 1, 1924. The title of the paper and a brief outline of its scope must be submitted with the application in order to secure consideration.

Papers to be put on the final program will be selected shortly after January 1 by the Executive Committee.

Archer O'Reilly, Secretary,
3534 Washington Boulevard,
St. Louis, Mo.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

New County Hospital to Be Opened.—The Walker County Hospital, Jasper, will be formally opened to the public, December 5, it is reported.

Donations for Public Health Work.—The International Health Board has contributed $37,000 to the state for malaria and typhoid control and the state laboratory for the calendar year 1924, it was announced by the state health officer, October 19, following a conference with the International Health Board officials. In addition to this contribution the board will finance a study of hookworm and its control in cooperation with the state board of health.

CALIFORNIA

Landlord Will Not Rent to Osteopaths.—The manager of the Flood Building, San Francisco, a physicians' building, has refused to lease offices to osteopaths and is ousting those who are already tenants in the building.

Physician Loses License to Practice.—It is reported that the state board of medical examiners has revoked the license to practice medicine of Dr. Charles R. Elliott, San Francisco, after finding him guilty of habitual intemperance.

Former Practitioner on Probation.—According to reports Dr. May Minaker, whose license had been revoked in 1919 by the state board of medical examiners on a charge of malpractice, was found guilty of practicing medicine without a license, September 6, and given six months' probation on promising to refrain from practicing.

Chiropractor Twice Guilty.—In a suit against John E. Jolly, chiropractor, Los Angeles, Mrs. Speer was awarded $15,000 damages, following the death of her husband whom Jolly treated, by Judge Wood, September 21, according to reports. In October, Jolly was found guilty of violating the Harrison Narcotic Law and was sentenced to one year in jail.

CONNECTICUT

New Hospital for Guilford.—A new sanatorium will be erected at Guilford in the near future at a cost of $150,000. Bids for the new institution were taken, October 1.

Woman's Medical Society.—The Woman's Medical Society of Connecticut met in New Haven, October 16. Drs. Maude W. Taylor, Hartford; Kathryn M. E. Bryan, Norwich, and Mary R. Lawson, New London, addressed the meeting.

DELAWARE

Merger of Health and Welfare Bodies.—At a meeting of the state medical society early in the year (THE JOURNAL, February 3, p. 329) a measure was outlined to be presented to the state legislature authorizing the consolidation of all health and welfare commissions of the state into one body, to be known as the Delaware State Health and Welfare Commission. The legislature passed the measure and the following physicians were elected to the commission: Drs. William P. Orr, Lewes; Margaret I. Handy, Wilmington; Willard R. Pierce, Milford, and Robert E. Ellegood, Wilmington. At a meeting of the state medical society in Middletown, October 9, favorable mention was made of the new commission. It was recommended that the members of the state society give the commission their full cooperation, although the governor had not appointed the four medical members recommended by the state society.

GEORGIA

Personal.—Dr. William H. Cabaniss, Athens, was recently elected president of the Medical Association of the Eighth Congressional District.——Dr. James B. Wright, Augusta, has been appointed health officer of Black Mountain.——A banquet was tendered Dr. Henry Stokes Munroe, Columbus, September 14, by his associates, on the occasion of his departure to locate in Charlotte, N. C.

IDAHO

Inland Empire Medical Society.—At the annual meeting of this society in Lewiston, October 24, Dr. Frank A. Bryant, Colfax, was elected president; Dr. A. H. Einhouse, Moscow, vice president, and Dr. Willard O. Clark, Lewiston, secretary-treasurer for the ensuing year. It was decided to hold meetings twice annually instead of four times, a spring meeting at Colfax and a fall meeting in Lewiston.

ILLINOIS

Society News.—At the annual meeting of the Ogle County Medical Society at Rochelle, October 16, Dr. Jesse C. Akins, Forreston, was elected president and Dr. Josiah T. Kretsinger, Leaf River, secretary-treasurer. Dr. Henry E. Irish, professor of pediatrics at the University of Illinois College of Medicine, Chicago, gave an address.

Health Department Notes.—Two teams, each comprising a physician and a nurse from the staff of the state department of public health, are now in the field to promote health service in public schools, and to stimulate the adoption of the model safe milk ordinance and the establishment of child health centers. The schedule will keep these teams busy for at least six months and will begin at Pekin and Mount Carmel.

Personal.—Dr. Amos A. Crooks, Peoria, has been appointed director of health and hygiene in the city public schools to succeed Dr. James M. Furstman, who accepted a similar position in Los Angeles.——Dr. Robert H. Greaves has been named city health officer of Collinsville to fill the vacancy caused by the death of Dr. Lay G. Burroughs.——Dr. Perry V. Hartman, Granville, has been appointed county coroner to succeed Dr. Henry M. Wilson.

Chicago

Chemist Dies.—Ernest Boyce Stuart, professor of chemistry in the College of Pharmacy of Northwestern University and former secretary of the Chicago Microscopical Society, died, October 13, of cerebral hemorrhage, aged 76. He was the originator of the municipal bureau for the chemical inspection of milk.

Superintendent of Hospital Association Reelected.—Mr. E. S. Gilmore, superintendent of Wesley Memorial Hospital, was reelected president of the American Hospital Association at the annual meeting in Milwaukee, October 29-November 2.

Society News.—A dinner was given in honor of Dr. Gerald Webb, Colorado Springs, Colo., at the Hamilton Club, November 7, following which Dr. Webb addressed a joint meeting of the Chicago Medical Society and the Chicago Tuberculosis Society on "Tuberculosis Infection, Immunity and Therapy."——At a meeting of the Chicago Laryngological and Otological Society, November 5, Dr. Arthur L. Tatum, professor of pharmacology and physiology, University of Chicago, spoke on "Reflex Vasomotor Changes in the Nasal Mucous Membrane."

INDIANA

Personal.—Dr. T. B. Victor Keene, Indianapolis, has been appointed a member of the state board of health.——Dr. Hope H. Nicholson, Indianapolis, has sailed for Jabalpur, India, where she will work as a medical missionary.——Dr. William N. Wishard, Indianapolis, has established an annual prize of $50 at Wooster College, Wooster, Ohio, for proficiency in Greek.——Dr. Louis F. Ross, Richmond, has been appointed superintendent of the Eastern Indiana Hospital for the Insane, Richmond, to succeed Dr. Samuel E. Smith, East Haven, who goes to Indianapolis as provost of Indiana University.

KENTUCKY

Woolfolk Barrow Memorial.—Dr. David Barrow has arranged with St. Joseph's Hospital, Lexington, to establish a surgical charity service there as a memorial to his son Woolfolk who died at St. Joseph's Hospital from injuries received in an automobile accident in July. The income from $30,000 will be given to the institution to be expended in caring for patients admitted to this service. Physicians of the Lexington Clinic will give professional service without charge.

MARYLAND

Society News.—The Baltimore City Medical Society has invited members of the Southern Medical Association and their wives to be its guests in Baltimore, November 16-17, after the final session of the convention in Washington, D. C. A dinner will be given for them, November 17, and clinics will be held at the Johns Hopkins and the University of Maryland Hospitals.

Johns Hopkins Pathology Building Dedicated.—Formal dedication of the new pathologic laboratory building of the Johns Hopkins Medical School was held November 1. Addresses were delivered by Dr. Frank J. Goodnow, president of the Johns Hopkins University; Dr. William H. Welch, first chief of the pathology department; Dr. Simon Flexner, director of the Rockefeller Institute of Medical Research, and Dr. William G. MacCallum, Baxley professor of pathology. The building, which is eight stories high, is the realization of plans made fifteen years ago, when the General Education Board gave $400,000 for the project, which was to be supplemented by $200,000 before being donated.

MASSACHUSETTS

Health Conferences.—The first session of the health week conferences was held in the City Hall, Boston, October 31, the mayor giving the address of welcome. Stephen L. Maloney, secretary of the health department, spoke of the early work when Paul Revere was the first president of Boston's board of health. City Health Commissioner Francis X. Mahoney and Dr. Eugene R. Kelley, state health commissioner, gave addresses.

Physicians' Auxiliary to Health Department.—Voluntary organization of a group of the West End physicians of Boston has been effected in forming a medical advisory committee to the director for the Boston Health Department. The program is disease prevention. The following comprise the committee: Drs. Nathan N. Levins, chairman; George J. Oberlander, vice chairman; Samuel W. Myers, secretary, and Drs. DuVally, Samuel N. Elkin, Feldman, Benjamin Friedman, Abraham J. Hurwitz, Harry L. Rothblatt, Sidney M. Saltz, Julius Shubert and Charles E. Towle.

Lectures on Mental Hygiene.—A course of fifteen lectures on the mental health of children is being given in the Boston University School of Education, under the direction of J. Mace Andress, Ph.D., head of the department of child study, Boston Normal School, and with the cooperation and endorsement of the Massachusetts Society for Mental Hygiene. The next few lectures are as follows: November 12, "Common Sense in Intelligence Testing," Arthur W. Kallom; November 19, "Salvaging the Feebleminded Child," Dr. Walter E. Fernald; November 26, "Vocational Guidance and Mental Health," Dr. George K. Pratt, and December 3, "School Entrance and the Preschool Age," Dr. Arnold Gesell.

Hospital News.—A new $45,000 nurses' home will be erected at the Marlboro Hospital, Marlboro.——The Watson estate at East Braintree, near Weymouth, has been opened as the Riverview Sanatorium. Dr. W. E. Reid is physician in charge.——The next legislature will be requested to appropriate $3,000,000 for new buildings for the Boston City Hospital, Mayor Curley announces. Three buildings are planned —a maternity hospital, a house for interns and a nurses' home, in addition to alterations in the present quarters.—— A new two-story brick addition will be erected at the Addison Gilbert Hospital, Gloucester.——The new fifty-six bed Shriners' Hospital for Crippled Children will be erected at Springfield at a cost of $250,000.

Public Health News.—The bureau of communicable diseases of the Boston Health Department announces part of its 1923-1924 program of speakers as follows: November 13, "Pellagra," Dr. George C. Shattuck, assistant professor of tropical diseases, Harvard Medical School, Boston; November 20, "Smallpox," Dr. John S. Brownrigg, chief medical inspector of the Boston Health Department, and November 27, "Differential Diagnosis of Obstructions of Upper Respiratory Tract," Dr. Martin J. English, chief of the pediatric service of the Boston City Hospital.——The committee on public health of the Massachusetts Medical Society has arranged with specialists to speak at meetings of the district medical societies. The following physicians will give occasional talks of about thirty minutes on subjects relating to the promotion of public health: Jose P. Bill, Frank Dunbar, Walter E. Fernald, Timothy Leary, Herman A. Osgood, Edwin H. Place, C. Morton Smith, George Gilbert Smith, Lesley H. Spooner, George H. Wright, Thomas F. Kenney, Paul Dudley White, Gilman Osgood and Francis H. McCrudden.

MICHIGAN

Venereal Diseases Reported.—The state department of health announces an increase in the number of cases of venereal diseases reported for 1922 over those of 1921. The state municipal clinic reports show that 52,227 venereal disease patients were treated in 1922, an increase of 9,225 cases over 1921, when 43,002 cases were treated. This does not indicate an increase in the number of infections, but shows better cooperation of physicians in reporting cases.

Personal.—Dr. G. Carl Huber, professor of anatomy at the University of Michigan Medical School, Ann Arbor, will represent the university at the centenary of Joseph Leidy to be held in Philadelphia in December.——Dr. Mabel Elliott, Benton Harbor, recently returned from Greece, received the Silver Cross of St. George, the Gold Cross of St. George and the Greek War Cross from that country in recognition of her work among the refugees from the Smyrna disaster.

MINNESOTA

State Meeting Held.—The fall conference of superintendents of state institutions with the state board of control was held at St. Paul, November 6. Dr. John N. Hurty, formerly state health commissioner, spoke on "What Can the Science of Medicine Do to Conquer Feeblemindedness?" The director of the research bureau discussed the state census of mental defectives.

Personal.—Dr. Ruth E. Boynton, instructor in the department of preventive medicine, University of Minnesota, Minneapolis, has been appointed director of child hygiene of the state board of health to succeed Dr. Everett C. Hartley who has gone to Berlin for study.——Dr. Christopher J. Woolway, owing to ill health, has been obliged to make permanent his temporary resignation from the Deerwood Sanatorium. He is succeeded as superintendent by his wife; Dr. C. T. Bernard becomes medical director.

Lectures on Heredity.—The Mayo Foundation, in cooperation with the local chapter of Sigma Xi and the universities of Wisconsin, Minnesota and Nebraska, and Washington University (St. Louis), has arranged a course of lectures to be given this autumn and winter on various phases of heredity. The first lecture was given October 29, at the University of Wisconsin by William Ernest Castle, professor of zoology at Harvard University, Boston, on "Heredity—the General Problem and Its Historical Setting." Professor Castle delivered the same lecture at Rochester, October 30, at Minneapolis, October 31, at Omaha, November 1, and at St. Louis, November 2. Other lecturers will follow a similar schedule on succeeding weeks. November 6, Prof. John A. Detlefsen, Sc.D., Wistar Institute, Philadelphia, "The Inheritance of Acquired Characteristics"; November 19, Miss Maud Slye, University of Chicago, Chicago, "Heredity in Relation to Cancer," and December 4, Prof. Harry Gideon Wells, University of Chicago, Chicago, "Human Cancer from the Standpoint of Heredity."

MISSOURI

Society News.—At a meeting of the Southeast Missouri Medical Association, at Farmington, October 16-17, a resolution was unanimously adopted commending the St. Louis *Star* for exposing at considerable cost, the practice of issuing, or selling medical and other diplomas to unqualified persons.

Medical Examinations Delayed.—Dr. Emmett P. North, president of the state board of health announced, October 23, that the examinations for medical licenses in Missouri, scheduled for December 4-6, will be held up until after the investigation has been made of the medical schools in the state.

NEW HAMPSHIRE

State Tuberculosis Association.—The annual meeting of the New Hampshire Tuberculosis Association was held in Manchester, October 19, under the presidency of Dr. Arthur L. Wallace, Nashua. The governor, the mayor of Manchester, Drs. Charles Duncan, Concord, secretary of the state board of health; Edward O. Otis, Boston, president of the Massachusetts Tuberculosis League, and Henry D. Chadwick, superintendent of the State Sanatorium for Children, Westfield, Mass., gave addresses.

NEW JERSEY

Physician Surrenders.—According to reports Dr. Charles O. Spear, a graduate of the Medico-Chirurgical College of Philadelphia in 1889, formerly a practitioner at Locustwood, gave himself up recently to the authorities at Camden after successfully eluding arrest for thirteen years, for the shooting of Edward Lawrence. Spear has been living in British Honduras and Nicaragua. He stated he had returned to stand trial. The only witness to the shooting, a boy, died recently.

NEW YORK

Public Health Laboratories Association.—The mid-year meeting of the New York State Association of Public Health Laboratories was held in Albany, November 8. The association was organized some years ago for the purpose of standardizing technical methods and thus improving the local diagnostic laboratory service in the state. Dr. Walter S. Thomas, Clifton Springs, presided.

University Honors Physicians.—At a special convocation, October 8, the University of Syracuse, N. Y., conferred the honorary degree of doctor of science on Drs. Charles J. O. Hastings, Canada; Gerald Leighton, Scotland; Robert Stenhouse-Williams, England; Masayoshi Sato, Japan, and Sir Arnold Theiler, South Africa, on the occasion of their attendance as foreign delegates at the World's Dairy Congress at Syracuse.

Directory of Mental Clinics.—A directory of the chief mental clinics maintained by general hospitals and public health agencies in Manhattan has been issued by the committee on mental hygiene of the New York State Charities Aid Association. This directory should benefit physicians, social workers, clergymen, teachers and social agencies in securing advice with regard to mental and nervous conditions that come to their attention. It contains not only the location of the clinics but the hours at which they are held, names of directors, scope, and charges if any.

New York City

Academy Favors Bond Issue.—At the anniversary meeting of the New York Academy of Medicine, November 1, at which a vote was taken on the $50,000,000 bond issue for the state institutions, the members went on record as favoring

s measure. Thirty new members were elected to fellowship the academy. The election will be held at the first stated eting in December.

Personal.—Dr. Julien A. Gehrung, New York City, has been ade a Chevalier of the Legion of Honor by the French vernment. He served in the medical corps of the French my before the United States entered the war.——Dr. Benmin Schwartz, a medical examiner for New York City, has en appointed consulting physician and director of the medl service of the board of child welfare.——Dr. Charles ordon Heyd, professor of surgery at the Post-Graduate ospital, has been appointed consulting surgeon for the ard of child welfare, and Dr. George Schwartz, instructor operative surgery at the Post-Graduate Medical School d Hospital, has been promoted to visiting surgeon on the ard.

OHIO

Hospital News.—A successful vote on an $800,000 bond sue for the erection of a new city hospital at Lima is nounced by the mayor.——A new children's home for Trumll County is being erected at Warren at a cost of about 00,000.——Dr. Charles E. Welch, owner of the Mount ernon Hospital, has purchased the Mount Vernon Medical d Surgical Sanatorium from Dr. V. L. Fisher and will nsolidate the institutions.——The new Rickly Memorial ospital at the Ohio Masonic Home, Springfield, was dediated, October 17, with representative delegations from the ntire state participating.——Plans have been completed for e erection of the new Stark County Tuberculosis Hospital t a cost of approximately $300,000, with a capacity for 100 atients. The county has about $70,000, realized from the le of its interest in Springfield Lake Sanatorium and will ise the balance by a bond issue.——Construction work has een started on the new fifty bed unit for Providence Hospital, andusky, which will be opened about November, 1924. The nit is the first of three which will be erected as the needs of he community warrant.——In the distribution of $1,300,000 ppropriated for the improvement of state institutions, the llowing allotments were made to state hospitals: Dayton tate Hospital, $37,000; Massillon State Hospital, $93,100; ima State Hospital, $11,500; Longview Hospital, $11,000, nd the Mount Vernon Sanatorium, $15,000.

PENNSYLVANIA

Medical Education and Licensure Bureau.—The newly ppointed members of the Bureau of Medical Education and icensure of Pennsylvania are: Drs. Adolph Koenig, Pittsurgh; William Hillegas, Philadelphia; Walter E. Lee, Philadelphia; Irvin D. Metzger, Pittsburgh, and Merl V. Hazen, Harrisburg.

Philadelphia

Arrest to Curb Smallpox.—Dr. John Blair Spencer, director f public health, announced on November 3 that immediate rrest of employment officials or others concerned in hiring nen and women will follow ignoring of orders sent out by he department of health which require vaccination certifiates from applicants to prevent the spread of smallpox.

Vaccination.—More than 3,500 persons in Philadelphia were vaccinated between October 15 and 18, as a result of a victim f smallpox who had roved over a large section of the city efore discovery. She was a negress who recently left Atlanta, Ga., and who had lived in three different neighborhoods since er arrival in the city. This was the eighth case of smallpox eported in the city during the period, October 8-19.

Personal.—Dr. Albert S. Hyman has resigned as superintendent of Mount Sinai Hospital, Philadelphia, to take over he practice of his uncle, Dr. Herman Besser, New York City, who will go to Egypt for his health. The staff of the Mount Sinai Hospital tendered Dr. Hyman a farewell dinner, October 27.——Dr. William W. Keen will receive an honorary doctor's degree from the University of Paris, France, November 24, at the opening exercises at the Sorbonne amphitheater. Dr. Keen will be the only American to be thus honored, although seven scientists from other nations will receive degrees at the same time.

RHODE ISLAND

Child Welfare Director Appointed.—Dr. Marion L. Gleason, Providence, has been appointed state director of child welfare to succeed Dr. Elizabeth M. Gardiner, who resigned in August to become associate director of the department of maternity, infancy and child hygiene in the State of New York.

TENNESSEE

East Tennessee Medical Association.—At the annual meeting of the association in Lenoir City, October 11-12, Dr. John W. Wallace, Johnson City, was elected president, and Dr. G. Victor Williams, Chattanooga, secretary-treasurer.

History of State Society.—Drs. Duncan Eve, Sr., Giles C. Savage and Deering J. Roberts have been appointed a committee of three to collect data for the writing of the history of the Tennessee State Medical Association. Any physician having data that may be of historical interest concerning the activities of the association will please communicate with the committee.

Damage Suit Dismissed.—The damage suit of Mr. and Mrs. Estes for $10,000 against Drs. Meek M. Copenhaver and Clark B. Evans for alleged malpractice in the treatment of Mrs. Estes was dimissed, October 19. The judge declared that the evidence failed to bear out the contention of the plaintiffs that Mrs. Estes has suffered from either negligence or incompetency on the part of the physicians.

TEXAS

Health Conference with Mexico.—Dr. William H. Beazley, Austin, state health officer, stated, October 18, that he had accepted an invitation from President Obregon of Mexico to attend an international conference between Texas and Mexico on public health matters. The date of the conference, which is to discuss a program of proposed joint health regulations, including control of communicable diseases and international immigration regulations to prevent spread of disease, has not yet been announced. Dr. Beazley will be accompanied by two or more of his bureau chiefs.

State Health League Organized.—Dr. William H. Beazley, state health officer, and Dr. Thomas J. Crowe, Dallas, were elected president and secretary, respectively, of the State Health League, which was organized in Dallas, October 20, by representatives of the medical profession and recognized medical schools who were called to the meeting by the state board of medical examiners. Members of the board of councilors of the Texas State Medical Association and the Dallas County Medical Society were also present at the conference. Drs. Royal S. Copeland, U. S. senator from New York; Arthur C. Scott, Temple, and Holman Taylor, Fort Worth, president and secretary, respectively, of the state medical association, among others, gave addresses. The speakers condemned the failure of officers throughout the state to enforce the recent medical practice act passed by the legislature, which requires that all physicians or drugless healers shall pass examination by the state board of medical examiners before being allowed to practice in Texas. Dr. Crowe, in discussing the functions of the league, stated that the new organization would cooperate with the state board of medical examiners so that there should be an active body in all counties of the state to aid the county officers in the enforcement of the medical practice act. He also stated that "the league will not fight men recognized as capable of practicing under the state laws, but will see that those who are not capable are ousted from Texas."

VIRGINIA

Medical Society of Virginia.—At the fifty-fourth annual meeting of the association at Roanoke, October 16-19, the following officers were elected for the ensuing year: president, Dr. William W. Chaffin, Pulaski; vice presidents, Drs. Hunter H. McGuire, Winchester, Robert Bruce Janes, Danville, and Otis T. Amory, Newport News, and secretary-treasurer and business manager to succeed G. H. Winfrey, resigned, Miss Agnes Edwards, Richmond. Staunton was selected as the meeting place of the association in 1924.

WISCONSIN

Prevention of Delinquency.—Under the auspices of the state board of health, the U. S. Public Health Service and the American Social Hygiene Association held a series of conferences on the delinquent girl problem in various parts of the state from October 29 to November 3. Following the success of the "delinquent girl" conferences held in Milwaukee in June, questionnaires were sent to police women, probation officers, deputy sheriffs, superintendents and matrons of institutions, representatives of protective associations, psychologists, members of public welfare associations and others, asking, "What Are You Doing, Why, and How?" in regard to the prevention of delinquency. Judges of juvenile courts and district attorneys, with representatives from the U. S. Public Health Service, the American Social Hygiene Association and other interested organizations addressed the sessions.

CANADA

Hospital News.—The new hospital building at New Waterford, Nova Scotia, will be opened in the near future.——The cornerstone for the new receiving hospital at Toronto was laid recently. Dr. C. K. Clarke gave an address.——Plans have been completed for the new two-story hospital to be erected at Birtle, Manit.

GENERAL

Fellowship for the Study of Soap.—The Palmolive Company has established an annual fellowship of $2,000 for the purpose of stimulating the scientific study of the chemistry, physics, and colloid principles concerned with soap. Paul H. Fall, Chicago, who is the first holder of this fellowship, will carry on this work at Cornell University.

No Time Limit to Liquor Prescriptions.—No time limit restrictions for the honoring of physicians' prescriptions for liquor have been set, it was stated at the prohibition office, Washington, D. C., October 19. Reports that prohibition agents had been ordered to treat with suspicion any holder of a certificate who does not have it filled promptly were denied at headquarters.

National Committee for the Prevention of Blindness.—The annual meeting of the committee will be held in the Russell Sage Foundation Building, New York, November 15. John H. Finley, LL.D., former state commissioner of education, now on the editorial staff of the New York *Times,* will give the principal address. Mr. Edward Van Cleeve, director of the committee, will discuss the work accomplished.

International Clinic of Plastic Surgery.—A wing will be added to St. Andrew's Hospital, London, England, for the teaching and practice of plastic surgery. Until funds are available, a portion of the existing hospital will be utilized. It is estimated that about $120,000 will be required. The staff includes the names of H. D. Gillies and T. Pomfret Kilner (Great Britain), J. Eastman Sheehan, New York, and Ferris N. Smith, Grand Rapids, Mich. (United States), and Professor Lemaître (France).

Division of Narcotics Wanted.—Congressman Porter, chairman of the foreign affairs committee, stated, October 18, that the next Congress will be urged to create a federal narcotic division, equal in importance to the prohibition bureau. Congressman Porter reported to President Coolidge on the drug conference recently held by the League of Nations at Geneva. He called attention to the alarming increase of drug addicts in the United States and asserted that "enforcement of the narcotic law should be kept apart from the tyranny of politics, and that more liberal appropriation should be made to permit of stricter enforcement."

American Academy of Ophthalmology and Otolaryngology.—The twenty-eighth annual meeting of the association was held in Washington, D. C., October 16-20, under the presidency of Dr. T. E. Carmody, Denver. Dr. Hubert Work, Secretary of the Interior, delivered the address of welcome. The following officers were elected for the ensuing year: president, Dr. Walter B. Lancaster, Boston; vice presidents, Drs. William P. Wherry, Omaha, S. Hanford McKee, Montreal, Canada, and Harry L. Pollock, Chicago; treasurer, Dr. Secord H. Large, Cleveland; secretary, Dr. Luther C. Peter, Philadelphia. Dr. Clarence Loeb, Chicago, was elected editor of the transactions.

Personal.—W. H. Camero, managing director of the National Safety Council of the United States, demonstrated, October 22, by invitation, the remarkable growth of the industrial safety movement by lantern slides, motion pictures, photographs and posters used in accident prevention work in this country, before the International Labor Conference of the League of Nations in Geneva, Switzerland. Mr. Camero said, "I firmly believe that the time is not far distant when accidental death and serious injury in industry will be the exception," and that "earnest effort in reducing the casualties of peace is an expression of the highest type of patriotism to one's country and of service to humanity."——In addition to giving the Silliman lectures at Yale University, New Haven, Dr. Nils Bohr, professor of physics, University of Copenhagen, is giving the Simpson lectures at Amherst College.

Southern Medical Association Meeting.—During the seventeenth annual convention of the Southern Medical Association, Washington, D. C., November 12-15, there will be in addition to the local sessions clinics at the University of Maryland, Johns Hopkins and Mercy hospitals, Baltimore, and at the University of Virginia, Charlottesville. Sectional meetings will begin at 9 a. m., November 12, but the formal opening will take place that night at the Continental Memorial Hall. Dr. George E. Vincent, president of the Rockefeller Foundation, will speak. Headquarters and the scientific exhibit will be in the ball room of the Willard Hotel. The fourteen sections into which the association is divided and its allied bodies, the Southern Gastro-Enterological Association, National Malaria Conference, Conference of Southern States' Statisticians and Southern Association of Anesthetists, will meet in the Willard, Washington, Raleigh, Shoreham, New Ebbitt and Burlington hotels. The local committee on arrangements, headed by Dr. Thomas A. Groover, has planned an entertainment program, which calls for daily golf at the Columbia Country Club, a round of dinners and receptions for the women visitors by the Women's Medical Society of the District of Columbia; an automobile tour, cavalry and artillery parades, reception by the President, and alumni dinners. Mrs. Woodrow Wilson will be the honor guest at the reception for visiting women at the Washington Club, Tuesday afternoon, November 13.

The National Academy of Sciences.—It has been realized for many years that research in the universities and in the industries of this country has not been effectively coordinated to lead to the best results. In 1863, Congress established a National Academy of Sciences, but its influence toward the end sought has not been strong. When war made cooperation imperative, the President directed that the National Research Council be established, and when peace was declared it was clear that the council might well become a permanent agency for the promotion of cooperation in research. A plan to perpetuate the National Research Council was laid before the Carnegie Corporation in February, 1919, and $5,000,000 was put at the disposal of the National Academy of Sciences. A part of this sum was to be used to erect a building suited to the needs of the academy and the council, but the greater part of the money was to be an endowment fund in the hands of the National Academy of Sciences to be used for the purposes of the National Research Council. The building is now nearing completion. It will cost $1,350,000, and the site, purchased with funds raised by subscription, $185,000. It is a classic, white marble structure facing the Lincoln Memorial and in keeping with an architectural environment which has been termed "the spirit of Washington." The entrance leads into the great foyer hall whose ends are panels in which are set in intricate framework of bronze the zodiacal signs. The second panel leads into the main auditorium, which is shaped like a cross whose arms support a central dome. In the apex of the dome is an "eye." The roof of the "eye" swings so as to permit the direct rays of the sun to enter at all periods of the day or year and be projected to a spectrograph on the floor level beneath the dome. From the apex there hangs a Foucault pendulum to demonstrate the rotation of the earth. Seven rooms for exhibitions surround the central auditorium. These are simple in character but carefully adapted. On the second and third floors the workaday offices of the National Academy of Sciences and those of the National Research Council are arranged.

LATIN AMERICA

Mexican Health Workers Visit Germany.—In an effort to establish closer relations between the Institute for Tropical Medicine at Hamburg, Germany, and Mexico, a group of Mexican public health service workers has recently been visiting the institute.

Conference of Alienists of Brazil.—The Sociedade Brazileira de Psychiatria, Neurologia e Medicina Legal has issued an appeal for a conference of all alienists at Rio de Janeiro in November to discuss the treatment and prophylaxis of mental disease and uniform laws.

Conference of Red Cross Society at Buenos Aires.—The first Pan-American Conference of Red Cross Societies is to convene at Buenos Aires, Nov. 25, 1923. The *Brazil-Medico* states that among the subjects to be discussed is the mission of the Red Cross in relation to alcoholism, drug addiction, venereal disease, malaria, tuberculosis, yellow fever and hookworm disease.

Mexican Congress on Venereal Diseases.—The *Revista de Ciencias Médicas* of Mexico gives the details of the first Mexican Congress on Venerology, which is to convene at Mexico City in March, 1924. This date coincides with the anniversary of the Military Medical School. The chairman of the committee of organization, Dr. F. Castillo Nájera, who

is at present minister from Mexico in China, is expected to preside at the congress.

Society Elections.—The Sociedad de Cirugía of Bogota recently elected Dr. H. Machado L. president; Dr. Juan N. Corpas, vice president; Dr. Leyva Pereira, secretary, and Dr. Martín Camacho, treasurer.——The new board of officers of the Sociedad de Pediatría of Colombia includes Dr. N. Buendia, president; Dr. J. Bejarano, vice president, and Drs. R. Sanmartín L. and J. Forero Villaveces, secretary and treasurer.

FOREIGN

Desertion a Crime.—In an effort to improve the declining birth rate in France, a bill will be presented to the Chamber of Deputies at the next session making it a crime punishable by one year's imprisonment and loss of citizenship for Frenchmen to desert their families.

Medical Women's Federation.—The annual meeting of the London (England) Association of the Medical Women's Federation was held, October 9. Dr. Louisa Martindale was succeeded in the presidential chair by Dr. Chadburn. The new president said that the supply of medical women never would equal the demand.

Royal Academy of Medicine of Ireland.—At the annual meeting of the academy, October 12, Sir Arthur Chance was elected president and Dr. T. P. C. Kirkpatrick, secretary-treasurer. Dr. W. R. Fearon delivered the oration in honor of Louis Pasteur. The academy comprises 173 fellows, seven members and thirty-six student associates.

Plea for the Lister Ward.—The Lister Ward, at the Royal Infirmary, Glasgow, where the late Lord Lister conducted his investigations and researches, has been condemned by the hospital management. A strenuous effort is being made by prominent citizens and members of the medical profession to obtain a reconsideration of this decision and to secure the preservation of the ward as a memorial monument to Joseph Lister.

Cremation Authorities Confer.—The Cremation Society of England held a conference in Liverpool, October 25, on invitation of the Lord Mayor. The following subjects were discussed: cremation propaganda; the desirability of forming a federation of cremation authorities, by affiliation of each with the national society; the issue of certificates during lifetime for subsequent cremation at death and the issue of a quarterly bulletin.

The Tribute to Eijkman.—The tribute to Prof. C. Eijkman on the twenty-fifth anniversary of his professorship at Utrecht was an imposing ceremony. An album was presented with signatures of the Netherlands friends and another is on the way from the Dutch East Indies, and thirteen brief addresses were made by representatives of the government and scientific societies, including the Society of American Bacteriologists. The microbiologists cited a long list of Eijkman's innovations, such as his test for fermentation and his study of thermolabile substances which check bacterial growth. A fund was endowed in his name to provide a medal for achievements in tropical medicine. Although only 65, Eijkman is now the Nestor of the Netherlands hygienists since Saltet has retired.

The Clinic for Industrial Affections at Milan.—The union of the printing trades at Milan recently presented the officials of the "Labor Clinic," as it is familiarly called, with the Salvi gold medal and an engrossed address expressing their appreciation of and gratitude for the clinic and the work it has done, and announcing the foundation of an annual endowment of 200 liras. Telegrams were received also from other branches of organized labor. The Clinica del Lavoro was organized in 1906 by the efforts of Prof. L. Devoto, who is still the director, and was inaugurated in 1910. The plan was to have sixty beds and hold postgraduate courses. It publishes a small monthly, *Il Lavoro*. The last issue quotes some American writers as saying: "Milan has the pround distinction of establishing the first and so far (1916) the only hospital and clinic for the treatment, study and prevention of occupational disease." . . . "We are again indebted for a great idea to the land of Ramazzini."

Deaths in Other Countries

Dr. **Hayami** of the Kyoto Imperial University.——Dr. **G. D. Maynard,** editor of the *Medical Journal of South Africa* and statistician to the South African Institute for Medical Research; died, September 18, aged 45, of cerebrospinal meningitis, at Johannesburg.——**Sir William R. Edwards,** recently retired director general of the Indian Medical Service, in London, England, October 13, of pneumonia, aged 61.——Dr. **J. V. Manning,** Bloemfontein, South Africa, president of the medical and pharmacy council of the Orange Free State, suddenly, of heart failure.——Dr. **Karl Flügge,** emeritus professor of hygiene at Berlin, who founded, with Koch, the *Zeitschrift für Hygiene* in 1885, aged 76. His name is best known by his droplet theory of infection. The Flügge foundation was organized in his honor on his seventy-fifth birthday.——Dr. **Pio Foà,** emeritus professor of pathology at Turin, and senator, aged 75. The University of Turin joined with his friends and pupils in a ceremonial tribute to him a few months ago.

Government Services

Hospital Site Purchased in California

The government has purchased 500 acres of land near the foot of Loop Canyon, one mile north of San Fernando, for $100,000 to erect a $1,000,000 hospital for tuberculous ex-service men, it was announced, October 22, by the chairman of the Southern California hospitalization committee of the American Legion. The property was known as the Ford-Craig ranch. Ground will be broken in December and it is hoped to have the buildings ready for occupancy next spring. The buildings will be of cottage type, constructed of hollow tile, and will have a capacity of 250 patients. Camp Kearney will probably be closed when the San Fernando Hospital is completed, as another veterans' hospital is to be constructed at Livermore.

Surgical Hospital Organized

Pursuant to instructions of the Secretary of War, the organization of Surgical Hospital No. 7 (Hahnemann Hospital Unit, Scranton, Pa.), organized reserves, has been authorized.

New Government Hospital at Cleveland

The sale of a portion of the U. S. Marine Hospital site at Cleveland, for $650,000 is the occasion for gratification on the part of the U. S. Public Health Service. The real estate sold is a part of the unoccupied area and there still remain land and buildings, valued at $1,250,000, which will be sold by the government. The funds thus realized will be used in the construction of a modern 150 bed hospital at Cleveland. The total value of the Cleveland Marine Hospital site is $1,900,000, representing an enormous increase in the value of this property since purchased by the government in 1852. The hospital opened in that year was operated as a marine hospital until Oct. 1, 1875, when it was leased to the Lakeside Hospital Corporation; on April 1, 1895, the U. S. Public Health Service again took charge. Surgeon General Cumming determined a year ago it would be advantageous for the government to sell this real estate, the buildings on which were antiquated, and to use the proceeds to construct a modern hospital at another location in Cleveland. The subject was presented to Congress, and the transaction was authorized.

Candidates for Army Medical Corps

Applications for the examination of candidates for appointment in the Medical Corps of the Army to be held Jan. 22, 1924, may be had on application to the Adjutant General, War Department, Washington, D. C., or at any army station. Applicants must be graduates of accepted medical schools, legally authorized to confer the degree of doctor of medicine, must have had at least one year's hospital training subsequent to completion of the four-year course at such medical school, or in lieu thereof must have served as a medical officer of the army between April 6, 1917, and July 1, 1919, and must be between the ages of 22½ and 31½ years at the time of the examination. Former officers of the Medical Corps, Regular Army, honorably separated from the service, within the age limits and otherwise eligible, may compete in this examination, provided their efficiency ratings at the time of separation from the service were "above average." They will not be exempted from any part of the examination because of prior service.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Oct. 22, 1923.

The Panel Struggle

The minister of health has replied to the letter of the Insurance Acts Committee of the British Medical Association (THE JOURNAL, November 3, p. 1535). He did not consider that a detailed answer would serve any useful purpose, but stated that he did not accept the statements and arguments of the committee as accurate or sound. His offer represented a considered decision given by him in regard to a matter on which responsibility rested with him as a minister of the crown. Before arriving at that decision, he weighed the claims and representations made on behalf of the profession and the approved (friendly) societies. He considered that his offer represented a settlement fair both to the profession and to the insured population. As regards the rural physicians, he was sensible of their peculiar difficulties and desirous of finding a remedy, but this should not interfere with the settlement of the general capitation fee. As to the committee's request for arbitration, he pointed out that the basis of remuneration was exhaustively considered by an arbitration committee three years ago, and he accepted its award as one of the data on which the government's offer had been determined. He considered that any further arbitration would lead to undignified disputes between the physicians and the approved societies. Moreover, he regarded himself as in the position of an arbitrator with the added responsibility of ministerial duty.

The committee replied to the minister, complaining that no real answer had been given to facts set out by it. The committee would have preferred either arbitration or negotiation, but had no option but to accept the responsibility which he imposed on it. The remuneration offered was insufficient. No national medical service based on an insurance system could be satisfactory unless it attracted all types of physicians in sufficient number, and so supplied the industrial population with that choice of physician and satisfactory service which obtained in the rest of the population. While willing to serve the community to the best of its ability and to make any satisfactory arrangements with the representatives of the community, the profession was not prepared to accept the position of being under the dominance of a particular section. This refers to the approved societies. The British Medical Association regards the present conflict as not mainly on the inadequacy of the capitation fee offered, but also on the old question fought successfully in 1911 and 1912, of whether the profession shall be free from friendly society control.

On the other hand, the representatives of the approved societies claim that they have no desire to quarrel with the physicians, and that the difference is with the government. At a conference called to consider the panel situation, Mr. H. J. Thomas, M. P., a well known labor leader, stated that the approved societies were in a peculiar position, because, without asking them, the government had declared that they were prepared to give the physicians more money than was originally provided by the act. It was obvious that the government intended the difference, amounting to 30 cents, to come out of the societies' funds. The societies would be very foolish if they allowed the government to have the money out of their surpluses, which were required for other important purposes, such as nurses and dental treatment. The general council of the trades union congress and the labor party national executive, which may be taken to represent organized "labor" in this country, but, unlike the approved societies, to have nothing to do with the administration of the Insurance Act, has issued a pamphlet recommending a number of reforms, such as: (1) free choice of physician; (2) limitation of panel lists to 2,500, or to 4,000 when an assistant is kept; (3) panel physicians not to be permitted to keep more than one assistant, except in special circumstances; (4) better office accommodation; (5) more effective means of removing unsatisfactory physicians from the panel. If these requirements are fulfilled, they think that the service would justify the present capitation fee of $2.50. At the earliest possible moment, with due regard to financial considerations, they demand an extension of the medical service to matters beyond general practitioner range. Dental benefit for insured persons they regard as especially desirable. A beginning should be made with the provision of increased diagnostic (laboratory and roentgen-ray) facilities.

Two hundred delegates from the local medical and panel committees (committees of physicians appointed under the act to assist in its administration) have met in London and unanimously passed a resolution rejecting the minister's offer and asking all panel physicians to send in their resignations. If these have to be carried into effect, the intention is not to deprive panel patients of medical service. Local schemes will be organized under which patients will be charged certain fees, to be fixed by local committees. It is contended that in this way a more effective service than is in operation at present could be maintained, and that the patients would pay no more, and possibly less than they are now paying under the act. Dr. Brackenbury, chairman of the Insurance Acts Committee of the British Medical Association, was the principal speaker. He stated that the minister's offer was not only unjust but nationally unsound and socially dangerous. A national health insurance policy must be such as the whole profession could heartily and willingly cooperate in. Further, the medical profession was unable to accept the offer because the circumstances under which it was made necessitated a protest from an honorable and independent profession. The approved societies, which were usurping the rights of the community, had taken the narrowest and lowest commercial view of the profession. They claimed, in fact, to be its masters. He said, amid cheers: "We are willing to negotiate with the properly constituted representatives of the community as to the terms of service, but we shall never submit to the views which the approved societies have taken of the national needs." It was decided to send a letter to every panel physician, pointing out these facts and enclosing a form of resignation to be returned not later than October 29. The resignations will not be tendered unless they are obtained from two thirds of the panel physicians in the country. It is pointed out that such resignations are the only weapon that can now be used in dealing with the government. If the requisite number is not received, it is claimed that not only will the present fee be reduced, but the standard of other medical remuneration will be jeopardized, and the approved societies will be left predominant over the service. A letter was also sent to the secretaries of the local committees, urging them to use every effort, by personal canvass and otherwise, to obtain the necessary resignations.

The Spahlinger Treatment of Tuberculosis

Spahlinger has come to London. At the invitation of Baron Henri de Rothschild (who is a physician) he met at the Ritz Hotel a number of physicians and others interested in tuberculosis. The object of the conference was to make arrangements for the circulation among the British physicians of a pamphlet which will give a history of Spahlinger's work, particulars of papers read before medical societies, and a mass of medical evidence with full clinical details of the effect of his treatment. When the pamphlet has been in the hands of

the physicians for a month or six weeks, it is proposed, if funds are still necessary to enable Spahlinger to proceed to the production on a large scale of his serums and vaccines, to issue a public appeal for money to carry on the work. Among those present was Sir Stanley Birkin, who has personally contributed $100,000 to save Spahlinger's laboratory from being closed down. The successes obtained with the treatment were described. It was stated that Dr. Stefany of Geneva had 80 per cent. of successes in 294 patients. One hundred horses would enable Spahlinger to deal with 10,000 cases of tuberculosis in the year. He wanted to supply each country with sufficient material for its needs, and for this $500,000 was required. It was curious that dark, well bred Irish horses were the best for the purpose. The Insurance Acts Committee was considering its decision as to the impossibility of advancing money on legal grounds. He was unwilling to hand over his method to a commercial firm, although he had been offered as large a sum as $1,250,000, because he was afraid that his work might be discredited. The serum took four years to make, and it was necessary to isolate twenty-two different toxins and inject these into twenty-two different horses. The fortune of his family, amounting to $400,000, had been spent in carrying out his experiments. Even if he obtains the financial help that he requires he states that two years must elapse before he will be fully equipped to undertake the treatment of any considerable number of cases. The Lancashire Insurance Committee has decided to set aside an initial sum of $5,000 toward the production of Spahlinger serums and vaccines, and has sent a deputation to the minister of health requesting that it be allowed to do this.

PARIS

(From Our Regular Correspondent)

Oct. 19, 1923.

The Thirty-Second French Congress of Surgery

The thirty-second congress of the Association française de chirurgie was held, October 8-12, at Paris, under the chairmanship of Dr. Témoin of Bourges. Of the topics discussed, transfusion of blood awakened the greatest interest. Transfusion concerns both surgeons and physicians. The association, therefore, appointed Prof. E. Jeanbrau of Montpellier and Dr. Victor Pauchet of Paris to treat the question from the surgical point of view, and invited Dr. P. Emile Weil, physician to the hospitals of Paris, to present the medical aspects.

As Jeanbrau well said, while transfusion of blood is, above all, a biologic question, it belongs also to the fields of physiology, histology, physical and biologic chemistry, and immunology. Jeanbrau referred to the work of Hayem, which had pointed the way to many later discoveries. Many facts definitely established by him have been rediscovered after laborious experimentation which a perusal of his book, published in 1882, would have made unnecessary.

In discussing the modern technic of blood transfusion, Jeanbrau emphasized particularly the use of citrated blood, which he had personally advocated in the army during the war. Before becoming acquainted with the researches of his predecessors (Hustin of Brussels, Agote of Buenos Aires and Lewisohn of New York), he had developed, in 1917, a technic that required no particular skill or special equipment. Since, still simpler procedures have been described by Ameuille, Weil, Bécart, Bourret and Béraud. All are modifications of the method of Lewisohn. Notwithstanding the objections that have been raised in the United States to the transfusion of citrated blood, Jeanbrau has remained a strong adherent of the method. The disadvantages of citrated blood appeared to him slight as compared with its great advantages, and he is thoroughly convinced that, in civil as well as in military practice, in surgery as well as in medicine, transfusion of citrated blood remains the method of choice, because of its simplicity, its safety and its effectiveness.

For the selection of donors, the Moss test, simplified by Beth Vincent, which was used by American army surgeons in France during the war, is highly efficient, but necessitates the use of standard serums of Groups II and III, which are not always at hand. In their absence, one may resort to the direct method of determining whether or not the serum of the patient agglutinates the corpuscles of the prospective donor. Jeanbrau has devised an exceedingly simple and always available procedure. From 2 to 3 c.c. of blood is drawn from the patient and allowed to coagulate; a drop of the serum is spread on a dry slide, and a drop of blood from the prospective donor, obtained from the ear, is added. If agglutination occurs, there appear in the clear serum, within a minute or two, minute, star-shaped particles that resemble fragments of broken brick. It must be admitted that these direct tests are subject to error, particularly if the blood is poor in agglutinins; if the subject has absorbed certain drugs (arsphenamin, acetylsalicylic acid) or is on a diet poor in vegetable substances. But, in emergency cases, when the life of the patient hangs in the balance, there should be no hesitation, for statistics show that, in subjects free from blood diseases, the risks from agglutination do not exceed 3 per cent.

In addition to the use of such anatomic methods, the transfusion should be given slowly, and stopped every twenty or thirty seconds to interrogate the patient. If the latter experiences any uncomfortable sensations—lumbar, abdominal or thoracic pains; dyspnea; a sense of oppression in the precordium, or formication in the limbs—the transfusion must be interrupted at once, for the blood being injected is unsuitable. This is a wise precaution even when careful preliminary tests have been made. In order to save a donor useless loss of blood, Jeanbrau advises that from 30 to 40 c.c. of blood be drawn from a vein different from that which is to be used for withdrawing the blood for the transfusion. This preliminary blood is citrated and injected with a syringe. If this injection is not well borne, the donor is rejected; if it is favorable, the blood necessary for the injection is then collected.

In the selection of donors, it should be borne in mind that blood relatives do not always belong to the same group, and, in particular, that the serum of a child may agglutinate the corpuscles of the mother. It is necessary also to repeat the tests before later transfusions even from the same donor to the same recipient, as specific isohemolysins and iso-agglutinins may develop after the first transfusion (Ottenberg, Kaliski, Friedmann). It is usually preferable, when a second transfusion is to be made, to select a fresh donor; if this is not done, at least a direct test of the blood should be made before each transfusion.

In severe hemorrhage, the injection of artificial "serums" (salt solution, sugar-salt solution, etc.), though it may prolong, will not preserve, life. The mechanism of death from hemorrhage is complex. The cause does not lie solely in the lack of corpuscles or difficulties of circulation, but rather in a complex of interlocking phenomena, such as lowered blood pressure; anemia of the bulb, cerebral cortex and ganglions of the heart, and dehydration of nerve tissue, which together produce lesions incompatible with the continuance of life. To prevent death, it is necessary, before these irremediable lesions have been produced, that blood pressure be raised, the nerve centers be supplied with fresh oxygen, and the lost plasma be restored to the tissues. The transfused blood acts, above all, by bringing to the nerve centers and heart ganglions the oxygen necessary for the continuance of life at a moment when the organism is incapable of hematopoiesis. As Charles Richet puts it, before the patient can survive a week, he must survive half an hour. Blood introduced by transfusion into a

patient suffering from severe hemorrhage acts, if compatible, in the same manner as the patient's own blood. The transfused corpuscles are not destroyed, but continue to live. The absence of hemoglobinuria, even after eight days, may be taken as proof of the resistance of the corpuscles.

Transfusion exerts a powerful hemostatic action, as pointed out by Hayem in 1884. It constitutes the best means of checking inaccessible hemorrhages, such as hematemesis from gastroduodenal ulcers, the intestinal hemorrhages of typhoid fever, and hemorrhages of the new-born. The foreign blood introduces into the organism thromboplastic substances which arrest hemorrhage when other means have failed.

In establishing the indications for blood transfusion in cases of severe hemorrhage, nothing can take the place of the personal experience and clinical acumen of the surgeon, since the variations in the resistance of different subjects are too great to permit the formulation of absolute rules. However, hematologic data and study of the blood pressure by means of the Pachon oscillometer give valuable information. According to Depage and Govaerts, the following erythrocyte counts must be regarded as indications for transfusion in subjects suffering from limb injuries: less than 4,500,000 during the first three hours; less than 4,000,000 during the first six to eight hours, or less than 3,500,000 in the first twelve hours. Again, the progressive, continuous and irreducible lowering of the maximal pressure, the minimal pressure and the oscillometric index (in spite of intravenous injections of salt solution) points to an irremediable decompensation and is of itself an indication for blood transfusion.

Pauchet discussed the effects of blood transfusion in shock from accident or operation; in preoperative or postoperative care; in exogenous poisoning (acute intoxication from mushrooms, carbon monoxid, illuminating gas, morphin, etc.), and in endogenous poisoning (uremia, puerperal eclampsia, uncontrollable vomiting of pregnancy, acidosis, thyrotoxemia, etc.). All forms of intoxication should be treated first by the usual methods; if these fail, without further delay, copious bleeding should be performed, followed by the transfusion of an equal amount of either pure or citrated blood. One should not wait until the subject is moribund before beginning this operation; the longer the delay, the less the chances of success.

Weil emphasized the medical indications for transfusion, particularly in diseases of the blood. In hemophilia during hemorrhagic crises, blood transfusion acts both as a hemostatic and as a remedial agent for the anemia. In the intervals between crises, and to prevent recurrence, transfusion yields place, for reasons of convenience, to subcutaneous injection of human or animal blood serum. It cannot be too strongly emphasized, however, that one should never give a person subject to hemophilia subcutaneous injections of whole blood. While blood serum is well borne, whole blood may give rise to subcutaneous hemorrhages that cannot be checked, and result in diffuse hematomas. In the purpura-like hemorrhagic tendency that affects women almost exclusively, blood transfusion is not indicated during the crises; it is less effective than subcutaneous injections of serum or of whole blood. Transfusion of blood is, however, indicated in the interval treatment of these patients.

The hemorrhagic syndromes of intoxication, notably from arsenicals, are sometimes brought rapidly under control by blood transfusion; but, to accomplish this, the method must be promptly applied, and not delayed until the symptoms have become alarming and all forms of treatment are of doubtful efficacy.

Anemia constitutes one of the most frequent and most positive indications for blood transfusion. In grave anemia, transfusion should be repeated whenever there is a drop in the erythrocyte curve, and a falling off in the general condition of the patient. There is no danger of sensitizing the patient. The amount of blood given at each injection will range from 150 to 400 gm., depending on the degree of anemia. Mild symptomatic anemia may be treated by ordinary medical agents; but, when the anemia becomes severe, these should be supplemented by transfusion. Anemia developing during convalescence from an infectious disease (particularly, acute articular rheumatism or typhoid fever) is frequently relieved by a single blood transfusion. In anemia associated with tuberculosis or cancer, blood transfusion may be employed to improve the general condition of the patient for any definite purpose: an operation, for example. Anemia of unknown origin should be given the benefit of the doubt and be treated systematically by transfusion. Certain grave types of pernicious and progressive anemia often improve under such treatment. Anemia associated with splenomegaly or hemolysis usually benefits less from transfusion; however, after splenectomy, this treatment may be effective. The general condition of the patient may improve and the erythrocyte count may return to approximately normal. Anemia and hemorrhage in the new-born and in infants may be effectively combated by transfusion of maternal blood.

BERLIN

(From Our Regular Correspondent)

Oct. 13, 1923.

Union of the Berlin Medical Associations

Even before the war, the desire was repeatedly expressed that the numerous medical associations of Berlin, about twenty in number, might be united. The reasons for such a union will be readily apparent. The members of the various associations will thus save both dues and time, especially in view of the fact that the associations have been in the habit of holding their sessions on different days of the week. The originators of the plan of union had not only the Deutsche Naturforscherversammlung in mind but also the British Medical Association and the American Medical Association, with their various sections. Heretofore, the realization of this plan has been frustrated by the chairmen of the associations, many of whom feared that a union would affect disadvantageously their position. During the war, it proved possible to effect a temporary union of the associations, particularly as there were not sufficient men or material to supply all the various associations. Now this condition has taken on a more permanent aspect. Some societies are still holding aloof, but it is expected that, if the new arrangement works satisfactorily, these will fall in line. The Berlin Medical Association, the largest medical society in Germany, which formerly met once a week in winter, is to meet, for the present, only every other week, but the sessions will last two hours, in place of an hour and a half. On these evenings, no other associations will hold meetings. On Wednesday of the intervening week, the special societies will meet; formerly, these meetings were held on other days of the week. Since almost all the special societies meet in the Charité, the new arrangement simplifies matters very much and makes for economy of time and money.

The Seventieth Birthday Anniversary of Professor von Kries

The beginning of October, Professor von Kries, physiologist of the University of Freiburg, celebrated his seventieth birthday. On beginning his university studies, at the age of 16, he was undecided whether to devote himself to philosophy or to medicine. He chose medicine as his major work, but studied also mathematics and physics. After receiving his doctor's degree, he became an assistant of Helmholtz, and wrote his first treatise: "Ueber die Ermüdung des Sehnerven." Later he was assistant to Ludwig, and, at the age of 25, he became an instructor in physiology at the

University of Leipzig. During this period of his career, he published several valuable treatises on physiology of the senses. In 1880, he accepted an appointment as assistant professor at the University of Freiburg, and, in 1883, he was made professor. The 150 treatises that he has published deal with almost all fields of physiology, especially the circulation of the blood. He is the originator of the method of "Flammentachographie." His researches on the effects of the alternating current on nerves are of value in general practice. In the field of optics his so-called duplex theory is particularly noteworthy, according to which vision, in bright or dim light, is based on the activity of two distinct nerve elements, the rods and cones. In 1923, he published a large work on physiology of the organs of sense.

Exchange Scholarships for American and French Students

The American Women's Club, the American Field Service and the Fraternité franco-américaine recently presented in Paris an American film entitled, "The Cross-Roads of the Old World." It represents the Northeast of France, the historic battle grounds for many a death struggle. The film shows the different aspects of life in these regions, before, during and since the war. The profits from the exhibition of this film in the United States will be used to establish exchange scholarships for French students in America and American students in France.

Public Health Activity in Germany

At the end of September, the Children's Hospital in Dresden, which was founded in 1834, had to be closed for lack of funds to pay the operating expenses.

Personal

Geheimrat F. Hofmann of Bonn has accepted a chair in physiology at the University of Berlin.

Marriages

JORDAN LALLY, Long Beach, N. Y., to Miss Muriel Townsend Fincke of Bloomfield, N. J., in New York City, September 15.

HARRY F. GOCKLEY, South Fork, Pa., to Miss Catherine Young of Philadelphia, at Ebensburg, Pa., November 1.

ROBERT MITCHELL TAYLOR, East Haven, Conn., to Miss Margaret Lyles Watkins of Blanche, N. C., October 31.

DONALD AINSLEE PALMER, Castle Rock, Colo., to Miss Helen Andrine Onserud of Wisdom, Mont., September 14.

WILLIAM GETZ THUSS, Birmingham, Ala., to Miss Sara Louise Benedict of Nashville, Tenn., September 25.

HUGH WESLEY WADE, St. Petersburg, Fla., to Mrs. Margaret Leet Beckman of Altoona, Pa., October 29.

CHARLES L. GARRIS, Dowell, Ill., to Miss M. Agnes Lawlor of St. Louis, at St. Joseph, Mo., recently.

RICHMOND DOUGLASS, Shanghai, China, to Miss Margaret Esther Erskine of Danville, Ky., recently.

ST. JOHN LUKEMEYER, Francisco, Ind., to Miss Mary Frances Throop of Paoli, September 15.

WALTER GARFIELD HILTNER, Shanghai, China, to Miss F. R. Mead of Plainfield, N. J., recently.

RAYMOND J. BERGHOFF to Miss Kathryn Martin, both of Fort Wayne, Ind., September 18.

WILLIAM O. FLOYD, Nashville, Tenn., to Miss Inez L. McGee of New Orleans, September 16.

JOHN CHAMPLIN, JR., to Miss Nita Helen MacDonald, both of Westerly, R. I., October 27.

DAVID T. TAYLOE, JR., to Miss Eleanor Berry, both of Washington, N. C., October 2.

CLARENCE M. HYLAND, Cleveland, to Miss Mabel Brown of Omaha, September 1.

DU VAL PREY to Miss Virginia Barrett, both of Denver, September 18.

Deaths

Matthew Joseph Brady, Detroit; Bellevue Hospital Medical College, New York, 1883; member of the Michigan State Medical Society; associate clinical professor of gynecology at the Detroit College of Medicine and Surgery; for twenty-five years gynecologist to St. Mary's Hospital, and for ten years on the staff of the Providence Hospital; aged 67; died, October 19, of acute articular rheumatism.

Gordon Robert Hall, Brooklyn; Medical Department of Columbia College, New York, 1880; member of the Medical Society of the State of New York; formerly associate professor of medicine at the Long Island College Hospital, Brooklyn; on the staffs of the Kings County, Brooklyn, and the Long Island College hospitals; aged 74; died suddenly, October 23, of mitral regurgitation.

Holdsworth Wheeler Bond, St. Louis; St. Louis College of Physicians and Surgeons, 1890; instructor of anatomy at the Marion-Sims College of Medicine, St. Louis, 1894-1904; for five years city health commissioner; formerly member of the state board of health and on the staff of the St. Louis City Hospital; aged 56; was accidentally shot, October 20, while hunting near Grafton, Ill.

Joseph Johnston Sherrill, Hot Springs National Park, Ark.; University of Illinois College of Medicine, Chicago, 1903; formerly professor of genito-urinary surgery at Rush Medical College; served in the M. C., U. S. Army, in France, during the World War; aged 54; died, October 15, in San Francisco, of pneumonia, while attending the American Legion convention.

Ralph Putnam, Winchester, Mass.; Medical School of Harvard University, Boston, 1901; member of the Massachusetts Medical Society; formerly on the staff of the State Infirmary, Tewksbury; aged 47; died, October 17, at the Peter Bent Brigham Hospital, Boston, following an operation.

Robert Newton Disbrow, New York; Bellevue Hospital Medical College, New York, 1877; on the staffs of the Manhattan Eye, Ear, Nose and Throat, St. Luke's and Metropolitan hospitals; aged 71; died, October 23, at St. Bartholomew's Hospital, following an operation.

Bernard Segul O'Brien ⊕ Louisville, Ky.; University of Louisville Medical Department, 1903; formerly assistant professor of orthopedic surgery at his alma mater; on the staffs of the Louisville City and Children's Free hospitals; aged 43; died, October 22, at St. Joseph's Infirmary.

Ralph Bertrand Raney, Crowley, La.; Homeopathic Medical College of Missouri, St. Louis, 1894; formerly secretary-treasurer of the Acadia County Medical Society; served in the M. C., U. S. Army, during the World War; aged 54; died, October 20, of carcinoma.

Theodore Owen Barklow, Chicago; Northwestern University Medical School, Chicago, 1921; on the staff of the Illinois Central Hospital; aged 25; died, October 8, of injuries received when the automobile in which he was driving was struck by a train.

Leonard Philip Collins ⊕ Logansport, Ind.; Indiana University School of Medicine, Indianapolis, 1911; served in the M. C., U. S. Army, during the World War; aged 36; died, October 16, from a self-inflicted bullet wound, while suffering from ill health.

Martin W. Cushing, Joliet, Ill.; College of Physicians and Surgeons, Chicago, 1892; member of the Illinois State Medical Society; for many years city health officer; formerly member of the city council; aged 71; died, October 20, of pneumonia.

Ray David Cassady, Etna, Pa.; University of Pittsburgh School of Medicine, 1920; member of the Medical Society of the State of Pennsylvania; on the staff of St. Margaret's Hospital, where he died, October 22, of pneumonia, aged 31.

Frederick Henry Ladd ⊕ St. Joseph, Mo.; Ensworth Medical College, St. Joseph, 1898; served in the M. C., U. S. Army, during the World War; aged 54; died, October 19, at St. Joseph's Hospital, following an operation.

William M. Haslam, Pinehurst, Ga.; Atlanta (Ga.) Medical College, 1883; also a druggist; Confederate veteran; formerly mayor of Pinehurst and member of the city council; aged 83; died in September, of senility.

Anna Kay Scott, Granville, Ohio; University of Wooster Medical Department, Cleveland, 1878; for many years a med-

ical missionary in China; formerly a practitioner in Chicago; aged 85; died, October 18, of senility.

Charles Monroe Cannon ⊕ St. Paul; Bennett College of Eclectic Medicine and Surgery, Chicago, 1888; formerly member of the state board of medical examiners; aged 62; died, October 17, of pneumonia.

Charles E. Gain, London, Ohio; Columbus (Ohio) Medical College, 1891; member of the Ohio State Medical Association; formerly postmaster of London; aged 58; died, October 17, of heart disease.

Gibson P. Livingston, Waterloo, Ill.; Missouri Medical College, 1877; aged 66; died, October 13, at St. Joseph's Hospital, Alton, of injuries received when struck by an automobile.

John Douglas Mitchell, Fort Worth, Texas; Hering Medical College, Chicago, 1893; secretary of the state board of medical examiners; aged 50; died, October 13, of heart disease.

Nathan W. Abell, Chicago; Missouri Medical College, Chicago, 1877; member of the Illinois State Medical Society; aged 74; died, October 30, of cerebral hemorrhage.

John Alonzo Nolan, New Athens, Ill.; Washington University Medical School, St. Louis, 1904; aged 59; died, October 20, at St. Vincent's Hospital, Belleville.

Henry Julian Allen, Denver (licensed, Colorado, 1889); Civil War veteran; formerly member of the state legislature; aged 84; died, October 10, of senility.

Joseph L. Burns, Jonesboro, Ark.; Vanderbilt University Medical Department, Nashville, Tenn., 1879; aged 72; died, October 15, of cerebral hemorrhage.

Curtis Laughlin ⊕ Steubenville, Ohio; Ohio Medical University, Columbus, 1902; aged 45; died, October 17, at Logansport, Ind., of cerebral hemorrhage.

Joseph Paul Stoye ⊕ Theresa, Wis.; Rush Medical College, Chicago, 1897; aged 55; died suddenly, October 26, of heart disease, while attending a patient.

Louise Schneider P. Blum, Bethlehem, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1879; aged 69; died, October 13, of heart disease.

Wilfred Dorman Dean Herriman ⊕ Chicago; Trinity Medical College, Toronto, Ont., Canada, 1891; aged 54; died, October 30, of angina pectoris.

Charles Rhett Taber, Jr., Dillon, S. C.; Kentucky School of Medicine, Louisville, 1893; aged 53; died, October 8, at a hospital in Fayetteville, N. C.

Joseph M. Reynolds, Redfield, Ark.; Kentucky School of Medicine, Louisville, 1882; Confederate veteran; aged 76; died, October 15, of senility.

Henry Morris Laing ⊕ Dallas, Pa.; College of Physicians and Surgeons, Baltimore, 1884; aged 61; died, October 20, following a long illness.

Clark N. Starry ⊕ Coffeyville, Kan.; Kansas City (Mo.) Homeopathic Medical College, 1897; aged 52; died, October 17, of heart disease.

Sarah Brelsford Duncan, Chicago; Hahnemann Medical College and Hospital, Chicago, 1893; aged 74; died, October 31, of carcinoma.

William F. Westcott, Delaware, Ohio; Eclectic Medical Institute, Cincinnati, 1877; aged 70; died, October 15, of arteriosclerosis.

Agrippa Gayden, Norwood, La.; Medical Department of the Tulane University of Louisiana, New Orleans, 1877; aged 70; died recently.

James Jordan McCane, New Orleans; Medical Department University of Louisiana, New Orleans, 1882; aged 63; died, October 19.

William N. Hicks ⊕ Durham, N. C.; Medical College of Virginia, Richmond, 1864; aged 83; died, October 17, of senility.

Charles B. Grover, Greensburg, Ind. (licensed, Indiana, 1898); formerly county coroner; aged 72; died, October 25.

Henry Little, Oakland, Ore. (licensed, Oregon, 1891); also a dentist; aged 65; died, October 2, of arteriosclerosis.

Zach L. Ford, Newport, Ark. (licensed, Arkansas, 1903); aged 60; died suddenly, October 19, of heart disease.

Jacob Buehler, Indianapolis; Medical College of Indiana, Indianapolis, 1891; aged 71; died, October 1.

Richard Law Meers, Ashland, Ohio (years of practice); Civil War veteran; aged 98; died, August 19.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

"MONEY IN MUD"

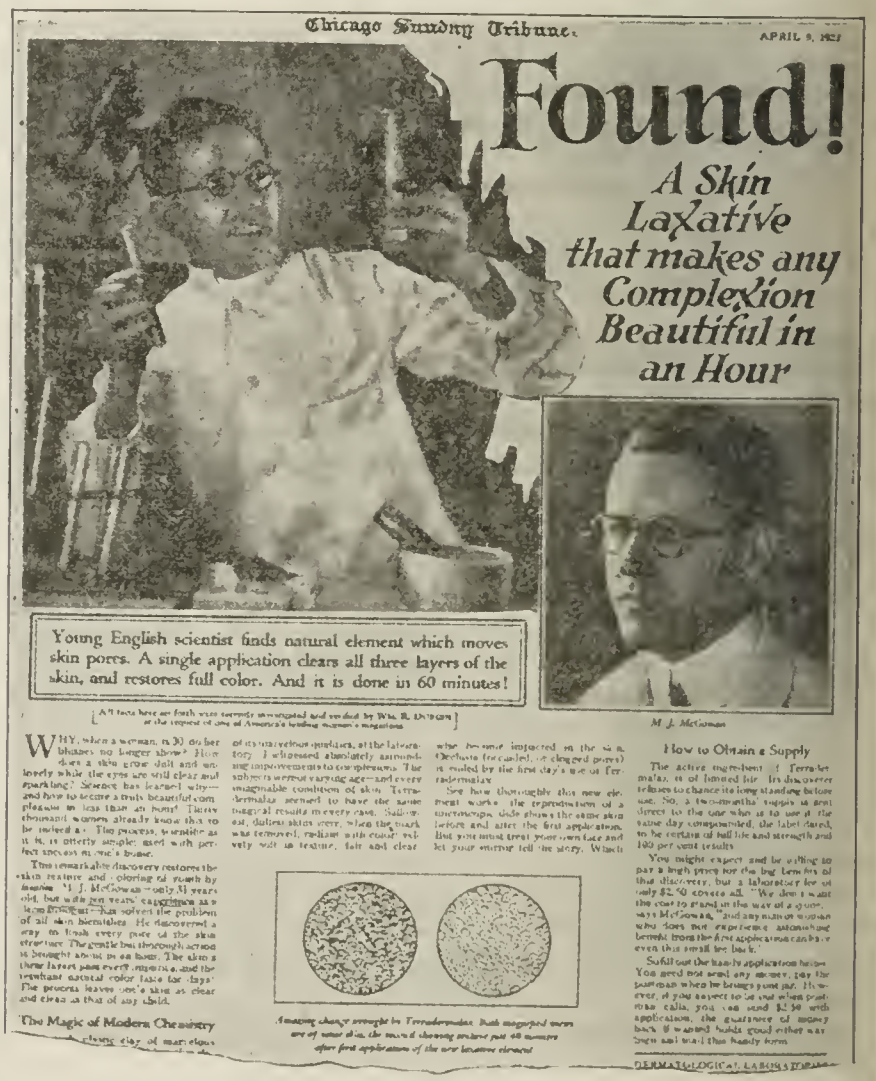
"The Claims and Composition of Some Complexion Clays"

[The article that follows, dealing with some of the most widely exploited complexion clays, appears in the current (November) issue of *Hygeia.* It is reprinted here for the information of the many physicians who have written to THE JOURNAL for data on one or more of the products discussed therein.—ED.]

Next to nostrums sold for the alleged rejuvenation of the male, the most popular form of contemporary charlatanry lies in the exploitation of alleged beautifiers for the female. During the last year or two the cosmetic market has been glutted with a veritable avalanche of so-called complexion clays and face packs. The fad has almost burnt itself out and the druggists who stocked up with those brands that were sold through the retail channels have been left, as usual, holding the bag.

TERRA-DERMA-LAX

One of the most blatantly advertised of the complexion clays is "Terra-derma-lax." This preparation, a small jar of which sells for $2.50, is alleged to be the "remarkable discovery of a young English scientist," one M. J. McGowan, whose picture adorns most of the advertising. According to the advertisements, McGowan, while only thirty-one years old, has had "ten years' experience as a dermatologist." Investigation has failed to show that Mr. McGowan ever had


Chicago Sunday Tribune. APRIL 8, 1923

Found!

A Skin Laxative that makes any Complexion Beautiful in an Hour

Young English scientist finds natural element which moves skin pores. A single application clears all three layers of the skin, and restores full color. And it is done in 60 minutes!

M. J. McGowan

How to Obtain a Supply

DERMATOLOGICAL LABORATORIES

No, this is not Harold Lloyd in "Safety Last" nor Ed. Wynn in "The Perfect Fool." It is Mr. M. J. McGowan posing as a scientist for the purpose of selling "Terra-derma-lax." The advertisement claims that Mr. McGowan has had "ten years' experience as a dermatologist"; investigation has failed to show that the gentleman ever had ten minutes' experience as a dermatologist.

even ten minutes' experience as a dermatologist or that he had ever made a single contribution to scientific literature. Inquiries have elicited the information that this "scientist" worked in a subordinate capacity in the soap and fertilizer departments in the Chicago stockyards.



"Mineralava" is said to "draw forth gently and naturally" dust, grease, and the other impurities that "modern life jams deep down into the skin." A dermatologic corkscrew, as it were. And all in twelve minutes. The speed demon of complexion clays.

Since the slump in complexion clays the "young English scientist" has made two new discoveries. One is a "Reducing Cream which Melts away excess fat at any part of the body—slenderizing the figure to perfect proportions without drugs, exercises, diet, rubber suits or painful denial of any kind." This marvel, "Reducine," women are asked to believe, was the result of "five years of tireless research." The other discovery is one that "grows hair with amazing rapidity—glorious, lustrous, beautiful hair." It is called "Nitrox." McGowan declares that he has "been experimenting with hair culture for years" and has "tried and tested every known hair stimulant and tonic recognized by Science." The advertising campaign for Nitrox might convince any reasonable minded person that the preparation would make a wild-haired bolshevik out of a billiard ball.

But to return to McGowan's dermatologic triumph, Terra-derma-lax. In its first stages the business was a mail-order one. The public was told that "Terra-derma-lax cannot be stocked by druggists" as the "active ingredient that loosens the pores of the skin structure must be fresh." The clay wouldn't keep! Later it was decided, apparently, that the product would stay fresh long enough for the retail druggist to assume some of the financial responsibility for handling it. Then feminine seekers after beauty were told: "Stop at your dealer's today and ask for Terra-derma-lax."

BONCILLA

The "Original, Genuine, Clasmic Facial Pack" is "Boncilla Beautifier"—$1.00 for a two ounce tube. With it, "you don't have to wait weeks and months to see results"; you spread the stuff on your face, allow it to dry, and when you remove it find a "youthful complexion, beauty that is natural, lasting, real." Nor is this all:

"If there is an 'over fat' condition of the face, Boncilla Beautifier, by its peculiar action in opening the oil ducts reduces this condition."

Thus, Boncilla holds out hope for the fat.

"On the other hand, if the face is thin and pale, the wonderful flow of blood brought to the face builds up the hungry facial tissues, giving them a renewed plumpness and firmness."

So that there is also hope for the lean, and the searcher for beauty is caught coming and going. Have you lines in your face, Boncilla will make them vanish; in fact, "you can feel Boncilla lifting out the lines."

Boncilla has been recommended also to men for its "rejuvenating benefits." The advertisers had the right appeal. In this connection a news item that appeared in a drug journal not many weeks ago is of interest. It was to the effect that a prize-fighting motion picture star had filed suit for $75,000 libel against the Boncilla concern. The actor, it seems, charged that the "beauty clay" people had advertised that he had used the Boncilla Beautifier; as a result of this claim he was "kidded so about it by his friends that he suffered much humiliation." Can you blame a prize-fighter for feeling that way about it? If such things are permitted to go unchallenged, some enterprising exploiter of cosmetics will be publishing a testimonial from Dempsey on the use of lip sticks.

DOMINO COMPLEXION CLAY

"I could hardly believe my eyes. Just thirty minutes before my face had been blemished and unsightly; my skin had been coarse, sallow and lifeless. Now it was actually transformed. I was amazed when I saw how beautiful my complexion had become—how soft its texture, how exquisite its coloring."

Thus, the opening blurb from a full-page advertisement of "Domino Complexion Clay." The advertisement is one of those heart-to-heart, personal, and confidential affairs so much affected by the exploiters of cosmetics. The story is supposed to be that of a woman whose skin was coarse, rough, pimply, and altogether not the kind "you love to touch." But one day she learned that "the outer layer of the skin, called the epidermis, is constantly dying." She learned this from a "remarkable announcement" which told "how scientists had discovered a marvelous clay" that would produce new complexions while you wait. Thus persuaded to use Domino Complexion Clay, she smeared it on her face at nine o'clock one evening. At nine-thirty she removed it; "and to my utter astonishment found that I had a brand new complexion."



"Ryerson's Forty Minute Beauty Clay" seems to be another name for McGowan's "Terra-derma-lax." They come from the same source. The illustration in the advertisement reproduced has also been used in some of the "Terra-derma-lax" advertising.

The Domino people, aside from doing a mail-order business, will use agents. Women who are desirous of making pin money are urged to act as "confidential advisers" for the sale of Domino Complexion Clay. The retail price of the clay is $3.50 a jar. The Domino concern will furnish agents with seven jars for $10.00 which permits a profit to the agent of

more than $2.00 a jar. How much profit the Domino concern makes is not disclosed. The necessary qualification for becoming a pedler — pardon! "confidential adviser" — for Domino Complexion Clay is that you shall "talk in a quiet, genteel way about Domino Complexion Clay to a few of your friends."

MINERALAVA

"Mineralava," price $2.00 a bottle, is "Nature's Beauty Clay"; and its use is "Nature's Way to Beauty." The manufacturer admits it. Needless to say, it had a wonderful origin. It was the result, we are told, of "twenty-three years of scientific research and experiment" on the part of one Mrs. M. G. Scott. For some unknown reason Mrs. Scott is not a scientist, but a "fashionable specialist."

You see, it is all done by opening the pores. The advertising features the old yarn about the boy who, in medieval times, was gilded from head to foot and who died in two hours because "all of his pores were clogged." The woman seeking beauty is told that "it is only when the pores can breathe that the face blooms and lives." The stuff would appear to be a veritable dermatologic corkscrew:

> All the dust of cities, all the grease and impurities that modern life jams deep down into the skin—hitherto quite unremovable—are now drawn forth gently and naturally and completely by Mineralava, in one application.

And "all in twelve minutes."

FORTY MINUTE BEAUTY CLAY

According to the label on the jar, the "Forty Minute Beauty Clay" is an English product; according to the newspaper advertisements, it is a Welsh product. You pay your money and take your choice.

Of course, Forty Minute Beauty Clay was a "discovery." The discoverer is alleged to have been one Martha Ryerson, who had "the worst skin a girl could have." The story runs that Martha took her complexion to Wales, and while there "exchanged it for one of soft texture and full of color." Miss Ryerson was struck by the "uniformly beautiful complexions" of the Welsh girls and women. While in the Welsh hills, she was surprised to see a young woman—"a stolid maiden of the Hills"—with her face covered with mud.

The native, seeing her surprise, said — according to the advertisements—"Madame does not clay?" Evidently the "stolid" Welsh girl was a French maid in disguise! The girl wiped the clay off her face and "stood in all the glory of a *perfect* complexion."

Inquiring further, Martha learned that "the natives made a weekly habit of claying the skin." Thereupon, she did a little "claying" herself. She describes vividly how the "impurities" were "literally pulled out." In half an hour she removed the clay and found herself so beautiful that when she met her father she "thought his questions would never end." For "Father is a chemist." Father came back home to Chicago where, according to Martha, he experimented again on her and all her "girl friends" and finally produced a compound "as miraculous in its effects" as the clay "used by the peasants abroad." So was born Forty Minute Beauty Clay, price $5.00 a jar. Use it and the "changes brought about in less than an hour will cause open mouthed astonishment"; the advertisement says so.

Such is the advertising yarn regarding the "discovery" of Ryerson's Forty Minute Beauty Clay. What are the facts? Forty Minute Beauty Clay and McGowan's Terra-derma-lax are one and the same thing—an employee of the concern admits it. For a while the two preparations were advertised from different addresses; today they come from the same address. The slump in the "beauty clay" business evidently called for a cut in the "overhead." So the stories of McGowan's alleged scientific research leading to the discovery of Terra-derma-lax and Martha Ryerson's "stolid Welsh maiden," who talked like a French maid, would seem to be pure advertising hokum. Barnum was a piker!

WHAT THE CHEMISTS FOUND

Women seeking short cuts to beauty, having read the complexion clay advertisements, have asked: What are these products for which such marvelous results are claimed? To answer the question the aid of the Chemical Laboratory of the American Medical Association was enlisted. The five widely advertised nostrums just discussed were purchased and turned over to the chemists. Here is the laboratory report:

> "The products examined were: (1) 'Terra-derma-lax,' (2) 'Boncilla,' (3) 'Domino Complexion Clay,' (4) 'Mineralava,' and (5) 'Ryerson's Forty Minute Beauty Clay.'
>
> "Boncilla Beautifier comes in a collapsible tube like tooth-paste. Terra-derma-lax, Domino Complexion Clay and Ryerson's Forty Minute Beauty Clay are marketed in ointment jars. Mineralava Beauty Clay is sold in a wide-mouthed bottle accompanied by a brush with which to spread the contents on the face..
>
> "No information concerning the composition of the several products was given on their labels except such as is contained in their names. The presence of clay in all except one (Boncilla Beautifier) is admitted by the manufacturer. Each of the products was a bluish mass of about the consistency of soft putty. Each resembled a mixture of clay and water. Some of the specimens were softer than others and contained more water.
>
> "While the preparations were being studied, there were various rumors current among chemists concerning their composition. With one exception, no substance other than clay, water, and perfume was found.
>
> "Water was determined by drying a portion of the material at 100 C. The proportions of moisture in the several specimens varied considerably, as shown in the tabulated findings.

	"Per Cent. Water
"Terra-derma-lax	62.7
"Boncilla Beautifier	48.0
"Domino Complexion Clay	38.5
"Mineralava Beauty Clay	50.8
"Ryerson's Forty Minute Beauty Clay	61.4

> "One specimen, Domino Complexion Clay, contained about 5 per cent. of glycerin and about 0.2 per cent. of a salicylate, probably sodium salicylate. Most of the specimens contained considerable quantities of calcium carbonate (chalk) and small quantities each of phosphate and sulphate. These are constituents of some crude clays and their presence indicates that the clays used are evidently not high-grade products nor are they carefully purified before being used.
>
> "From the analysis it is concluded that Terra-derma-lax, Boncilla Beautifier, Domino Complexion Clay, Mineralava Beauty Clay and Ryerson's Forty Minute Beauty Clay are essentially mixtures of clay and water."

Great is the power of words and wonderful the potentialities of modern advertising. Who would have believed that so prosaic a product as clay could be endowed with such esoteric qualities? A study of the "patent medicine" business convinces one that with the right kind of advertising "copy" and a large advertising appropriation one could become rich by selling pink dish-water as a curative agent.

Here is a helpful hint for those women who think the path to beauty lies through the clay route: Go to your neighborhood druggist and purchase a pound of kaolin (dried, powdered clay). It will cost about twenty cents. Mix it with the same weight of water. You will then have two pounds of beauty clay equal in beautifying power to, and purer than, any of the products on the market that are sold for from $2.00 to $10.00 a pound. The only thing you will lack is the mental uplift produced by reading the ineffable bosh published by the complexion clay exploiters.

Centuries ago a wise man wrote: "The getting of treasures by a lying tongue is a vanity." Today "the getting of treasures by a lying tongue" is an advertising art.

A Pioneer in Artificial Pneumothorax.—Even before Carlson's experiments with pneumothorax in the rabbit in 1821 and Ramadge's trial of the method in man a few years later, another English physician, Gilchrist, who studied in France, described its principle in a book dealing with the usefulness of sea voyages in the cure of several diseases, and especially tuberculosis. His "tuberculous abscess" was, however, it seems, never actually tried by him. Even long before that, Hippocrates had suggested the method, as pointed out by Young in 1815.

Correspondence

PRACTICE OF MEDICINE AND THE PRESS

To the Editor:—I presume you have read some of the recent articles in the St. Louis *Star,* exposing the existence of the "Medical Diploma Mill" and the fraudulent purveyors of fake high school credits. The medical men of Missouri, of course, like all decent men everywhere, are ready to do all they can to help bring criminals of whatever sort to justice. But is this paper's thinly veiled attitude of unfriendliness toward the regular medical profession necessary to rid the state of these shrewd rascals? It is demanding loudly and persistently that the medical profession reform itself.

Now let us go back a year or two. When the Missouri legislature was in session in 1922, a bill was introduced for the purpose of lowering the standard of medical education in Missouri. This proposed bill was to open the way by which untrained men could with much less difficulty obtain a license to practice medicine somewhere. It put underequipped, nondescript medical schools on their feet. The medical profession of the state, through the county and state associations, vigorously opposed the measure throughout the sessions of 1922. Many doctors went to the state capital at their own expense to plead the cause of the highest standard of medical education. In spite of our combined efforts, the "low standard bill" went through, and Governor Hyde signed it. The fight was then taken up through the referendum; but, through the lack of a few signatures in one district, the referendum petition failed. The bars were let down, and Missouri became a Mekka for "fake doctors" from all the neighboring states as well as our own state.

I was a regular subscriber to the *Star* at this time, and was dismayed by the paper's attitude. I am sure the files would show that about the only thing said on the subject was a slur or two on the American Medical Association. Now the very thing has occurred that the earnest, hard working physicians all over the state warned against in their protest against this legislative act. The *Star* has the effrontery in the enclosed clipped editorial to warn the physicians of the country that if they don't do so and so an enlightened public opinion (sic) will as a sort of last resort turn to a "new system" of healing, etc. No doubt, the accumulated knowledge and all the achievements of the centuries will be consigned to the scrap heap. I wonder what system the *Star* would embrace. Would it be, perhaps, some modification of chiropractic or Abrams' E. R. A. or would it be entirely "new and novel"?

LAWRENCE L. SMITH, M.D., Bethel, Mo.

[See Current Comment, "Some Newspapers and the Practice of Medicine," this issue, p. 1613.]

"SLEEP"

To the Editor:—In the editorial on sleep and its relation to complete muscular relaxation (THE JOURNAL, October 20, p. 1366) you stated that "we have failed, heretofore, to realize the extent to which the impulses pouring into the brain come from the muscles, tendons and joints, proprioceptive impulses as they are often termed, in addition to the visual, auditory and tactile sensations that usually play on the sensorium."

Observations have been made and recorded that have formed the nucleus of interest in the work of my associates and myself for many years. Relaxation has been studied in connection with sleep, insomnia and nervous states (Use of Relaxation in Hypertensive States, *New York M. J.* **111**:419 [March 6] 1920; Reduction of Nervous Irritability and Excitement by Progressive Relaxation, *Tr. Sect. Nerv. & Ment. Dis. A. M. A.,* 1920, p. 17; Treatment of Nervous Irritability and Excitement, *Illinois M. J.* **39**:243 [March] 1921). An introductory observation was included in a laboratory report as early as 1912. We have devoted much time to the study of proprioceptive sensations from contracting muscles and acting joints, and have experimented to find whether the diminution of such sensations leads to sleep. Patients have been trained in methods to observe and diminish such sensations, as reported in the articles mentioned. The same has recently been repeated with laboratory subjects.

Possibly it may be of interest to add two further points. We have found that the individual need not be completely relaxed to fall asleep, provided he is not restlessly moving. Mild tetanic contractions do not prohibit sleep, provided the rate of change in contraction is not excessive. Apparently, the principle is the same as in the familiar experiment that a constant galvanic current does not excite the nerve-muscle preparation, but excitation arises when the current is sufficiently varied. In our experiments it has seemed that the most important among the muscles in relaxation that leads to sleep are those of the sense organs, particularly of the eyes.

EDMUND JACOBSON, M.D., Chicago.

POSTENCEPHALITIC MANIFESTATIONS

To the Editor:—In the discussion of Dr. Hunt's paper on epidemic (lethargic) encephalitis (THE JOURNAL, October 20), Dr. D. H. Morgan described an unusual case of postencephalitic manifestations. Dr. Hunt stated that he had seen none such and no explanation was offered. I have seen several similar although no identical symptoms, and submit an explanation.

Encephalitis, like other organic processes, often permits previously silent constituents of the unconscious to be revealed. Delirium with acute somatic illness often contains elements which seem meaningless and unintelligible, but which may be found on analysis to be largely comprehensible. An example of this occurring in uremia will shortly appear in the *Journal of Nervous and Mental Diseases.* The same phenomenon in general paralysis and other undoubted brain diseases has been described. In Dr. Morgan's case, encephalitis was the organic process. The symptom described, however, was obviously one on the psychologic (rather than the structural or sensorimotor) level; and, while referable indirectly to the brain damage by the encephalitis, is at the same time explicable only by consideration of psychic mechanisms. What these were in this particular case there is, of course, no saying.

Readers will no doubt be interested, however, in a similar case (Sokolnicka, Eugenia: *Internat. J. Psycho-Analysis* **3**:306 [Sept.] 1922) in which somewhat similar phenomena were studied and traced to their source, which, as is usual in these cases, is much more complicated and far reaching than one might suppose. Categorically, the symptom or syndrome is technically denoted a "ceremonial," which is a compulsive act required by the patient either of himself or of his associates, or both. In Dr. Morgan's case the child would not answer unless the question were asked, two, four or eight times. In Sokolnicka's case, in a boy, aged 10½ years, there were many ceremonials, some of which involved numbers, as for example that every object touched with one hand must then be touched in exactly the same way with the other hand before it could be moved. Numerous studies of number complexes have been made, including the familiar compulsions of counting bricks or poles, coughing a certain number of times before speaking, etc.

It is from a further study of such cases that we are most likely to arrive at a more satisfactory solution of the problem of mind versus brain. (Compare Bertrand Russell's statement of the dilemma, as presented in his recent Analysis of Mind.)

KARL A. MENNINGER, M.D., Topeka, Kan.

"FRACTURES OF THE NECK OF THE FEMUR"

To the Editor:—Replying to Dr. Royal Whitman's letter (Correspondence, THE JOURNAL, November 3), commenting on my article in THE JOURNAL, October 20: The object of my address was to determine the nature of union secured in central or intracapsular fractures of the neck of the femur, as the question of treatment had been fully discussed in previous contributions. Dr. Whitman is correct in assuming that I consider artificial impaction a minor factor.

The object of artificial impaction, as an adjunct, was to secure, if possible, an even higher percentage in which solid bony union occurred, for it is well known that impacted central or subcapital fractures unite by bony union in practically every case. This is due either to better fixation by impaction or to osteogenesis so induced.

I have never been able to feel that "something gives" and have only been able to demonstrate, by means of the roentgenogram, that actual impaction can be accomplished by artificial means. The very fact that impacted fractures do occur proves that "the fragile neck can penetrate the compact substance of the head," and, in central fractures "two cylinders of equal area may be forced into each other" if composed of spongy bone. Of course there is always a small degree of shortening, when impaction occurs, but certainly not appreciable if the chances of solid bony union are increased.

All cases have been controlled by roentgenograms and there has been no giving way of the posterior wall with distortion. In my series of fractures of the neck of the femur there occurred nineteen impacted central or intracapsular fractures which united with excellent functional results and solid bony union. This is material evidence in favor of increased nutrition and osteogenesis.

Dr. Whitman has brought out a most interesting point, which can only be decided by definite evidence, as shown by careful investigation in a number of cases. Fortunately artificial impaction has been used in about twenty cases. In only four can conclusions be given at the present time. In three there was solid bony union and in one fibrous union with good function. In a few months a complete report will be made demonstrating actual facts based entirely on practical experience.

WILLIS C. CAMPBELL, M.D., Memphis, Tenn.

FREQUENCY OF TRIPLETS

To the Editor:—An item in the New York news (THE JOURNAL, August 11, p. 484) states that triplets have been born twice in 100 years at the New York Nursery and Child's Hospital. At the Mary Johnston Hospital, Manila, triplets have occurred twice in less than seventeen years, in 7,243 maternity cases. The births, which were of Filipinos, took place in April, 1919, and July, 1923.

REBECCA PARISH, M.D., Manila, P. I.

VISUAL REQUIREMENTS OF AUTOMOBILE DRIVERS

To the Editor:—At the meeting of the House of Delegates of the Medical Society of Delaware, Oct. 8, 1923, a committee was appointed to determine the visual requirements of an automobile driver. This committee was composed of Drs. W. O. LaMotte, C. P. White and W. F. Bonner, chairman. The requirements decided on were visual acuity 20/40 in one eye, and 20/100 in the other. These results may be obtained by correction with glasses. In case one eye is blind or amblyopic, the sound eye must have a vision of 20/30 with correction. The driver should have good color vision and a depth perception of 35 mm. or less. These requirements will be recommended to the secretary of state of Delaware through the agency of the Delaware Safety Council for inclusion in the examination required before the first of January, 1924, for all paid automobile drivers.

WILLIAM F. BONNER, M.D., Wilmington, Del.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

"PREGL'S SOLUTION" FOR VARICOSE VEINS

To the Editor:—Within the last year have references been made in THE JOURNAL to "Pregl's solution" and its method of employment in cases of varicose veins of the leg?

C. O. THEINHAUS, M.D., Milwaukee.

ANSWER.—No reference to Pregl's solution has been given in THE JOURNAL, but "Chemical Abstracts" (Taken from *Schweiz. Apoth. Ztg.* **60**:322, 350) recently asserted that Pregl's (isotonic) iodin solution is "a semisecret preparation probably prepared as follows: To a solution of crystallized sodium carbonate, $Na_2CO_3.10H_2O$, 16 gm. in 30 gm. of water, add 3 gm. of finely powdered iodin and allow to stand twenty-four hours, rotating frequently; or warm to 40 C. on a water bath. When all of the iodin is in solution, add 4 gm. of sodium chlorid and water to make 1 liter. Bring this to 0.035-0.04 per cent. iodin by gently warming the solution or part of it until 20 c.c. is decolorized by 0.55-0.65 c.c. of tenth normal sodium thiosulphate, or until the tint is the same in equal liquid depth as that obtained by a mixture of ten drops of tenth normal iodin and 15 c.c. of water."

In the *Wiener klinische Wochenschrift,* 1921, p. 288, Pregl admits that the product would contain "sodium ions and free iodin, iodid ions, hypoiodite and iodate ions"—this in addition to the carbonate and chlorid. From the method of preparation—given above—it might be expected that the end-product would vary.

A rather comprehensive review of a proprietary brand of Pregl's solution (Sold as "Presoiod" in Germany) appeared in *Mededeelingen,* 1923, No. 5, p. 35. The conclusions reached in this article are as as follows: "1. 'Presoiod' is a solution of free iodin, iodid, hypo-iodite and iodate and some other inorganic substances. The various bottles have not always the same composition. Descriptions of the preparation of this solution are to be found in the literature. 2. 'Presoiod' has a bactericidal effect. An experimental basis for the therapy of the solution according to Pregl is not available. 3. The clinical literature affords no basis for expecting great results in treatment of sepsis or various localized inflammatory processes by Pregl's solution. 4. Intravenous injection of 'Presoiod' is connected with danger of thrombosis. The toxicity is small. 5. As neither chemistry nor biologic methods differentiate between 'Presoiod' and the solution prepared according to Herrmann, it may be supposed that the last can be used instead of the former in all cases."

All the favorable reports on the therapeutic use of Pregl's solution have had their genesis from apparently biased sources. With the exception of one report, articles from places other than Pregl's neighborhood have not been favorable. In fact, the Rijks-Institute report (*Mededeelingen,* 1923, No. 5) contains the statement that the experimental ground for the use of the product is not good. According to the Dutch investigators, the product has been used once for varicose veins. This instance was reported to a medical meeting, and scientific data have not been published. It can be safely said, therefore, that there is no excuse for the use of this potentially dangerous solution in varicose veins.

HORSE SERUM IN DEMENTIA PRAECOX

To the Editor:—In the *Medical Record* for October, 1923, I read an article written by Dr. Carroll on the treatment of dementia praecox by the administration into the spine (after some of the spinal fluid has been removed) of inactivated horse serum, producing an aseptic meningitis. Is dementia praecox a somatic or psychic phenomenon? If psychic, will the administration of any drug at all influence the course of the malady? May not one look for some untoward effects following the

introduction of the serum into the spine? Is there no danger of anaphylaxis? Can you give me any additional sources of information as to this particular treatment of dementia praecox?

SINCLAIR S. LEVINE, M.D., Hartford, Conn.

ANSWER.—No conclusion has yet been reached on the much debated question as to whether dementia praecox is a somatic disease, a functional or psychic disorder, a constitutional deficiency, or a combination of several such factors. Numerous therapeutic experiments have been made on the hypothesis of the existence of an organic disease—operations on the thyroid, implantation of testicular tissue, administration of glandular extracts, modification of the intestinal flora, removal of focal infections—none of which can be said to have established satisfactory claims to curative results, though improvements have been reported with the various measures.

The production of an aseptic meningitis is an effort to stimulate reaction on the part of the organism in the hope that it may result in destroying any noxious agent that might be present. In this respect it resembles the injections of nucleic acid that were practiced a few years ago, a method that has since been abandoned. The present attempt differs in that it aims at a local reaction in the nervous system. Similar treatment is being employed in some chronic infections, such as epidemic encephalitis. The dangers of anaphylaxis are not great, and can be guarded against by cutaneous tests and desensitization, if necessary. Other proteins, such as casein, may be used in place of horse serum. Whether there is danger in the meningitis evoked remains to be determined.

The method is purely experimental, and is founded on unestablished hypotheses. As with other remedies that have been greeted with considerable enthusiasm at first, the greatest conservatism must be exercised in judging results and giving hopes. Submission to a special method of treatment means at the same time greater attention and interest on the part of the physicians and hospital personnel, factors that are known to be of great value in the treatment of disorders like dementia praecox in which psychic factors play a large, if not the dominant, part.

ALKALURIA

To the Editor:—What is the treatment, medicinal or dietary, for persistent alkaline urine, containing large amounts of phosphates, urates, oxalates, etc., without any traces of albumin, sugar or any noncrystalline substances? Competent medical advice has been sought, and so far no combination of diet or medical treatment seems to have been permanently cleared it up.

M.D., Ohio.

ANSWER.—We must differentiate between two varieties of urinary alkalinity: ammoniacal urine and that due to fixed alkali. Ammoniacal urine is due to bacterial decomposition of urea. It is most commonly an infection of residual urine; it is most effectively treated by removing whatever condition interferes with proper evacuation of the bladder. From a medicinal standpoint, hexamethylenamin in doses of from 0.5 to 1.5 gm. may be given in a liberal amount of water every eight hours; and sodium acid phosphate in doses of 1 to 1.5 gm. in a glassful of sweetened water, every two hours, with the exception of those hours when the hexamethylenamin is taken. If the alkalinity is due to fixed alkali, the sodium acid phosphate alone should suffice to rectify the condition temporarily, at least. To maintain the effect, the acid-producing foods, meat, fish, egg and cereals should be increased in amount, and the alkali-producing vegetables and fruits diminished.

REFERENCES ON INSULIN

To the Editor:—Would you send me any literature you have on insulin?

G. V. BUEHLER, M.D., Boston.

ANSWER.—The following articles have appeared in THE JOURNAL:

Allen, F. M.: The Treatment of Diabetes with Insulin, THE JOURNAL, Oct. 20, 1923, p. 1330.
Fisher, N. F.: Note on the Purification and Administration of Insulin, THE JOURNAL, Sept. 15, 1923, p. 920.
Thalhimer, William: Insulin Treatment of Postoperative (Nondiabetic) Acidosis, THE JOURNAL, Aug. 4, 1923, p. 383.
Best, C. H., and Scott, D. A.: Insulin in Tissues Other Than the Panereas, THE JOURNAL, Aug. 4, 1923, p. 382.
Olmstead, W. H., and Kahn, S. H.: Insulin in Diabetes, THE JOURNAL, June 20, 1923, p. 1903.
Joslin, E. P.: The Routine Treatment of Diabetes with Insulin, THE JOURNAL, June 2, 1923, p. 1581.
Major, R. H.: Treatment of Diabetes Mellitus with Insulin, THE JOURNAL, June 2, 1923, p. 1597.
Strouse, Solomon; and Schultz, O. T.: Insulin in Diabetes Complicated by Infection, THE JOURNAL, June 2, 1923, p. 1592.
The Status of Insulin: THE JOURNAL, April 28, 1923, p. 1238.
Insulin: Its Action, Its Therapeutic Value in Diabetes and Its Manufacture, by the Insulin Committee of Toronto, THE JOURNAL, June 23, 1923, p. 1847.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, November 13-14. Sec., Dr. J. W. Walker, Fayetteville.
CONNECTICUT: Hartford, November 13-14. Sec., Reg. Bd., Dr. Robert L. Rowley, 79 Elm St., Hartford.
CONNECTICUT: New Haven, November 13-14. Sec. Eclec. Bd., Dr. James E. Hair, 730 State St., Bridgeport.
CONNECTICUT: New Haven, November 13. Sec., Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.
DELAWARE: Wilmington, December 11-13. Sec., Dr. P. S. Downs, Dover.
DELAWARE: Wilmington, December 11. Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.
LOUISIANA: New Orleans, December 13-15. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.
MAINE: Portland, November 13-14. Sec., Dr. Adam P. Leighton, Jr., 192 State Street, Portland.
NORTH CAROLINA: Chapel Hill, December 4. Sec., Dr. Kemp P. B. Bonner, Raleigh.
OHIO: Columbus, December 5-7. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.
SOUTH CAROLINA: Columbia, November 13. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.
TEXAS: Dallas, November 20-22. Sec., Dr. T. J. Crowe, Dallas County Bank Bldg., Dallas.
VIRGINIA: Richmond, December 11-14. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

THE BROOKLYN EXTENSION PLAN

Joint Graduate Education by the Medical Society of the County of Kings and the Long Island College Hospital

CHARLES A. GORDON, M.D.
Chairman of the Joint Committee on Graduate Education
BROOKLYN

The Medical Society of the County of Kings and the Long Island College Hospital Medical College are cooperating in a comprehensive movement for graduate medical education. Close affiliation of an active county medical society with a Class A medical school seems to be an ideal and fundamentally sound solution of the problem. The teaching equipment of the medical school, and its teaching experience in the undergraduate field are, of course, most important factors in any educational movement. Yet there often is a large amount of valuable clinical material not under college control. There may be many willing and able teachers in hospitals not an integral part of the college system. Oftentimes the college teachers attend large hospitals where student teaching is not permitted.

There is no good reason, of course, for the existence of such a system, and, in Brooklyn, we are trying to break it down. Assuming that all the clinical material of a community should be used for student teaching, graduate and undergraduate, some effort must be made to bring about a proper correlation between all the available teaching units. The county medical society may easily take the initiative, because, representing organized medicine, it is a civic force not to be disregarded. If continuous education of the practicing physician is the greatest possible contribution that we could make in public health, then responsibility rests, not on the medical college, but on organized medicine. The county medical society must take an active interest in medical education.

In Brooklyn we are admirably situated for working out these ideas. Our available assets are a Class A medical school, an active county medical society with a magnificent medical library, a great many large hospitals, and a population of two million people in the borough of Brooklyn. Some graduate education has been done in the past. A few of the large hospitals have made a real effort from time to time to make their clinical material available to men outside the staff. A postgraduate medical school was in existence for a time, but failed—probably because it had no strong central organization.

Early in 1921 the faculty of the medical school of the Long Island College Hospital organized and offered a series of graduate courses, which it hoped would be within the reach of all. Intensive courses in both clinical and preclinical departments were given in the spring of 1921, and again in 1922. The results were so gratifying that the board of regents formally established a graduate department, and the faculty hoped that in some way all the clinical facilities of the city could be utilized.

THE PRACTICAL LECTURE SERIES

In 1922, the centenary year of the Medical Society of the County of Kings, Dr. Frank D. Jennings, president of the society, conceived the idea that proper graduate education could be carried to every physician in Brooklyn, and appointed a committee to carry out his idea. A series of clinical lectures was arranged and called the Practical Lecture Series. Acting on the basic principle that graduate education, to be popular, must be available at convenient hours, Friday afternoon at 5 o'clock was fixed on as a time that would please the greatest number. It was thought that this time would not interfere with the day's work or with evening office hours.

The committee promised that these lectures would be "real live talks on every-day practical subjects, given in the very best teaching manner of medical school days—clinical lectures with charts, specimens, demonstrations, and patients when possible." Lectures were to start promptly at 5 o'clock and end exactly at 6. Every physician in Brooklyn, whether a member of the county society or not—2,500 doctors—received

PROGRAM OF PRACTICAL LECTURE SERIES OF 1922

March	3	Pelvic Inflammation in Women.....John O. Polak
	10	Infections of the Hand.....William F. Campbell
	17	Cardiac Murmurs and Arrhythmias.....Glentworth R. Butler
	24	Interpretation of Abdominal Pain.....George D. Stewart
	31	Infant Feeding.....Roger H. Dennett
April	7	Treatment of Common Injuries.....John J. Moorhead
	14	No lecture — Good Friday.
	21	Office Gynecology.....Robert L. Dickinson
	28	Common Skin Diseases.....John A. Fordyce
May	5	Suggestive Symptoms of Urinary Disease...E. L. Keyes, Jr.
	12	High Blood Pressure.....Tasker Howard
	19	Treatment of Diabetes at Home.....Elliott P. Joslin
	26	Diagnosis in the Upper Abdomen.....John B. Deaver
Oct.	13	Rational Pathology and the New Therapeutics...James Ewing
	20	Dry Labor.....John O. Polak
	27	Management of the Breech.....John O. Polak
Nov.	3	Chronic Diseases of the Joints.....Thomas McCrae
	10	Office Orthopedics.....Walter Truslow
	17	Renal Function in Clinical Medicine...Herman O. Mosenthal
	24	Appendicitis.....William F. Campbell
Dec.	8	Fundamental Signs in the Examination of Patients.....Luther F. Warren

a postal card notice on the day preceding every lecture. Hospital posters were devised and placed on the bulletin board of every hospital in the city. The special and smaller neighborhood medical societies carried our program on their monthly folders. Two hospitals wrote letters to every man on their staffs asking them to attend the lecture series. The committee wrote every hospital superintendent, calling attention to the opportunity offered their interns for additional education. Some hospitals sent their interns in their ambulances; one hospital made attendance compulsory on their intern staff. A large amount of publicity was secured.

The year was divided into spring and fall terms, and twenty lectures were given last year. The spring term opened, March 3, and closed, May 26; the fall term opened, October 13, and closed, December 8. There were twelve lectures in the spring term, and eight in the fall term. These dates were carefully selected so as to avoid the heavy business and traffic of the winter months, as well as Christmas holidays and warm summer weather.

There were six lectures in general medicine, five in surgery, two in gynecology, two in obstetrics, and one each in pediatrics, dermatology, urology, pathology and orthopedics. No papers were read as in the stereotyped medical meeting, but each talk was simple, practical, clinical and fundamentally sound. Each lecture was given by the man we thought best qualified to cover the subject we selected. No discussion in the usual sense was permitted, but questions were encouraged.

The complete program for last year is presented in order to show the character of the material offered, the names of the lecturers, and the dates of the lectures. All these things were of great importance in studying reasons for the phenomenal success of the idea.

December 1 was skipped on account of the Thanksgiving holiday.

The lecture program met instant and lasting success. Our auditorium was filled to overflowing at every meeting, and at some lectures a great many were turned away. Special traffic regulations were enforced by the police department in order to take care of the large number of automobiles parked near our library building.

BEDSIDE TEACHING

This was, of course, excellent evidence that the medical profession of Brooklyn appreciated graduate education. Bedside teaching in the wards of the great hospitals seemed to be the next logical step. In no other way could small groups be taken care of. The county society had entered the field of graduate education and could not turn back. A survey found the college, the department of public welfare, and a number of hospitals ready to cooperate in any movement that would solve the problem in some practical manner. A tentative plan was worked out and submitted to the county society at the October meeting. This was the centennial meeting, which Dr. Jennings had already decided to devote to "Medical Education."

At this meeting, John G. Bowman, chancellor of the University of Pittsburgh, spoke on "Undergraduate Education," George A. de Schweinitz, President of the American Medical Association, on "Graduate Education," and Charles A. Gordon presented the plan of the County Medical Society. Discussion by Hon. Bird S. Coler, commissioner of public welfare, Percy S. Dudley, president of the board of regents of the Long Island College Hospital, John Heffernan, associate editor of the Brooklyn *Daily Times,* William McAndrew, of the board of superintendents of the Department of Education of the City of New York, and H. V. Kaltenborn, associate editor of the Brooklyn *Daily Eagle,* followed. Much enthusiasm was evoked. A great opportunity was seen. The Medical Society of the County of Kings, representing organized medicine, seemed to be the common meeting ground for the active hospital groups of the city. Affiliation with a medical school seemed to be essential in the development of any ambitious teaching plan. Dr. Russell S. Fowler then offered a resolution "That the Medical Society of the County of Kings does hereby approve the idea that the society may properly undertake graduate teaching as one of its functions, and that the president be instructed to appoint, or designate, a committee, with power, to make such arrangements as are necessary to establish a school for graduate teaching in affiliation with Long Island College Hospital." This resolution was passed, and the president appointed a committee on graduate education, consisting of Drs. Russell S. Fowler, Leon Louria, and Thurston S. Welton, with Dr. Charles A. Gordon, chairman.

The Long Island College Hospital at this time appointed a similar committee on graduate education, consisting of Drs. Emil Goetsch, Henry M. Smith, and Luther F. Warren, with Dr. John O. Polak, chairman.

These committees met and organized as the Joint Committee on Graduate Education. The committee consists, then, of eight active members, with the dean of the medical school, and the president of the county medical society as members ex officio. Each body, therefore, has equal representation.

The utmost harmony has prevailed. All the graduate courses of the Long Island College Hospital are given under direction of this committee. Frequent conferences with hospital groups has in general resulted in a fine spirit of cooperation. The Brooklyn Home for Consumptives, the Kingston Avenue Hospital for Contagious Diseases, the Coney Island, the Cumberland, the Greenpoint, the Jewish, the Long Island College Hospital, St. Catherine's, the Wyckoff, and the United Israel-Zion are all giving graduate courses under the guidance of the committee. Other hospitals are sympathetic, and though for various reasons they are unable to cooperate at present, they promise their support.

These hospitals are open at stated hours to small groups of registrants. There are no clinics in the usual sense, but the teaching is decidedly clinical, in that the student sees the patient, and is given an opportunity to assure himself of the soundness of the teaching. Groups are limited to eight so as not to lose that invaluable personal contact of the student with the teacher. Almost all of the extension courses were given in the late afternoon, between 4 and 6, for we feel that that is the most convenient hour for most physicians.

GRADUATE COURSES

The Long Island College Hospital and the Medical Society of the County of Kings jointly published an announcement of graduate courses which carried a detailed statement of each course offered. Thirty-four courses were announced in all—seven intensive and twenty-seven extension courses.

The intensive courses were all given at the college, and were designed to meet the needs of those men who were able to devote from four to ten hours a week for six weeks to the study of the particular problem in which they were interested. By title, these courses were: (1) Tuberculosis, Syphilis, Focal Infections, Fevers; (2) Clinical Laboratory Work; (3) Diseases of the Kidney, Heart and Blood Vessels; (4) Diseases of the Blood, Spleen, Pancreas and Liver; (5) Diseases of the Stomach and Bowel; (6) Congenital Syphilis, and (7) Applied Anatomy. A fee, determined on the basis of the cost of material and special equipment, was charged.

The extension courses were practical courses carefully planned for those physicians who had little time to study outside the routine of practice. These courses consisted of eight periods—one hour a week for eight weeks. There were no fees for these periods. By title, these courses were: (1) Diseases of the Heart, three courses; (2) Diseases of the Spleen, Pancreas, Lymph Glands and Blood; (3) Arteriosclerosis; (4) Diseases of the Blood; (5) Diseases of the Heart and Blood Vessels; (6) Clinical Pathology, two courses, and (7) Diseases of the Lungs. In Surgery there were: (1) Diseases of the Thyroid Gland, Practical Management and Surgical Treatment; (2) Vascular Diseases of the Lower Extremity; (3) Traumatic Surgery, Management of Common Fractures and Joint Injuries; (4) Empyema; (5) Acute Conditions of the Abdomen; (6) Chronic Conditions of the Abdomen; (7) Diseases of the Rectum, and (8) Diagnosis of Surgical Diseases of the Abdomen. In Obstetrics, there were two: (1) Prenatal Care, and (2) Manikin Instruction. In Pediatrics, (1) Pulmonary and Allied Forms of Tuberculosis; (2) Contagious Diseases; (3) Problems Concerning the Baby During Its First Year of Life, and (4) Infant Feeding. In Genito-Urinary Diseases there was one course, Urology for the General Practitioner. A laboratory course in obstetric and gynecologic pathology completed the series.

This schedule is not a complete list of extension subjects that a graduate school should offer. It is simply a list of the material which the committee thought well prepared and valuable from the standpoint of the average man. Our fall term will be much better rounded out, as the spring term has taught us many lessons.

For the convenience of the physician there were two places for registration—the office of the dean of the college and the office of the librarian of the county society. It was possible to handle registration without augmenting either office force. Registrants were required to apply in person and fill out a card. Accurate records were kept and analyzed by the committee. A registration fee of $10 was required. This was partly to cover the cost of administration and partly because we believed it good psychology. There was no registration fee for the practical lecture series, of course. Admission was free to every physician in the city.

The Library of the Medical Society of the County of Kings is a wonderful addition to our teaching armamentarium. Almost 100,000 volumes and 870 current journals may be consulted at any time by those who have been stimulated by the movement for graduate education. This magnificent collection, one of the largest medical libraries in the United States, is housed in a building worthy of it. Any number of books or journals may be taken home for reference. The library is open from 10 until 6 daily, and on two evenings a week until 10 o'clock.

256 Jefferson Avenue.

CONNECTICUT INVESTIGATION OF MEDICAL DIPLOMA SCANDAL *

States Attorney Alcorn, in investigating the activities of the Missouri diploma-mill ring in Connecticut recently, according to a report, obtained a confession from a physician, whose name is withheld. This physician is said to have confessed that he secured a license to practice medicine in Connecticut on credentials obtained through the St. Louis College of Physicians and Surgeons. In the confession he is said to have given detailed information in regard to the activities in Connecticut of Dr. D. R. Alexander, secretary of the Kansas City College of Medicine and Surgery, a low type eclectic institution, Dr. Ralph A. Voigt of Kansas City, master-mind of the ring; William P. Sachs, formerly examiner for the Missouri Department of Public Schools, St. Louis, and Dr. Robert Adcox of St. Louis, who has charge of the ring's clearing house.

The physician in his confession makes the following statement, as published in the St. Louis *Star,* as to how he secured his medical credentials:

"I was a resident of St. Louis. I was interested in studying medicine by a man who was then passing through the mill. He introduced me to Dr. Waldo Briggs, dean of the St. Louis College of Physicians and Surgeons."

"I told Dr. Briggs that I wanted to become a doctor, but could not go to school for four years. He said he would get me out in two. I told Dr. Briggs that I did not have a high school diploma, and he said he would fix me up. He told me it would not be necessary to buy credentials showing that I had attended classes in a medical school for the freshman and sophomore years. Instead, he said, he would insert my name in the class records for those years, and I could begin as a junior. He said he would arrange to get me a high school paper."

"A few days later Prof. William P. Sachs came to the school and told me he had a high school certificate made out for me. I paid him $25 for it and turned it over to Dr. Briggs. I had no money to pay for my tuition, and Dr. Briggs agreed that I could repay him for supplying the freshman and sophomore year credits by taking care of his books, which I did."

He is reported to have said further:

"I finished my schooling in 1920 and was given two diplomas, one showing that I graduated in 1920 and one showing that I graduated in 1918. Dr. Briggs gave me the 1918 diploma because, as he explained, the State Board of Health of Missouri recognized persons who graduated from the school prior to 1919."

Details as to how this man obtained a license to practice medicine in Connecticut are withheld at present. Dr. Robert Adcox is named as having played an important part in obtaining the license. The physician admitted that he knew virtually nothing about medicine at the time he got his license.

In an interview with a *Star* reporter, Dr. Briggs refers to the matter as "an absolute falsehood."

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* See also Current Comment, "Connecticut's Chance for a House-Cleaning," this issue, p. 1614.

Book Notices

The Note-Book of an Electro-Therapist. By Mel. R. Waggoner, M.D. Leather. Price, $5. Pp. 173, with illustrations. Chicago: McIntosh Electrical Corporation, 1923.

This book is written by a physician employed by a manufacturer of electrical appliances to deliver lectures on electrotherapy. The origin of some of the peculiar claims made in this volume is found early in the book, for on page 37 there is a chart of spinal nerve centers, for which credit is given to Abrams-Ireland. On page 68 is an article on electrospinal diagnosis which closely follows an article in Abrams' "Spondylotherapy," Edition 5, 1914, page 68. Here is given a method of diagnosis by finding painful centers. Abrams states: "For this purpose the patient's back is bared and a high tension Faradic coil is brought into use." Abrams, in his book of 1913, page 96, shows a picture of an electrode made by this same company, which he calls a spondylectrode. Waggoner says:

> This test is very simple and yet is one of the most important diagnosis tests we have. Technic.—Place a well moistened 3x5 pad over the sacrum and connect it to one terminal of the continuous rapid sinusoidal current. Connect the other terminal to a small spongio-disc placed in a handle. Press it on the spine at the base of the skull, and turn on the current, through the rheostat, until the patient experiences a comfortably strong current. Then slowly draw it down over the spinous processes. As you come to sore spots the patient will decidedly feel them and tell you so. Make a cross with a lead pencil, and repeat the process to check up, that is, see if they are actual sore spots. Now go to your chart [he then refers to the previously mentioned chart on page 37] and see what organs are supplied from this center. This helps you locate the organs affected, but of course doesn't tell you what the affection is. *To explan how valuable a test* of this kind is—a patient came to me with all the symptoms of an acute appendix. This case showed extreme tenderness over the 7th, 8th and 9th dorsals, worse on the right side. *Cystoscopy and the x-ray showed a stone in the ureter at about the region of the appendix.* Another example—supposing a case presents with apparent stomach trouble, with burning eructions, this test would be important to differentiate between stomach and duodenum, etc.

This is a piece of Abrams' methods and reasoning, for he illustrates how valuable the test is and shows that the real diagnosis was made by roentgen ray and cystoscopy.

Special subjects have no difficulties for this author and his electrical currents. Otologists will be glad to hear that

> Otosclerosis is in reality an advanced stage of catarrhal deafness characterized by sclerosis and calcareous deposits. Very good results will be obtained in the majority of the cases by the same method of treatment (diathermy) but it must be persisted in for a year or more.

Under the discussion on the eye, several statements are made that, if true, will put all textbooks on the diseases of the eye in the discard. It is claimed that "very good results may be obtained in the way of clearing up cataracts providing they are not too far advanced," by a technic which includes diathermy and sinusoidal currents. Again, under this subject is a most startling statement:

> Blepharitis, Conjunctivitis, Iritis, Choroiditis, Retinitis, Etc. *The inflammations common to the eye we will take under one head as the treatment for all is the same.* That is the Tesla current connected to the pad. Draw the current out of the eyes with the finger, always giving the current comfortably warm for the patient. Be sure the spark gap is delivering a smooth and not a jumpy spark.

The author is apparently an inventor of an apparatus he calls the "Pelvicmultimode." He says that this "is an apparatus particularly designed so that all of the various physical methods which have been proven of definite benefit in pelvic disease, may be combined and applied at one and the same time, in such a way that the best possible results may be obtained; results that have not been equalled by any other known method of treatment." With this machine and the various electrical currents, he treats all diseases of the pelvis and the lower abdomen: acute anterior urethritis, acute posterior urethritis, chronic gonorrhea, acute diffuse gonorrhea, chronic diffuse gonorrhea, epididymitis and orchitis, atrophy of the testicle, impotence, acute prostatis, chronic simple prostatitis, enlarged prostate, acute and chronic cystitis, nephritis, lumbago, sciatica, female diseases, and many others.

Under each of these diseases is a description of the technic and some terse comments on the pathology and results. Some of these statements are remarkable, if not enlightening. Under Subinvolution, the author says: "The enlarged, boggy uterus, which after childbirth does not return to normal, is almost analogous to the enlarged prostate found in the male."

Under nephritis: "The Pelvicmultimode has repeatedly proven to be a wonderful aid in acute and chronic Bright's disease, recovering cases which would have succumbed otherwise."

And for dysmenorrhea: *"Practically every case will respond, regardless of cause, to treatment on the Pelvicmultimode,* altho, of course, permanency of results depends upon removal of the cause."

Surgeons will be surprised to learn that: "Every fracture should be *splinted with heavy tinfoil* for electrodes and mild doses of diathermy given every day. It insures a more rapid and better union." Thus the treatment of fractures by traction, casts and rigid splints is discarded, and a more rapid and better union is secured by tinfoil splints.

This book is sponsored by a large corporation, which circularizes most of the physicians in our large cities with notices of lectures by Dr. Waggoner. Electrotherapeutics has a place in therapy, as proved particularly in war hospitals; but ill advised propaganda certainly will not prove it to any intelligent physician.

History of the Great War. Based on Official Documents. Medical Services: Pathology. Cloth. Price, 21 shillings 9 pence. London: His Majesty's Stationery Office, 1923.

This is the final volume of the series dealing with the diseases, surgery and hygiene of the war as it concerned the British army. Other volumes on the organization and military phases remain to be completed. It is pointed out in the preface that many of the contributions to this volume have a more individual character than those in the preceding volumes, since they deal largely with personal researches and investigations of their respective authors into the pathology of disease. Special attention may be called in this connection to the important contribution by Prof. J. G. Adami on influenza; the article by Clifford Dobell on amebic dysentery; by Sir K. W. Goadby on latent sepsis; by Sir Arthur Keith on collection of pathologic specimens; by Sir W. B. Leishman on the enteric fevers and by Sir Almroth Wright on physiology of wounds. The reader has in this collection a summary of war knowledge by men who directed the investigations and who have given special attention to the problems concerned. Of particular interest is the fact that the literature of all nations has been combed carefully in order to give not only the British work but actually the exact status of each subject. For instance, the article on typhus fever has carefully recognized the work of Baehr, Plotz, Wilder, Ricketts and, in fact, all of the American workers. In the same way the section on cerebrospinal fever includes an excellent summary of the investigations of Dopter, Netter, Nicolle and other French workers. The book is excellently illustrated, and constitutes an invaluable addition to the library of every pathologist.

Physiotherapy Technic. A Manual of Applied Physics. By C. M. Sampson, M.D. Cloth. Price, $6.50. Pp. 443, with 85 illustrations. St. Louis: C. V. Mosby Company, 1923.

This is based largely on the results achieved in the physiotherapy departments of reconstruction hospitals, in which Dr. Sampson had the larger part of his training. The emphasis throughout is on the standardization of technic. Although variations in treatment may appeal to the experienced practitioner, a fixed starting point is most desirable for those new in the work. Unfortunately, the book appears to be colored somewhat by the fact that the author has been for more than a year technical expert for one of the large manufacturers of physical appliances. It may well be criticized for the fact that twenty-eight pages of one chapter are devoted to a consideration of the ultraviolet ray and the roentgen ray as used together, and eighteen pages to the treatment of roentgen-ray burns with ultraviolet light. These subjects are of little importance to the general practitioner, whereas the use of the ultraviolet ray in the treatment of rickets is of considerable importance but receives almost no mention. Again, the chapter devoted to hydrotherapy, a simple method of great interest to the general practitioner, is quite brief and deals principally with the relation of this

ethod to other branches of physiotherapy. Then, too, only irteen pages are devoted to massage.

Some of the most astonishing statements that have appeared medical literature appear in the chapter on locomotor taxia. Here the author says: "In many ways the destructive athology of locomotor ataxia resembles that of a chronic -ray burn." His treatment for locomotor ataxia is given on age 364: "The correct procedure is to thoroughly heat the pine with direct diathermia, follow immediately with the tatic condenser, discharge and repeat these procedures daily r many weeks. Once every five, six or seven days the entire rain and cord should be ionized with five millampere minutes f a five inch back up spark x-ray through one millimeter f aluminum filter at an eight inch target skin distance." On age 367 he gives his results as follows:

In the twelve cases I now have under treatment (February, 1922) (no ase is included that has less than five months' treatment) all have lost heir pains, eleven have lost their inability to stand alone with their yes closed, eleven can walk a straight line for twenty feet with eyes losed, ten now have Wassermann negative spinal fluids, all have mproved markedly in their gait. None of these cases could stand a noment with their eyes closed or walk a straight line before the physical reatment. I cannot testify as to the permanence of this marked clinical mprovement but the few cases I have been able to trace over a few ears after cessation of treatment have shown no signs of any renewed ctivity of the process and as *the improvement was gained by a removal f the pathology* there is no reason to think that relapses will occur nless the removal process is stopped too soon. [Italics ours.]

There are several statements that are equally questionable; or example, on page 225:

"Hirsch by x-raying the pituitary gland from two fields, using a 0 per cent. erythema dose, was able to produce a prompt inhibitive effect n metrorrhagia. In fifteen myomas, which were subjected to this reatment, unusually prompt retrogression occurred; the time was much horter than had been required to accomplish this by ovarian irradiation. n four weeks the myomas often decreased from the size of a child's ead or a fist to the size of a walnut."

The book includes also a chapter on the technic of selective lectronization, by Charles F. Stokes. Emphasis is here laid n a method of treating deafness by the use of the roentgen ay, a method which is wholly empiric and for which there as, as yet, been submitted no proof. The chapters on high requency current and diathermia are excellent and may be ead with profit by those specializing in physiotherapy, who vill be able to evaluate properly the enthusiasms of the uthor. What is needed, however, in this field, is a textbook vhich will make clear to the general reader those things vhich are scientifically established and distinguish them rom what is opinion and empiric belief.

Cancers du Rein de la Glande Surrénale et des Voies Urinaires Supérieures. Par P. Lecène, Professeur á la Faculté de Médecine de Paris, et G. Wolfromm, Préparateur à la Faculté de Médecine. Paper Price, 16 francs, 50 centimes. Pp. 207, with 32 illustrations. Paris: Gaston Doin, 1923.

Carcinoma, sarcoma, hypernephroma and mixed tumors of he kidney are described systematically, including pathology nd the various clinical manifestations. The various types f malignancy involving the pelvis, the ureter, the paranephitic tissues and the suprarenal are then taken up in a similar manner. No cases are cited, but comparative statistics from the literature are frequently included in the text, and the authority for important statements is referred to. There are several good illustrations. There are no pyelograms, which are important in the diagnosis. Little discussion is given to the use of the roentgen ray or radium. Without offering anything original, the work is an admirable review of the literature, particularly from the standpoint of pathology.

Practical Bacteriology, Blood Work and Animal Parasitology, Including Bacteriological Keys, Zoological Tables and Explanatory Clinical Notes. By E. R. Stitt, A.B., Ph.G., Sc.D., Surgeon General, U. S. Navy. Seventh edition. Cloth. Price, $5 net. Pp. 766, with 576 illustrations. Philadelphia: P. Blakiston's Son & Co., 1923.

Originally intended as a pocket manual for medical officers of the navy, this book has grown to be a volume of 766 pages and has passed into the seventh edition. The author still aims to retain the pocket manual feature. Much of the book is printed in eight point leaded type, the margins are narrow, there are no references to original sources, the linings of the backs are used for tables, and the style is brief. Thus, the book is compact in typical navy fashion. The present edition, however, has 132 pages more than its predecessor, although material that became obsolete or of questionable practical value was eliminated and the book brought up to date. Many of the old illustrations have been replaced by others that are more instructive. These are well adapted to the text, and although mostly taken from other books, some we have not seen before. A number of new tables have been added, for example, the vitamin contents of foods, and the classification of mosquitoes. The less dependable modifications of the Wassermann test have been omitted, and the Sachs-Georgi, the Meinicke and the Kahn precipitation tests have taken their place. The Jansky classification of blood groups has been substituted for the classification of Moss which was followed in previous editions; the latter classification has been retained as well, to be available if wanted. This book is a laboratory manual of internal medicine, a storehouse of practical data. It has a place among standard books. It would have been better had the illustrations of the kinds of blood cells been in colors, and if the book had been more durably bound. The extensive legend on the title page is unnecessary, and not in good taste.

Cancer de l'Intestin. Par J. Okinczyc, Professeur agrége à la Faculté de Médecine de Paris. Paper. Price, 16 francs, 50 centimes. Pp. 236, with 78 illustrations. Paris: Gaston Doin, 1923.

Both carcinoma and sarcoma of the small intestine, exclusive of the rectum, are studied. The various segments are taken up in detail, and comparative work of various authors is quoted, with an extensive bibliography. Detailed pathologic variations are considered. The diagnosis and operability are shown to depend largely on this knowledge. There are numerous drawings included of gross and microscopic specimens, a few roentgenograms, and several sketches illustrating operations on the colon. The author has presented an instructive and interesting review of this large subject, which includes original work, without making the volume too bulky.

Medicolegal

Intern an Employee Under Compensation Law

(Bernstein et al. v. Beth Israel Hospital et al. (N. Y.), 199 N. Y. Supp. 740)

The Supreme Court of New York, Appellate Division, Third Department, in affirming an award of the state industrial board in favor of claimant Bernstein for compensation under the workmen's compensation law, says that the hospital had reported that while he was in its employ and while he was sewing up a cadaver he had stuck the needle with which he was working into his right hand, setting up infection and lymphangitis. In the first instance, the state industrial board denied compensation on the ground that the claimant was not an employee under the law. On subsequent hearings, and as a consequence thereof, he was awarded compensation.

It was asserted on the hearing, and nowhere denied, that the hospital had elected to come under the workmen's compensation law; that this claimant and ten others similarly situated were intended to be covered; and that the insurance carrier had collected the premiums therefor. The carrier, however, sought to avoid liability. The argument advanced by it was that the claimant was an intern in the hospital, "a resident physician of a hospital," by reason whereof he was not covered, and could not under any circumstances be covered, by the workmen's compensation law. The principal case relied on to sustain that contention was *Schloendorff* v. *New York Hospital*, 211 N. Y. 125, 105 N. E. 92. In that case the patient sued the hospital for an injury following an operation to which she claimed she did not consent. She was denied the relief sought, first, because of the doctrine of waiver; and, secondly, because the physician who operated was an independent contractor, in that, in performing the operation, he was not called on to obey instructions from the hospital as to how he should operate. Physicians served

without pay in cases in which they were called from independent practices of their own, entirely distinct from the hospital; they consented to come, not as employees, but without restriction; and they performed the acts as their own conceptions of the relief sought dictated.

But as there was no relation of patient and hospital in the present case, the insurance carrier must necessarily urge that the claimant was an independent contractor. It must admit that he was either an independent contractor or an employee. Because he was a physician, he was not precluded from hiring to the hospital as an employee. He was hired for two years, and as compensation received his room, board, laundry work, and three uniforms a year—conceded to be of the value of $25 a week. If he failed in the performance of the duties assigned to him by reason of incompetence or otherwise, he could be discharged. The superintendent testified that the interns were not independent. They were employed to serve under the attending physicians and carry out their orders. It was a rule of the hospital that members of the house staff could not practice their profession, outside or inside; they were not there as physicians treating cases. The claimant swore that he was an employee; that he acted under other directing minds. Under this state of facts the industrial board found as a fact that the claimant was an employee; and its award is affirmed.

Liability for Malpractice in Eye Case by Physician Employed as Clerk

(Smith v. Mallinckrodt Chemical Works et al. (Mo.), 251 S. W. R. 155)

The St. Louis (Mo.) Court of Appeals, in affirming a judgment for $7,500 damages for the plaintiff, says that her evidence tended to show that, while she was under 17 years of age and in the employ of the chemical works, packing cocain and atropin, she, in responding to an alarm for a fire drill, got some of one of those drugs in her left eye. A physician who had nine years previously given up the practice of his profession and was employed as a clerk by the chemical works, his compensation being a fixed monthly salary, was summoned by the foreman to look at the plaintiff's eye, it having become somewhat customary for the foreman or the superintendent of the various portions of the plant to call him to attend to employees who had been hurt or required medical attention, usually cases of a minor character, such as cuts and burns. No charge was made to any employee for the services he performed. In this instance, he examined the plaintiff's eye by opening it with his fingers, and told her that she had a cold in her eye, which would be over in from three days to a week, although the plaintiff at the time said there was a waving condition of the eye, that she saw black below, and yellow waving before the upper part of her eye, that the eye was cold and pained her and that she could hardly see. About a week later he again examined the eye, was told about the waving colored conditions, and again said that it was just a cold and that it might take the plaintiff a month or more to get well. The plaintiff relied for practically three months on what he said —until her eye pained her so much that she consulted an oculist, when it was found that she was suffering from a detachment of the retina, and was almost blind in her left eye.

Taking the plaintiff's evidence as true, there could be no doubt that it was sufficient to establish a case of negligence against the defendant physician. He had been a general practitioner, and was not an oculist, and did not have the proper instruments with which to examine the plaintiff's eye. Notwithstanding this, he undertook to make a diagnosis and to advise a treatment, although the symptoms were given by the plaintiff which expert oculists stated would indicate a detached retina. He advised that it was a mere cold in the eye, and at the end of a week from the first examination, and when the eye had not improved but was in a worse condition, he gave the same diagnosis and advice as to treatment. From such evidence the jury could reasonably conclude that he did not use the care and skill generally exercised by physicians of ordinary care and skill in the community.

The chemical works denied that he was acting for it in any capacity, and it was true that he was employed as a clerk at a fixed salary; but it was equally true that the company took advantage of his medical knowledge and used him as a physician in furnishing to its employees medical attendance in cases of minor injuries. From the stated evidence, the jury was warranted in finding that in performing the acts in question he was acting within the scope of his duty as an employee of the company. He had for a long period of time been performing like services at the request of and with the knowledge of his master. The case under the evidence must be regarded as one in which the company undertook to furnish medical attendance for its employees in the person of this physician.

However, granting his negligence and the company's responsibility therefor, it was asserted that there was no evidence in the case to show that his act in unskilfully diagnosing and improperly treating the plaintiff's eye was the proximate cause of her injuries; and it was true that his act did not result in the condition of the eye known as detached retina. But the evidence was sufficient to warrant the jury in concluding that, as a result of improper treatment and the plaintiff's reliance thereon, she was deprived of the chance she had of securing proper treatment, in which event the progress of the condition might have been arrested or she might have been cured. The causal connection, like negligence, is usually a matter of inference from other facts; and, under the evidence in this case, such was a question for the jury to determine.

No Damages for Groundless Fears of Injured Person

(Louisville & N. R. Co. v. Davis (Ky.), 250 S. W. R. 978)

The Court of Appeals of Kentucky, in reversing a judgment rendered in favor of the plaintiff for $3,000 for personal injuries, says that a carbid lamp fell and injured one of his hands. As to his mental anguish, he testified, in answer to questions, that he thought of blood poisoning; thought it might set up blood poisoning; was afraid that he might have to have his hand taken off, and had mental anguish over that. In view of the size of the verdict, the court concludes that the admission of this evidence was prejudicial error. While there is a contrariety of opinion on the question, it is the rule in Kentucky that, in an action for personal injuries, one may testify to his mental suffering just as he may testify to his physical suffering. But it was not shown that the plaintiff's hand become infected, or that the injury itself was such as might necessitate amputation. While some of the courts have gone to the extent of holding that the mental suffering for which a recovery may be had for a personal injury inflicted by the negligence of another may include the mental worry, distress, grief and mortification that may be shown to exist because of the injury, this court knows of no case in which the injured party has been permitted to magnify the damages by calling the attention of the jury to fears that were altogether groundless, and never materialized.

Society Proceedings

COMING MEETINGS

American Pathological Society, St. Louis, Dec. 27-29. Dr. Wade H. Brown, Rockefeller Institute for Medical Research, New York, Sec'y.

American Physiological Society, St. Louis, Dec. 27-29. Dr. Charles W. Greene, University of Missouri, Columbia, Mo., Secretary.

American Society of Biological Chemistry, St. Louis, Dec. 27-29. Dr. Victor C. Myers, New York Post-Graduate Medical School, New York, Secretary.

District of Columbia, Medical Society of Washington, Jan. 2. Dr. C. B. Conklin, Medical Science Bldg., Washington, Secretary.

Porto Rico, Medical Association of, San Juan, Dec. 14-16. Dr. Augustin R. Laugier, Box 1117, San Juan, Secretary.

Radiological Society of North America, Rochester, Minn., Dec. 3-7. Dr. M. J. Sandborn, Appleton, Wis., Secretary.

Society of American Bacteriologists, New Haven, Conn., Dec. 27-29. Dr. J. M. Sherman, Box 184, Washington, D. C., Secretary.

Southern Medical Association, Washington, D. C., Nov. 12-15. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., Dec. 11-13. Dr. H. A. Royster, 423 Fayetteville Street, Raleigh, N. C.

Western Surgical Association, Colorado Springs, Colo., Dec. 6-8. Dr. Warren A. Dennis, Hamm Bldg., St. Paul, Minn., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

32: 1-123 (July 15) 1923

*Effects of Diets Varying in Calory Value and in Relative Amounts of Fat, Sugar and Protein on Growth of Lymphoid Tissue in Kittens. R. Lefholz, Columbia, Mo.—p. 1.
*Studies of Thyroid Apparatus. XIII. Effects of Thyroparathyroidectomy and Parathyroidectomy at 100 Days of Age on Growth of Reproductive System of Male and Female Albino Rats. F. S. Hammett, Philadelphia.—p. 37.
*Id. XIV. Effects of Thyroparathyroidectomy and Parathyroidectomy at 100 Days of Age on Growth of Glands of Internal Secretion of Male and Female Albino Rats. F. S. Hammett, Philadelphia.—p. 53.
*Id. XV. Growth of Heart, Lungs, Liver, Kidneys, Spleen, Submaxillary Glands and Eyeballs in Male and Female Albino Rats Thyroparathyroidectomized and Parathyroidectomized when 100 Days of Age. F. S. Hammett, Philadelphia.—p. 75.
Lumbosacral Vertebral Column in Man, Its Stability of Form and Function. T. A. Willis, Cleveland.—p. 95.

Effect of Diet on Growth of Lymphoid Tissue.—The amount of the lymphoid tissue in the buccopharyngeal cavity and intestines, Lefholz says, is regulated both by the calory content, and also specifically by the fat content of the diet. A high calory diet, in which the excess calories are provided in the form of sugar or protein, will cause a marked increase in the size of this tissue, while the increase will be decidedly greater if the excess calories are provided in the form of fat.

Interrelationship of Thyroid, Parathyroids and Reproductive System.—The effects of the lack of thyroid and parathyroid secretion on the growth of the reproductive systems represented by the ovary and uterus of the female, and by the testis and epididymis of the male, of albino rats from 100 to 150 days of age, are recorded by Hammett, together with a discussion of their probable significance. After thyroparathyroidectomy the ovary and uterus not only stop growing but actually retrogress and lose weight. A similar reaction occurs after parathyroidectomy, but to a distinctly less degree. In both cases the retrogression of the gonads is the greater. In the males, on the other hand, the growth of the testis and epididymis is but slightly retarded in the thyroidless animals (thypars), and not at all in the parathyroidectomized animals. It is thus evident that the growth, and probably the functional activity, of the sexually mature reproductive system of the female is greatly dependent on the activity of the thyroid, while that of the male is relatively independent. The probability is strong that this inherent constitutional difference in sex gland-thyroid relation is a factor in the greater incidence of thyroid disturbances, particularly goiter, in the female.

Effect of Thyroparathyroidectomy and Parathyroidectomy on Endocrins.—A lack of thyroid (thypar) function between the ages of 100 and 150 days accelerates the growth of the hypophysis of the male rat. That of the female is retarded. Absolute cessation of growth and a high degree of retrogression of devolution is brought about in the suprarenals, pancreas and thymus of both males and females. A lack of parathyroid secretion during the age interval from 100 to 150 days induces a retardation of the growth of the hypophysis, suprarenals, pancreas and thyroid of male and female albino rats. The thymus of the parathyroidless rats shows a considerable degree of retrogression or devolution. Hammett is inclined to believe that the general trend is attributable more to the generalized toxemia incident to the parathyroid deficiency than to any specific functional interrelationships. The growth retardation of the parathy rats was not due to a retardation of thyroid growth.

Effects of Thyroparathyroidectomy and Parathyroidectomy on Viscera.—The lack of thyroid (thypar) secretion causes an absolute inhibition and retrogression of the growth of the heart, lungs, liver, kidneys, and spleen of albino rats from 100 to 150 days of age. This holds for both males and females with the exception of the liver, the growth of which in the females is only retarded. This sex difference is inexplicable. As far as the other organs are concerned the retrogression is greater in the females.

American Journal of Ophthalmology, Chicago

6: 725-804 (Sept.) 1923

War Lesions of Fundus. S. H. McKee, Montreal.—p. 725.
Some Uses of Slit Lamp. S. R. Gifford and W. R. Cassidy, Omaha.—p. 730.
Ocular Disease from Nasal Accessory Sinus Involvement. J. A. Morgan, Honolulu.—p. 737.
Historical and Other Notes Regarding Perimeter and Perimetry. H. McI. Morton, Minneapolis.—p. 740.
Eye Stress as Cause of Neurocirculatory Asthenia and Other Functional Heart Disorders. E. L. Jones, Cumberland, Md.—p. 746.
Teratoma of Lacrimal Gland. L. B. Whitham, Baltimore.—p. 757.
Subhyaloid Hemorrhage. M. M. Cullom, Nashville, Tenn.—p. 759.
Use of Prism Scale to Neutralize and Center Spectacle Lenses. S. L. Ziegler, Philadelphia.—p. 760.
Cataract Caused by Fish Hook in Eye, Vision Recovered. H. Clarke, Honolulu.—p. 763.
Cilium in Anterior Chamber for Nineteen Years. H. S. Gradle, Chicago.—p. 764.
Agricultural Conjunctivitis. S. R. Gifford, Omaha.—p. 764.

Archives of Internal Medicine, Chicago

32: 313-482 (Sept.) 1923

Mechanism of Production of Breath Sounds. P. Martini, Munich, Germany.—p. 313.
*Sensitization Tests with Digestive Products of Protein. I. C. Walker, A. S. Wetmore and J. Adkinson, Boston.—p. 323.
Vital Capacity of Chinese: Occupational Study. J. H. Foster and P. L. Hsieh, Changsha, China.—p. 335.
*Blood Sugar Reaction Following Intravenous Injection of Glucose. L. G. Rigler and H. L. Ulrich, Minneapolis.—p. 343.
*Attempt to Produce Hodgkin's Disease in Anthropoids and Other Monkeys. W. F. Cunningham and K. McAlpin, New York.—p. 353.
*Size of Heart in Pneumonia: Teleroentgenographic Study. Effect of Digitalis Therapy. R. L. Levy, New York.—p. 359.
*Definition of Hemolytic Streptococcus Parasitism in Upper Air Passages of Healthy People. A. L. Bloomfield and A. R. Felty, Baltimore.—p. 386.
*Studies on Liver Function. Rose Bengal Elimination from Blood as Influenced by Liver Injury. G. D. Delprat, Jr., San Francisco.—p. 401.
*Basal Metabolism During Pregnancy and Puerperium. H. F. Root and H. K. Root, Boston.—p. 411.
*Toxic Nephritis in Pyloric and Duodenal Obstruction: Renal Insufficiency Complicating Gastric Tetany. G. E. Brown, G. B. Eusterman, H. R. Hartman and L. G. Rowntree, Rochester, Minn.—p. 425.
*Acute Cases of Mercurie Chlorid Poisoning. L. C. Gatewood and A. F. Byfield, Chicago.—p. 456.
*Studies in Familial Neurosyphilis. III. Conjugal Neurosyphilis (Second Communication). J. E. Moore and J. E. Kemp, Baltimore.—p. 464.

Sensitization Tests with Digestive Products of Protein.—According to Walker et al., when whole proteins give a strong reaction, the amino acid of the corresponding protein does not. The suspected substance which might react on the anaphylactic patients was thought to lie somewhere between true proteins and amino acids, but the results obtained in this work tend to show that the further one gets away from true protein the less the reaction. This is borne out clinically by the fact that the known protein anaphylactic cases react quickly after the ingestion of the protein, to which they are sensitive. It seems reasonable to assume that anaphylaxis does not take place until the offending protein gets into the blood; therefore, there must be a slight assimilation of an almost true protein or slightly altered protein which, considering the short space of time between the ingestion of the protein and the anaphylactic reaction, could be no more than peptonized. Peptones and proteoses prepared by the simple hydrolysis of proteins may cause sensitization.

Blood Sugar Reaction Following Intravenous Injection of Glucose.—The differences between the normal reaction of the blood sugar to the intravenous injection of glucose and the diabetic reaction are shown by Rigler and Ulrich. Glucose tolerance tests can be made far more accurately by giving glucose solutions intravenously and making blood sugar estimations at intervals afterward, than by the alimentary route. The previous work on intravenous glucose tolerance tests is discussed.

Experimental Hodgkin's Disease.—Cunningham and McAlpin failed to produce Hodgkin's disease in *Macacus rhesus* and chimpanzees experimentally.

Size of Heart in Pneumonia.—A teleroentgenographic study was made by Levy in twenty-one cases of lobar pneumonia

and eight cases of bronchopneumonia, employing a special technic in making the plates and a new method in completing the outline of the cardiac silhouette. In lobar pneumonia, cardiac dilatation occurred in 61.9 per cent. of the cases. Dilatation was less frequently observed in patients who received digitalis (50 per cent.) than in those to whom the drug was not given (72.7 per cent.). In bronchopneumonia, cardiac dilatation was less frequent than in lobar pneumonia, having been observed in 25 per cent. of the cases. The two patients in this group who received digitalis showed no dilatation. The heart muscle in pneumonia may attempt, by lengthening its muscle fibers, to augment systolic output. Digitalis in therapeutic doses increases the contractile power of the ventricles. On the basis of these facts, early and adequate digitalis therapy is suggested in pneumonia in the belief that the drug may exert a beneficial effect, not only in the presence of auricular fibrillation and flutter, but also when the normal rhythm prevails.

Hemolytic Streptococcus Parasitism.—The major conclusion reached by Bloomfield and Felty is that the hemolytic streptococcus under average conditions is strictly adapted to a local growth in foci of lymphadenoid tissue in the upper air passages, especially the tonsil. In such foci these bacteria may persist for long periods of time and in great numbers. It appears, furthermore, that such colonization is usually brought about by an acute, clinically manifest infection of the lymphadenoid tissue, such as acute tonsillitis, or perhaps scarlet fever. Such an infection seems necessary, under average conditions, in order that the bacteria may gain a lasting foothold. Careful study of carriers and noncarriers who roomed together seemed to prove that mere contact, even if close and prolonged, is inadequate—under average conditions—to give rise to new carriers. Again, it was found that neither the incidence of healthy carriers nor the local lymphoid tissue type of parasitism was altered by introducing into the group tonsillitis convalescents harboring presumably actively vegetative organisms. Further evidence of the essentially focal nature of hemolytic streptococcus parasitism under "normal" conditions is found in the fact that of those whose tonsils have been removed only an occasional person harbored the organism, and then in small numbers, indicating a transient infection rather than a true growth adaptation.

Studies on Liver Function.—Rose bengal, when injected into the circulation of normal dogs, at a dosage of about 20 mg. per 20 pounds (9.7 kg.) of body weight, remains in the blood stream for at least sixteen minutes. Examination of samples of blood which were withdrawn by Delprat from the circulation at definite specified intervals after the injection of the dye shows that there is a constant rate of elimination. The percentage concentration of the dye in the plasma as determined at definite time intervals may be tabulated and a "normal" curve of elimination of the dye may be obtained. Under certain conditions of liver injury, such as may be induced by chloroform, the curve of dye elimination is markedly influenced and indicates a slower elimination of dye.

Basal Metabolism During Pregnancy.—A marked increase in the basal metabolism both in total twenty-four hour calories and in the calories per unit of weight occurs during the later months of pregnancy, according to the Roots. The heat production per unit of weight falls gradually during the first three weeks after delivery to a level lower than that observed during the fourth month of pregnancy. The authors urge that standards of basal metabolism for use in practical obstetrics should be developed by the study of normal pregnant women, and a comparison of the basal metabolism of pregnant women should not be made with standards of basal metabolism for nonpregnant women.

Toxic Nephritis in Pyloric and Duodenal Obstruction.—Eleven cases are reported by Brown et al., in which as the result of organic obstruction, anatomic or physiologic stasis in the duodenum, duodenal toxemia, developed. Duodenal toxemia is characterized by a clinical syndrome, by urinary changes, by pathognomonic changes in the chemistry of the blood, by decreased renal function, and in case of death by pathologic changes in the kidney. The clinical picture consists of: (1) vomiting of large amounts of a thin, serous, bile stained fluid, (2) evidences of dehydration, red florid complexion, high hemoglobin, low blood pressure and asthenia, (3) tetany-like manifestations, and (4) features of shock and uremia. The blood shows: (1) a low level of chlorids; (2) a high carbon dioxid carrying capacity, and (3) a high level of blood urea and of creatinin. Urinalysis reveals albuminuria and casts. Renal functional studies indicate renal insufficiency, high values for urea and creatinin, and a decreased excretion of phenolsulphonephthalein. Necropsy in six cases revealed the pathologic condition of nephrosis characterized either by acute degenerative changes in the tubular epithelium or by a diffuse nephritis. Prognosis and treatment are discussed.

Treatment of Mercuric Chlorid Poisoning.—The treatment endorsed by Gatewood and Byfield includes the use of calcium sulphid, sodium phosphate and acetate, intravenous injection of Fischer's solution, colonic irrigations, hot packs, alkaline drinks and proctoclysis of potassium acetate, sodium bicarbonate and glucose, rest in bed, etc. This treatment, which was suggested by Rosenbloom in 1919, seems to give the most favorable results.

Conjugal Neurosyphilis.—The complete routine physical, neurologic and serologic examination of 113 marital partners of 111 neurosyphilitic persons are reported on by Moore and Kemp. Of the sixty spouses of paretic an dtabetic persons, about two-thirds were syphilitic. Of these syphilitic spouses, 57 per cent. were neurosyphilitics. Among the marital partners of patients with late cerebrospinal syphilis, the incidence of syphilis was high, but that of neurosyphilis in the syphilitic partners was low (28 per cent.). Conjugal neurosyphilis was observed in thirty-two instances, in nine of these being detected only because of the routine use of cerebrospinal fluid examination. Conjugal neurosyphilis of the same general clinical type was comparatively frequent. Although the danger of infection for the spouse increases as the date of infection in the one acquiring syphilis approaches the year of marriage, it is shown that neurosyphilitic patients may be infectious for many years, in spite of the absence of demonstrable open lesions. In two thirds of the syphilitic partners of persons with parenchymatous neurosyphilis, the course of syphilitic infection has been completely latent; while among the partners of cerebrospinal neurosyphilitic persons, more than two thirds had had outspoken early or late lesions of the disease. The incidence of neurosyphilis among the partners of persons with parenchymatous neurosyphilis is more than twice as great as in a large unselected group of women, although in the partners of persons with cerebrospinal syphilis, neurosyphilis is no more frequent than in the unselected group. These data offer suggestive evidence of the existence of a neurotropic strain of *Spirochaeta pallida* as an etiologic factor in neurosyphilis of the parenchymatous type. This hypothesis does not apply to diffuse cerebrospinal syphilis, in which case evidence supporting the theory of special strain is lacking. It is pointed out that other factors than strain, such as familial predisposition, treatment, pregnancy and other conditions may be operative in the etiology of neurosyphilis. Although the clinical evidence in favor of neurotropism offered by this paper is suggestive, it must be confirmed by adequate laboratory investigations, which are not yet available. The practical value of this work is self-evident. Every marital partner of a neurosyphilitic patient is himself potentially neurosyphilitic. Routine examination of the spouse by all available means, including especially study of the cerebrospinal fluid, is essential.

Boston Medical and Surgical Journal

189: 457-484 (Oct. 4) 1923

*Syphilis and Trauma: Neurologic Aspect. H. R. Viets, Boston.—p. 457.
Milk and Public Health. J. Garland, Boston.—p. 460.
Dystocia of Shoulders in Head Presentations. J. T. Williams, Boston.—p. 465.
Value of Clinical Laboratory Examinations. R. McC. Halbach, New Bedford, Mass.—p. 467.
*Carcinoma of Stomach. Review of Fifty Cases. D. J. Duggan, Boston.—p. 471.

Syphilis and Trauma.—A review of the literature made by Viets seems to stress the point that trauma is a secondary

etiologic factor, which may accelerate, aggravate, or even precipitate neurosyphilis, but never initiates it in the sense that it is the primary factor. Direct trauma may occasionally lead to rapid and severe forms of interstitial neurosyphilis, the diagnosis of which by clinical examination and laboratory tests is relatively easy, and the secondary causal relationship of which is usually fairly evident. Parenchymatous syphilis may be accelerated, and rarely precipitated, by trauma. The diagnosis may be difficult and the demonstration of the causal relationship extremely so. In obscure cases the diagnosis must be confirmed by an examination of the spinal fluid. Neurosyphilitics are especially prone to accidents, because of fits, optic atrophy, unsteadiness in the dark, ataxia of arms, diplopia and mental changes.

Carcinoma of Stomach.—Of the fifty cases reviewed by Duggan, 56 per cent. were adenocarcinomas, 20 per cent. were scirrhous, 8 per cent. colloid and 16 per cent. not specified. The favorite seats of metastases were: regional lymph nodes in 52 per cent.; liver in 58 per cent.; pancreas in 26 per cent.; lungs in 22 per cent.; omentum in 18 per cent.; mesenteric nodes in 20 per cent.; retroperitoneal nodes in 16 per cent.; peritoneum in 14 per cent.; suprarenals in 12 per cent.; spleen in 10 per cent.; diaphragm in 8 per cent., large and small intestine in 18 per cent., and mediastinum in 12 per cent. The less common seats of metastases were: gallbladder in 6 per cent.; esophagus in 4 per cent.; pleura in 4 per cent.; kidney in 2 per cent.; dura in 2 per cent.; nerves and vessels in 2 per cent.; heart in 2 per cent.; cervix uteri in 2 per cent.; bladder in 2 per cent. and generalized in 2 per cent. In one case a coexisting hypernephroma of the left kidney was found; in another, cancer of the cervix, and in nine cases benign tumors were found. Bilateral carcinoma of the ovary was found in two cases. There was associated arteriosclerosis in sixteen cases and chronic nephritis in six. In but two cases were there any syphilitic stigmata.

Georgia Medical Association Journal, Atlanta

12: 305-346 (Aug.) 1923

Four Nightmares of Abdominal Surgeon. E. C. Davis, Atlanta.—p. 305.
Gastric and Duodenal Ulcers. C. Usher, Savannah.—p. 309.
Study of Purity and Quality of Milk Supply of Georgia and Its Relation to Children Consuming It. N. L. Spengler, Donalsonville.—p. 313.
Epidemic of Dengue Fever in Savannah in 1922. W. H. Myers, Savannah.—p. 318.
Importance of Early Recognition and Treatment of Weak Feet in Children. T. Toepel, Atlanta.—p. 322.
Consideration of Kidney Function. W. W. Jarrell, Thomasville.—p. 323.
New Germicides and Antiseptics Used in Urethrovesical Irrigation (Acriflavine; Mercurochrome; Neosilvovol). J. T. Stukes, Americus.—p. 326.

Iowa State Medical Society Journal, Des Moines

13: 365-402 (Sept. 15) 1923

Efficiency in Medicine. E. McCrea, Eddyville.—p. 365.
Stridor and Dyspnea in Childhood. J. B. Naftzger, Sioux City.—p. 367.
Spreading Peritonitis and Its Treatment. A. G. Hejinian, Anamosa.—p. 372.
Chemistry and Medicine. P. E. Somers, Grinnell.—p. 377.
Diagnostics of Epidemic Encephalitis. C. G. Field, Dodge.—p. 382.
Errors in Orthopedic Diagnosis. R. H. Sayre.—p. 385.
Cancer of Breast. Report of Case. H. Hansen, Logan.—p. 388.

Johns Hopkins Hospital Bulletin, Baltimore

34: 241-276 (Aug.) 1923

Graphic Method for Recording Oxygen Consumption. R. R. Hannon and R. S. Lyman, Baltimore.—p. 241.
*Space Compensating Function of Cerebrospinal Fluid. Its Connection with Cerebral Lesions in Epilepsy. W. E. Dandy, Baltimore.—p. 245.
*Prophylactic Vaccination Against Acute Tonsillitis. A. L. Bloomfield and A. R. Felty, Baltimore.—p. 251.
*Pathologic Changes in Kidney in Congenital Syphilis. E. de S. Campos, Baltimore.—p. 253.
Studies on Virulence. I. Automatic Transferring Device: Influence on Virulence of Growth of Micro-organisms During Logarithmic Increase Phase. L. D. Felton, Baltimore.—p. 262.
Increasing Significance of Permeability-Problems for Biologic and Medical Sciences. H. J. Hamburger, Groningen, Holland.—p. 266.

Space Compensating Function of Cerebrospinal Fluid.—In a series of operations for the relief of epilepsy, a number of changes have been found by Dandy with considerable uniformity. These are: (1) dilatation of ventricles; (2) collections of fluid on the surface of the brain; (3) pockets of fluid in the brain substance; (4) softening of the brain in association with these collections of fluid; (5) areas of induration in the brain (fibrosis or gliosis); (6) changes in the meninges, and (7) congenital malformations. It is believed that these are evidences of actual cerebral lesions (end products of repair), and the frequency of the findings leads to the conclusion that there is a pathologic basis for so-called idiopathic epilepsy in a large proportion of the cases. Confirmation of this view is obtained by means of ventriculography, which in a certain proportion of cases shows acquired or congenital distortion of the ventricles.

Prophylactic Vaccination Against Acute Tonsillitis.—In the course of a bacteriologic and epidemiologic study of acute tonsillitis it was found by Bloomfield and Felty that carriage of beta-hemolytic streptococci in the tonsils seemed to prevent attacks of this disease. Among forty-nine carriers one case occurred, an incidence of 2.5 per cent., whereas among fifty noncarriers there were twenty-eight cases of acute tonsillitis during a period of six months. It appeared, furthermore, that resistance was directly related to the continued presence of the streptococcus in the carrier and that a high degree of susceptibility was rapidly reestablished after the carrier state was terminated. These observations seemed to furnish a rational basis for prophylactic vaccination. A polyvalent vaccine was prepared from twenty-one strains of beta-hemolytic streptococcus isolated from cases of acute follicular tonsillitis. Three doses of 75,000, 100,000 and 125,000, respectively, were given at intervals of one week by subcutaneous injection into the arm. Mild reactions followed practically all of the injections, but in no case was the subject incapacitated. Of the ninety members of the group thirty-three were carriers. Seventeen were vaccinated and sixteen were used as controls. There were fifty-seven noncarriers and of these eighteen received the vaccine. No case of tonsillitis occurred in the group of carriers whether vaccinated or unvaccinated. In the group of noncarriers, on the other hand, there were fifteen persons who developed the diseases. All but one of the cases among the unvaccinated were severe. The three cases among the vaccinated, on the other hand, were so mild as to be almost subclinical.

Changes in Kidney in Congenital Syphilis.—A microscopic examination made by Campos of the kidneys from sixty-nine cases of congenital syphilis showed histologic changes in the interstitial tissue and, to a lesser degree, in the parenchymatous apparatus in every case. The interstitial changes consisted principally of a cellular infiltration around the blood vessels of the cortex of the kidney. Parenchymatous lesions in the kidney in congenital syphilis, it seems, are observed practically only in infants who have had an extrauterine life and becomes more pronounced as the infants become older. The kidney of congenital syphilis is retarded in its development. This fact is demonstrated by the presence of the "neogenic zone" in kidneys of full-term, stillborn, syphilitic babies, while this is not to be observed in kidneys of normal, full-term, stillborn infants.

Journal of Bacteriology, Baltimore

8: 421-520 (Sept.) 1923

Formation of Gum Levan from Sucrose. W. L. Owen, New Orleans.—p. 421.
Readily Cultivable Vibrio, Filterable Through Berkefeld "V" Candles, Fibrio Percolans (New Species). S. Mudd and S. Warren, Boston.—p. 447.
Penetration of Bacteria Through Capillary Spaces. I. Motility and Size as Influencing Filterability Through Berkefeld Candles. S. Mudd, Boston.—p. 459.
Physiologic Study of Azotobacter Chroococcum. I. Influence of Vitamin B (?) and Nucleic Acid on Azotobacter. A. Itano, Amherst, Mass.—p. 483.
Enzymic Content of Bacterial Spore. G. L. A. Ruehle, East Lansing, Mich.—p. 487.
Utilization of Salts of Organic Acids by Colon-Aerogenes Group. S. A. Koser, Washington, D. C.—p. 493.

Journal of Laboratory and Clinical Medicine, St. Louis

8: 703-774 (Aug.) 1923

Evolution of Clinical Pathology. H. Gauss, Denver.—p. 703.
Efficiency of Radiation Therapy. U. V. Portmann, Cleveland.—p. 716.
Bacteriophage Phenomena. L. Arnold, Chicago.—p. 720.

*Effect of Normal Meal on Blood Sugar Level in Health and in Certain Conditions of Disease. I. C. Brill, Portland, Ore.—p. 727.
*Differential Leukocyte Count in Chronic Peri-Apical Dental Infection. R. L. Haden, Kansas City, Mo.—p. 731.
Clinical and Laboratory Procedures in Pediatrics. A. Levinson, Chicago.—p. 736.
Estimation of Amount of Pancreatic Enzymes in Duodenal Fluid by Modified Gautier's Method. I. G. F. Spencer, Philadelphia.—p. 741.
*Study of Yeasts Found in Sputum of Patients with Asthma and Chronic Bronchitis. E. Steinfield, Philadelphia.—p. 744.
*Adaptation of Shaffer's Titration Method for Blood Sugar to Clinical Use. H. D. Haskins and W. P. Holbrook, Portland, Ore.—p. 747.
Aeration Apparatus for Determination of Urea in Blood. A. T. Weathers and H. C. Sweany, Chicago.—p. 752.
Study of Ammonia Present in Gastric Contents Following Test Meals. J. Rosenbloom, Pittsburgh.—p. 755.
*Unsuspected Source of Error in Gram Stain. W. M. Sheppe and M. G. Constable, Charlottesville, Va.—p. 757.

Effect of Normal Meal on Blood Sugar Level.—The method devised by Brill for the determination of abnormal glycemic reactions is intended as a substitute for the glucose tolerance test now in general use. He made a comparative study of the effects of an average normal breakfast on the blood sugar content in normal persons and in various chronic conditions in which the food tolerance is known to be affected. Apparently, breakfast time affords the greatest contrast between the normal and the abnormal conditions. In order that the test may be a true food tolerance test, Brill says, all the food elements should be represented in the test meal. It should include the usual breakfast foods, bread, butter, cereals, eggs, sugar, coffee and cream, amounting to approximately 100 gm. carbohydrates, 26 gm. protein, 27 gm. fats and 760 calories. Two estimations only were made, fasting, and one hour and a half after breakfast. Normally, one hour and a half after breakfast the blood sugar is within 10 mg. of the fasting level and the two estimations furnish almost a horizontal line. In diabetes, however, a greater difference is found, the second level being considerably higher than the first and, therefore, a rising line is obtained.

Leukocyte Count in Periapical Dental Infection.—The white cell count and differential count made by Haden in 200 cases showed that patients with periapical abscesses show a slightly higher total white count than those having no abscesses. The difference is somewhat more marked in those patients suffering from systemic disease of focal origin. The increase is, for the most part, in the polymorphonuclears, although all types show some increase. Patients suffering from chronic periapical dental infection do not show typically a lymphocytosis. Haden has not found evidence of an unusual type of white cell or tinctorial reaction in chronic dental infection. The differential count is of little practical value in determining whether a patient is absorbing toxins or bacteria from possible foci of infection about pulpless teeth.

Yeasts in Asthma and Chronic Bronchitis Sputum.—Yeasts belonging to the general *Monilia, Endomyces* and *Cryptococcus* were found by Steinfield in large numbers in the sputum of patients suffering from asthma and chronic bronchitis. On the basis of biochemical reactions some of these are comparable to the yeasts, particularly *Monilia,* found in cases of bronchomycosis described by Castellani. Eosinophelia in the peritoneal exudate and blood of guinea-pigs after intraperitoneal injections was noted as a constant feature.

Adaptation of Shaffer's Titration Method for Blood Sugar Determination.—A method of standardizing the thiosulphate is proposed by Haskins and Holbrook as a modification of the Shaffer method, the thiosulphate being checked against the copper reagent. Because of this adjustment of the solution, the control estimation of the reagent is always 19.5 c.c. of dilute thiosulphate. This constant titration value has enabled the authors to construct a table from which the per cent. of glucose in the blood can be read without calculation.

Source of Error in Gram Stain.—Experiments made by Sheppe and Constable show an error in the gram-staining technic, resulting in the decolorization of gram-positive organisms. This error was not corrected by changes in procedure or the use of other samples of gentian violet. The Lugol's solution in use was found to have become acid. This acidity could be produced at will in test samples of the iodin solution by heat or light. Stains made with these test solutions were regularly gram-negative as were those in which small amounts of hydriodic acid were added (0.75 per cent.). Neutralization of the acidity by sodium bicarbonate resulted in the disappearance of false gram-negative stains. It is recommended that Lugol's solution be kept in dark bottles in a fairly cool place.

Medicine, Baltimore

1: 389-510 (Nov.) 1922

Bacteriologic and Clinical Consideration of Bacillary Dysentery in Adults and Children. W. C. Davison, Baltimore.—p. 389.

2: 1-104 (Feb.) 1923

*Cyanosis. C. Lundsgaard and D. D. Van Slyke, New York.—p. 1.
*Etiology of Nephritis. L. H. Newburgh, Ann Arbor, Mich.—p. 77.

Cyanosis.—On the basis of Lundsgaard's demonstration that the cause of cyanosis is an abnormally large amount of reduced hemoglobin in the capillary blood, the quantitative effects of four factors contributing to this cause have been estimated, viz., (1) the total hemoglobin content; (2) the degree of oxygen unsaturation of the arterial blood coming from aerated lung areas; (3) the proportion of blood passing from right heart to left through unaerated channels, and (4) the oxygen consumption in the capillaries. There are various other factors which modify the coloration. Such are local skin vascularity, pigmentation, thickness of epidermis; and also the fact that the mean capillary content of reduced hemoglobin, $\frac{1}{2}(A+V)$, only approximately represents the average content. With changing conditions the latter may, instead of being midway between venous and arterial, approximate either more nearly than the other. The effect of these modifying factors is to cause the mean capillary concentration of reduced hemoglobin at which cyanosis becomes perceptible to vary from 4 to 6 gm. of reduced hemoglobin per hundred cubic centimeters of blood, and, perhaps, sometimes even more widely, although it appears usually to lie near 5. The main clinical conditions in which cyanosis is a symptom have been considered in connection with the causative and modifying factors present, and attempts have been made to estimate the functional and anatomic significance of the cyanosis in these conditions.

Etiology of Chronic Nephritis.—Newburgh asserts that chronic nephritis is, generally speaking, caused by the combined effect of infection and abuse of protein. The protein consumption, as well as calory intake, of the Bedouins is exceedingly low. Their usual diet is composed of a few dates and camel's milk with little else. It is only on rare occasions that they taste meat. Among the members of this group nephritis is so rare to be practically unknown. In the United States, on the other hand, there were in 1915, 909,155 deaths of which 70,500 were due to nephritis. It is also well known that Europeans and North Americans consume much larger amounts of protein in the form of animal food than do the native tropical races. "May not," asks Newburgh, "the excessive protein metabolism of northern peoples be partly or even largely responsible for the high incidence of chronic nephritis amongst them?"

2: 105-170 (May) 1923

*Subacute Bacterial Endocarditis. G. Blumer.—p. 105.

Subacute Bacterial Endocarditis.—Blumer reviews the literature on this subject from 1852 to the present in its bearing on the clinical history, and emphasizes the fact that there are still many problems to be solved in connection with this disease and that they are problems which have a much wider bearing than the etiology of endocarditis. The whole question of infection with subvirulent organisms is concerned and also the solution of the etiology of the rheumatic group of infections. Incidentally, the question of the classification of streptococci and their relationship to pneumococci is involved.

Military Surgeon, Washington, D. C.

53: 207-308 (Sept.) 1923

Developments of Aviation Medicine. W. R. Davis.—p. 207.
Aviation as Medical Problem. J. D. Benjamin.—p. 218.
Chronic Infection of Teeth and Gums as Cause of Staleness in Air Service Pilots. H. C. Neblett.—p. 224.
Value of Tests for Intelligence in Applicants for Enlistment. W. C. Porter.—p. 230.

Early Epidemic of Typhoid Fever Among Soldiers. A. N. Tasker.—p. 252.
Arsphenamin vs. Neo-Arsphenamin. Report of 1,609 Injections. E. L. Merritt.—p. 259.
Migration of Shell Fragment from Inferior Vena Cava to Right Pulmonary Artery. Case Report. E. C. Cutler.—p. 264.

New Orleans Medical and Surgical Journal

76: 113-167 (Sept.) 1923

Two Cases of Tracheobronchial Diphtheria. H. Dupuy, New Orleans.—p. 113.
Elimination of Bacillus Coli from Cultures by Inoculation with Bacillus Acidophilus. C. C. Bass and W. E. Jones, New Orleans.—p. 115.
*Possibility and Practicability of Transformation of Intestinal Flora by Feeding Milk Cultures of Bacillus Acidophilus. C. C. Bass and W. E. Jones, New Orleans.—p. 116.
Ureteral Calculi. P. J. Kahle, New Orleans.—p. 118.
Charity Hospital of Louisiana. A. E. Fossier, New Orleans.—p. 128.
Astragalectomy (Whitman's Operation) for Relief of Certain Forms of Paralyzed Feet. P. A. McIlhenny, New Orleans.—p. 138.
Situs Inversus Viscerum Totalis. G. S. Bel, New Orleans.—p. 140.
Case of Streptococcus Meningitis. S. C. Jamison, New Orleans.—p. 142.
What the State is Not Doing for Its Mentally Diseased. H. Daspit, New Orleans.—p. 144.
What Louisiana is Doing for Her Insane. J. R. Thomas, Pineville, La.—p. 148.
Treatment of Tuberculosis: An Appeal to Medical Profession. W. J. Durel, New Orleans.—p. 153.

Result of Bacillus Acidophilus Therapy.—Bass and Jones agree with others that by feeding a milk culture of a supposedly harmless organism, *Bacillus acidophilus,* it is possible to transform the intestinal flora so that the putrefactive bacteria are greatly reduced or entirely eliminated. It remains for the future to show what, if any, therapeutic value this may have. To get the best results, the acidophilus milk should be taken with meals, preferably some with each meal. The object is to inoculate the food heavily with viable bacilli. The quantity required is from one pint to one quart daily. Practically, a glass of acidophilus milk with each meal gives best results. In persons taking acidophilus milk in this way, the number of *B. acidophilus* in the feces rapidly increases with corresponding decrease and sometimes practical disappearance of all other bacteria. A high degree of transformation is accomplished within a period of from four to ten days, and this is usually maintained as long as the acidophilus milk is continued.

Philippine Islands Medical Association Journal, Manila

3: 169-226 (July-Aug.) 1923

*Calculi Among Filipinos. M. P. Mendoza-Guazon.—p. 169.
Bacterologic and Pathologic Study of Case of Anthrax Septicemia with Gastro-Intestinal Lesions. C. Monserrat.—p. 193.
Medical Economics and Ethics. S. De Los Angeles.—p. 199.

Calculi Among Filipinos.—Mendoza-Guazon reviewed 8,649 necropsy records of Filipinos with reference to the incidence of calculous disease among Filipinos. Calculi in the biliary tract were found in 131 cases. The ratio of the incidence of cholelithiasis in the two sexes is 1.5 males to 1 female, which is contrary to the findings in the United States. The incidence of cystolithiasis is 17.5 males to 1 female, and urinary lithiasis is 3.7 male to 1 female. Vesical calculus is very rare among Filipino women. In a semi tropical country the danger of cholelithiasis is increased by the migratory activities of Ascarides. Ascarides may ascend the biliary tract and either their eggs or the worms themselves become the nucleus on which bile pigments may be deposited. The hypothesis that avitaminosis is the cause of either gall or urinary stones is not supported by this study. Hemorrhagic pancreatitis was encountered three times; two cases answer the theory of Opie, while the condition in the other seems to be the result of infection coming from an advanced tuberculous process in the retroperitoneal glands. Acute peritonitis occurred either as the result of the direct escape of infected bile through a visible perforation, or secondarily as the extension of miliary or cholangiectatic abscesses in the liver or from ulcers in the mucosa of the tract. Multiple stones in either the biliary or urinary tract, or in both tracts in the same individual, was found in nine cases of this series of 131 cases of cholelithiasis, and ninety cases of urinary stone formation and combination with gallstones. Stone in the intestinal tract in the pancreatic duct, in the seminal vesicles, and in the prostatic duct have been encountered once each. The large number of infections and carriers in a semitropical country is one of the causes of the great incidence of cholelithiasis.

Porto Rico Medical Association Bulletin, San Juan

17: 109-135 (July) 1923

*Microchemical Analysis of the Blood. R. del Valle Sárraga.—p. 109.
*A Chemical Basis for the Treatment of Tuberculosis. L. G. Robinovitch.—p. 130.

Microchemical Analysis of Blood.—This is a continuation of del Valle Sárraga's extensive study of the theoretical and practical interpretation of the chemical findings in the blood. In this installment he cites, with comment, some of the more recent publications on uric acid, creatin, glucose and sodium chlorid, and acidosis.

Chemical Basis for Treatment of Tuberculosis.—This is a preliminary statement (in English) by Louise Robinovitch of the successful removal of the waxy coating of tubercle bacilli by means of a solvent consisting of a slightly alkaline glycerol extract of steapsin or lipase, with probably insulin, and a small amount of chloroform. The work was done at the Colorado School of Mines, and the product is called "poor man's radium," as an important adjunct of the treatment is activated oxygen which releases its negative electric charge. Experiment is activated oxygen which releases its negative electric charge. Experiments on guinea-pigs with these defatted bacilli confirmed the belief that the protecting waxy and fatty coating of the bacilli had been lost, and the bacilli were thus left defenseless.

Public Health Journal, Toronto

14: 387-434 (Sept.) 1923

Diphtheria Mortality. R. George.—p. 387. (To be continued.)
Is Nationalization of Medical Profession Desirable? J. H. Mullin, Hamilton.—p. 402. (To be continued.)
Public Health Administration. J. W. S. McCullough, Ontario.—p. 415.

Tennessee State Medical Association Journal, Nashville

16: 121-156 (Aug.) 1923

Pituitary Growths: Clinical Study. A. O. Pfingst, Louisville.—p. 121.
Choroiditis. A. C. Lewis, Memphis.—p. 129.
Comparison of Wassermann Test with Kahn Flocculation Test in 1,000 Cases. W. Litterer, Nashville.—p. 132.
Rest in Pulmonary Tuberculosis. W. S. Rude, Ridgetop.—p. 135.
Diagnosis of Early Pulmonary Tuberculosis. B. D. W. Colby, Asheville, N. C.—p. 138.
Lung Abscesses as Complication of Nose and Throat Operations. M. M. Cullom, Nashville.—p. 144.

U. S. Naval Medical Bulletin, Washington, D. C.

14: 257-392 (Sept.) 1923

Fear and Worry. H. Butts.—p. 257.
Psycho-Analytic Literature. J. C. Thompson.—p. 281.
Chronic Colitis. J. B. Pollard.—p. 285.
Cholecystitis of Chemical Origin in Man Following Inhalations of Poison Gas. H. M. Stenhouse.—p. 291.
Cancer of Stomach. L. H. Williams.—p. 296.
Present Status of Treatment of Gonorrhea. E. A. Daus.—p. 300.
Diagnosis and Treatment (Desensitization) of Bronchial Asthma. J. E. Miller.—p. 311.
Diagnosis and Treatment of Fractures of Leg. C. L. Andrus.—p. 321.
Urology and Its Place in Group Medicine. W. H. Connor.—p. 329.
Rôle of Roentgenologist in Modern Hospital. J. B. Farrior.—p. 334.
Actinomycosis of Liver and Lungs. G. F. Cottle and R. C. Satterlee.—p. 341.
Incidence of Neurosyphilis in Treated Cases on Island of St. Croix, Virgin Islands of United States. F. L. McDaniel.—p. 343.
Myiasis of Ear. L. L. Davis.—p. 345.

West Virginia Medical Journal, Huntington

18: 113-168 (Sept.) 1923

Mortality Among Women from Causes Incidental to Child-Bearing. What Can Be Done to Reduce It? S. D. H. Wise, Parkersburg.—p. 113.
Some Indications for Use of Forceps. J. R. Bloss, Huntington.—p. 124.
Diagnostic Significance of Purpura with Report of Case of Peliosis Rheumatica, or Schonlein's Disease. R. A. Ireland, Charleston.—p. 130.
Endocarditis and Its Importance as Complication in Infectious Disease. C. A. Ray, Charleston.—p. 136.
Pyelitis. D. B. Jarrell, Beckley.—p. 140.
Bootlegging. W. W. Brown, Martinsburg.—p. 142.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 491-540 (Sept. 22) 1923

*Some Pitfalls in Diagnosis and Treatment of Pulmonary Tuberculosis. C. Riviere.—p. 491.
*Complement Fixation in Tuberculosis. A. Lisle and A. H. Gosse.—p. 495.
Complement Fixation Tests and Tuberculosis. A. Sellers.—p. 497.
*Artificial Light Treatment of Lupus and Other Forms of Tuberculosis. A. Reyn.—p. 499.
*Treatment of Cutaneous Tuberculosis. J. H. Sequeira.—p. 503.
*Present Position of Surgical Treatment of Pulmonary Tuberculosis. J. Gravesen.—p. 506.
Social Aspects of Tuberculosis, with Special Reference to Its Infectivity. J. Walker.—p. 512.
Treatment of Tuberculosis by Spahlinger Method. L. Williams.—p. 519.
Cannabis Indica in Smoking Tobacco. R. L. E. Downer.—p. 521.
Eyelid Penetrated in Separate Places by Eyelashes. S. Tibblees and P. Edin.—p. 521.
Volvulus of Ascending Colon. A. H. Brodribb.—p. 522.
Wandering Spleen Impacted in Pelvis. A. J. V. Betts.—p. 522.
Pseudocyesis. D. S. Pracy.—p. 522.

Diagnosis of Pulmonary Tuberculosis.—Riviere urges that pulmonary tuberculosis, and the suspected case also, should be treated as a serious matter unless, or until, it can be shown to be otherwise. Bed, or, at least, rest on a couch, is the right place for the patient at the outset and pending complete diagnosis, and this should be continued as long as, and beyond, the period of active symptoms. Especially must the patient be prevented, when possible, from "settling up his affairs," which means, in many cases a strenuous attempt to put several weeks' business into a few fevered days. If it is put to him frankly that this may mean a serious prolongation to his illness, or worse, it often becomes apparent that this "settling up" is not so indispensable as it at first appeared, and a relative or friend can be deputed to carry it through. When fever is a prominent symptom—cases, therefore, which will probably require the training of a sanatorium course—it is necessary to carry on bed treatment for a considerable period. If conditions are suitable and the friends can be trusted, or a reliable nurse is obtainable, this early rest period can sometimes be advantageously carried on at home. Sanatoriums do not provide for many bed cases, and therefore it is convenient to get through a good part of this period before the patient goes there. In institutions for the treatment of pulmonary tuberculosis, whatever class they serve, there must always be a bias toward getting patients up and pushing convalescence forward. For cases with fever the period of rest should be double the febrile period, but in no such cases should the resting period be shorter than two months. In cases of slight exacerbation in an old tuberculous case the resting period may often be more curtailed than in a first attack. With decided disease a period of from four to six months of rest is none too long; and for the hospital class a long resting period at the outset is most vital. It is important that the maximum of open air is combined with rest. Rest may (and in febrile cases should) be in bed beside the open window (preferably with the sashes removed), or on a balcony, or in many cases divided between bed and an outside couch (but stairs must not be allowed).

Value of Complement Fixation Test in Tuberculosis.—Further research on the diagnostic value of the complement fixation test for tuberculosis has convinced Sellers of its unreliability. The reaction is specific in the sense that under certain conditions the mixture of serum and extract will fix more complement than either of the two alone, but it seems clear that the property of fixing complement in the presence of an antigen derived from tubercle bacilli is shared by serums from cases other than tuberculosis. A positive result does not necessarily mean infection with tuberculosis. Probably the number of such false positive reactions is not large, but the fact that they occur must not be ignored. One of the chief aims of the present work was to see whether Besredka was better than Wang, and the results were encouraging. The results with control specimens of cerebrospinal fluid were disappointing. As to prognostic value, a positive reaction in a case of active tuberculosis is more favorable as regards prognosis than a negative reaction; but when there are no signs of active tuberculosis a negative result points to a healed tuberculosis. A negative reaction followed by a positive reaction indicates that improvement is setting in.

Light Treatment of Lupus and Other Forms of Tuberculosis.—Reyn is of the opinion that light baths (sun or artificial) are indispensable in the nonoperative treatment of surgical tuberculosis. The carbon arc light can fully replace sunlight, and is much superior to the mercury arc light. Sanatoriums in mountain heights, as well as at the seaside, should have artificial light baths at their disposal. In the treatment of lupus vulgaris, concentrated chemical light is absolutely indispensable, and it is of the greatest value to combine local treatment with light baths.

Treatment of Tuberculosis of Skin.—Sequeira asserts that the best results in the treatment of lupus vulgaris are obtained by a combination of local and general treatment. The local treatment is carried out by the application of concentrated actinic light to the lesions. The light bath is the exposure of the nude body and limbs to the rays of a large arc lamp. The amount of pigmentation is an index of the reaction of the body to the radiation. As a general rule, the more the patient's skin becomes pigmented, the better the results. Sequeira feels justified in stating that 90 per cent. of all cases can be cured by combining the light bath with local phototherapy. In addition to the healing of tuberculous skin lesions, sinuses, etc., the patients increase in weight, their general health improves to a remarkable degree and their mentality is most favorably influenced.

Surgical Treatment of Pulmonary Tuberculosis.—Gravesen has treated 110 patients by thoracoplasty; 105 of these were operated on for pulmonary tuberculosis, three for old tuberculous empyema with external fistulae, and two for bronchiectasis. Thoracoplasty, in his opinion, is indicated in cases fit for lung collapse treatment in which careful attempts to produce an artificial pneumothorax have actually failed. The chief problem in plastic operations is to individualize the operation. The deliberations on this point are particularly concerned with two questions: (1) Should a partial or a complete thoracoplasty be done? (2) Should the operation be performed in one, two, or more stages? A partial thoracoplasty may be considered sufficient either when the affection (for instance, a cavity) is localized to a limited area of the lung or when a partial pneumothorax established collapse of the upper or, more frequently, the lower part of the lung. In cases of universal affection of the lung, partial and ineffective pneumothorax should be discontinued in favor of complete thoracoplasty. The plan of a complete operation, however, has often to be modified according to the extent and to the special localization of the disease. Whether a complete thoracoplasty should be performed in one, two, or even three stages, Gravesen says, should be individualized also; if the patient is tall with strongly adherent muscles that cause difficult and violent manipulation during the operation, this should always be done in two stages. On the contrary, a lean person in fair general health may well be operated on in one stage. A weakened, intoxicated patient with rapid pulse should always be operated on in two stages. Doubt as to the condition of the "good" lung favors two stages, as a gradual collapse of the diseased lung is likely to be tolerated better than a sudden one. A survey of Gravesen's results with thoracoplasty shows that death from the operation occurred in nine cases. Of the remaining ninety-six patients, sixty-four obtained a positive result (forty-three were relatively cured or much improved, twenty-one improved); two of these patients died later of epidemic influenza; thirty-two patients derived no benefit from the operation, and the majority of these have since died.

Calcutta Medical Journal

18: 289-336 (July) 1923

Neurosyphilis. S. C. S. Gupta.—p. 289.
Quinin. C. C. Sanyal.—p. 296.
Main Principles of Cardiologic Practice. S. C. Bose.—p. 303.
Case of Dermal Leishmaniasis. I. Bose.—p. 308.
Two Uncommon Cases of Malignant Tertian Infection. I. B. Bose.—p. 310.

Points of Interest in Cases of Glaucoma in Which Increase of Tension is Practically Nil. S. K. Ganguli.—p. 312.
Insulin Treatment in Diabetes. S. K. Bose.—p. 314.

China Medical Journal, Shanghai

37: 625-708 (Aug.) 1923

*Osteomalacia in China. J. P. Maxwell.—p. 625.
Physical Examination of Chinese Students. J. H. Foster.—p. 643.
Plea for Routine Examination of Vision of School Children in China. E. J. Stuckey.—p. 650.
Ankylosis of Elbow Joint. G. T. Tootell.—p. 656.
*Isospora Hominis Discovered in China. C. McA. Wassell.—p. 661.
*Neurosyphilis Among Chinese. W. G. Lennox.—p. 663.

Osteomalacia in China.—Three dead fetuses, removed by cesarean section from cases of marked osteomalacia, have been examined by Maxwell, also four fetuses apparently normal in every way as controls. Two of the three osteomalacia fetuses were at full term, the third at about 7½ months. Roentgenograms showed that the proper centers of ossification are present, and the appearance of the bones is that of a normal fetus. A living fetus removed by cesarean section from a woman who had marked osteomalacia showed at the age of 1 month certain changes in the ends of the femora.

Isospora Hominis in Man.—The coccidium, *Isospora hominis*, which was found by Wassell in a Chinese patient, was in the oocyst condition. The patient was a man, aged 50, the father of thirteen children. As a boy he worked as a cowherd; later, he became a farmer. He had had blood and mucus in his stools for forty years; ascites for one year; and had suffered from malaria and chronic bronchitis. The spleen was enlarged, reaching below the umbilicus. There was general emaciation. The feces contained ova of *Isospora hominis*, *Giardia intestinalis*, *Schistosoma japonicum* and *Ancylostoma duodenale*.

Neurosyphilis Among Chinese.—Testimony of individual observers and reports of general hospitals agree that in China syphilis is relatively more common and neurosyphilis relatively less common than in America. One explanation given by Lennox for this apparent racial discrimination is the probability that, for reasons named, many cases of neurosyphilis among the Chinese have been overlooked. In a teaching hospital in Peking, search for these cases revealed a proportion comparable with that found in teaching hospitals in America. An unusual proportion of the Chinese patients have cord lesions of vascular origin. Sixty-five cases of neurosyphilis are reported in which spinal fluid examination confirmed the clinical diagnosis.

Indian Medical Gazette, Calcutta

58: 353-398 (Aug.) 1923

Operative Treatment of Fractures. H. Hallilay.—p. 353.
*Dysentery. J. Cunningham.—p. 358.
*Causation of Asthma and Its Treatment. H. W. Acton and R. N. Chopra.—p. 363.
*"Aldehyde Test" in Malaria. R. B. Lal.—p. 369.
Medical Research and Sanitary Engineering. V. D. Pillai.—p. 371.
*Experiments with Thyroid Augmentor. Postoperative Treatment of Exophthalmic Goiter. W. Burridge.—p. 373.
Possibility of Latent Infection with Bacillus Typhosus. J. W. Cornwall.—p. 374.
Streptococcal Affections of Skin. U. N. Mandal.—p. 375.
Multilocular Ovarian Cyst. L. W. Hefferman.—p. 378.
Case of Hydatid Cysts in Both Lobes of Liver. E. F. Neve.—p. 380.
Cases Resembling Paralytic Ileus. W. W. Jeudwine.—p. 381.
Case of Blindness Preceding Apoplexy. A. P. Pillay.—p. 382.

Carrier Problem in Dysentery.—Cunningham advocates systematic macroscopic examination of the stools as a really practical means of dealing with carriers. By this means, he maintains, the vast majority of the latent, and, therefore, dangerous cases, can be separated from the healthy population in any community which is sufficiently under control to permit of a daily examination of stools. Large numbers of cases can be examined in a comparatively short time, and the technic does not call for any special skill on the part of the medical attendant. The abnormals are detected and can be treated with advantage to themselves and also to the community at large, for the incidence of the disease due to relapses among this particular group is considerably lowered. The isolation of the latent cases that are the potential carriers prevents the disease from spreading among the normal population.

Cause of Asthma.—The causation of asthma is considered under three distinct headings by Acton and Chopra: (*a*) Poisonous bases that cause constriction of the bronchial muscles and turgescence of the mucous membrane; (*b*) the defensive mechanism of the body against these bases, and (*c*) the tonus of the nerves that receive the stimulus of the poison.

Aldehyd Test in Malaria.—Lal asserts that the aldehyd test used by Napier is not positive in malaria if the standards of this author be taken. There occurs, however, in some persons infected with malarial parasites a definite opacity, but to a much less degree. No relation can be made out between the clinical and pathologic conditions, viz., size of the spleen or of the liver, and the temperature and the slight reaction that takes place in some of the cases. No relation could be found between the urine tests employed and the aldehyd reaction.

Thyroid Augmentor Hormone.—Burridge refers to his experiments in which feebly beating hearts of frogs were brought under the influence of the augmentor hormone of the thyroid gland and thereby enabled to beat well. The points to be noted are: (*a*) that practically the whole energy output of a heart may be determined by the presence of this thyroid hormone; (*b*) that augmentation of the beat precedes accelera hormone; (*b*) that augmentation of the beat precedes acceleration; (*c*) that cessation of the supply of hormone is followed by cessation of its effects, the heart then returning to its original state of relative inactivity. When the surgeon performs thyroidectomy for hyperthyroidism, Burridge says, he cuts off the supply of something of which the accelerating effect is the culmination of an action primarily expressed as augmentation. It is possible that the hearts of all victims of hyperthyroidism tend after operation to revert to an inefficient level of beat. By whatever mechanism survival is effected after operation, however, these experiments presage the therapeutic indication that exhibition of thyroid in diminishing amounts should be a regular postoperative measure. Postoperatively such a measure could, at the worst, restore the original disease only temporarily. The condition of the victim of hyperthyroidism is, Burridge says, comparable with that of a drug devotee and appears to require treatment along similar lines when the stimulant is withdrawn. Usually the surgeon withdraws the supply of thyroid stimulant, but the possibility must be considered that a too quick cessation of the disease itself may have unpleasant results, requiring thyroid therapy for their amelioration.

Journal of Oriental Medicine, Dairen, Manchuria

1: 77-136 (Aug.) 1923

Composition of Shi-Hoa. M. Nakao.—p. 77.
Study of 85 Cases of Rubella Among Children in Manchuria (Dairen). T. Suzuki.—p. 85.
*Blood in Rubella. J. Kaneko.—p. 112.
*Urine in Rubella. Dr. Nagahara.—p. 115.
Vital Substances in Rice Polishing Used in Treatment of Pigeon Ill From Eating Polished Rice. T. Ikeda.—p. 116.
Case of Choledochus Cyst Treated Successfully by Cholecystduodenostomy. T. Narabayashi.—p. 122.
*Diplococcus Isolated from Spinal Fluid in Acute Cerebrospinal Meningitis. K. Ito.—p. 124.
Fibrinogen Fibrin Ferment Content of Blood in Internal Diseases. J. Murakami and T. Yamaguchi.—p. 126.
Influence of Medicaments on Velocity in Sedimentation of Blood Corpuscles. S. Hara.—p. 128.
Purpura Following Pneumococcus Septicemia. K. Hatai.—p. 130.

Blood in Rubella.—In forty-six cases of rubella in which Kaneko examined the blood, the number of red blood corpuscles was constant; there was a leukopenia, especially in the eruptive stage; the neutrophil polymorphonuclear leukocytes were diminished in the eruptive stage. The lymphocytes were relative increased. Doehle's granulation was positive in some cases, but was not constant.

Urine in Rubella.—Of fifty cases of rubella from which the urine was examined by Nagahara, fourteen cases showed a positive albumen reaction; eighteen showed a positive indican reaction; twelve a positive diazo reaction, and fifteen a positive acetone reaction. All the reactions were most marked during the first three days of the eruptive stage; later they gradually diminished.

Diplococcus of Acute Cerebrospinal Meningitis.—In the spinal fluid of ten cases of acute cerebrospinal meningitis, Ito

found a gram-positive diplococcus with capsule which apparently stands between the coccus of Jaeger and that of Kanno.

Lancet, London

2: 541-590 (Sept. 15) 1923

*Physiologic Principles Underlying Treatment of Injuries and Diseases of Articulations. A. G. T. Fisher.—p. 541.
Some Common Conditions Requiring Antenatal Care. R. A. Hendry.—p. 548.
*Hysterical Fits. L. R. Yealland.—p. 551.
*Anticoagulating Action of Arsenobenzols on Blood. T. Anwyl-Davies, and J. Mellanby.—p. 555.
*Marriage, Pregnancy, Parturition and Tuberculosis. E. Ward.—p. 557.

Physiologic Principles Underlying Treatment of Joint Diseases.—Fisher stresses the need for research into the physiology of the articulations. Why? Because, he says, many stiff and deformed joints might have been prevented by a knowledge of physiologic principles; moreover, the restoration of movement to the crippled joints is often possible. Many views are advanced. For instance, Fisher asserts that articular cartilage is well suited for studying the behavior of cells under different conditions, since, save in the perichondrium near the edge, it contains no blood vessels or nerves to complicate the cellular reactions. He believes that the irregular proliferations which it undergoes in osteoarthritis are intermediate between inflammation and new growth. Bone, he says, is a tissue less endowed with vitality than articular cartilage. Fisher discusses the structure and nutrition of articular cartilage, its repair; the compensatory proliferation of the lateral part of articular cartilage after destruction of the central part by extending the articular surface; the mode of access of nutriment fluid to cartilage cells; and the physiology of the synovial membranes. Some applications of physiologic principles to treatment are made. The rôle of rest and the rôle of movement are reviewed. While the rôle of movement in acute inflammations of joints is naturally limited, in chronic arthritis of the chondro-osseous and synovial types, respectively, complete rest is followed by sclerosis of the synovial membrane and capsule; movement is still further obstructed by osteophytes developing at the articular margins; there is secondary shortening of tendons and other periarticular structures, and the joint slowly but surely becomes more and more fixed, often in a position of gross deformity. The joint or joints should be put through the full range of movement daily, although overexertion is to be avoided, every effort being made to preserve the nutrition of the joint structures and to maintain muscular tone. In most articular cases, particularly in the lower extremity, the principle of diminution of intra-articular pressure is to be observed. The cause must be attacked simultaneously. The movements, in addition to preventing scarring of the soft parts, cause the osteophytes to develop in such a way that they do not interfere with movement. In other words, it is possible to train an osteophyte in the way it should grow. Fisher does not condemn arthroplasty, but points out that further research into this problem is needed.

Hysterical Fits.—Yealland has frequently seen hysterical fits reproduced when the patient has attempted to raise the lower limbs against passive resistance, no order being given and no comment made other than "raise the lower limbs." An attack seems always to follow a certain state of tone of the muscles, which is created by simultaneous contraction of agonists and antagonists. Clonic-like movements occur in many neurasthenic individuals subjected to the same test, and in them there is the same distressed facial expression. No wholesome effort is made to overcome the passive resistence as in the healthy individual, who usually either succeeds or in his attempt to do so sits upright. This test is said to be of considerable diagnostic value, and may be as easy or as difficult to elicit as a plantar reflex.

Anticoagulating Action of Arsenobenzols on Blood.—Anwyl-Davies and Mellanby found that some arsenobenzols when added to blood to the extent of 0.1 per cent. prevent coagulation. This inhibition is due to the action of the arsenobenzol on the fibrinogen, probably by direct combination with it. The combination of the arsenobenzol with fibrinogen depends on the organic grouping, since arsenous oxid has no effect on the coagulability of the blood, nor does arsenobenzol combined with glucose alter blood coagulation. Arsenobenzol, 0.1 per cent., inhibits the coagulation of blood not only in vitro but also in vivo. But in the animal body the inhibition of coagulation passes off within an hour, probably owing to the passage of the arsenobenzol from the blood into the tissues. Therapeutic doses of the various arsphenamin preparations intravenously injected into men or women have practically no effect on the coagulability of the blood, since these quantities fall far below the minimum amounts required to produce fluid blood. Further, the arsenobenzols do not appear to accumulate in the blood, since even after prolonged courses of administration the coagulability of the blood remains normal. Hence, previous treatment with arsenobenzols, from the point of view of the blood coagulability, need not be seriously considered when surgical operations are in question.

Marriage, Pregnancy, Parturition and Tuberculosis.—The risks of matrimony to tuberculous women was made the subject of special study by Ward. The effect of marriage alone in 125 tuberculous women was: 60 per cent. unaffected, 26 per cent. better, 14 per cent. worse. Out of 423 pregnancies in 237 women, 53 per cent. had no effect, 16 per cent. improved the patients, 31 per cent. made them worse. The clinical onset of disease occurred during pregnancy in about 4 per cent. of women, and of these less than half terminated fatally. Out of 442 labors in 240 patients, 32 per cent. left the patient unaffected, 19 per. cent. made her better, and 49 per cent. worse. The onset of disease occurred after parturition in 17 per cent. of patients, of whom nearly one-half died. Out of 331 cases of lactation investigated, in 1917, the mother nursed the child for a period from a few weeks to over three years, but in only 2 or 3 per cent. did lactation appear definitely to cause deterioration. The patient became gradually worse long after parturition, but before lactation ceased. Of the offspring from the labors considered, 372 were traced and 290 investigated personally. Of these 45 per cent. were negative, 34 per cent. tuberculous, of whom one-quarter died of the disease; 21 per cent. were under suspicion. Among the children unexamined by Ward, 42 per cent. were dead from causes unknown or other than tuberculosis. Out of 177 children breast-fed by tuberculous mothers 35 per cent. were negative, 31 per cent. tuberculous, of whom one-fifth died, 15 per cent. were suspect, 15 per cent. unseen and 4 per cent. dead from causes unknown. Among 116 bottle-fed children 32 per cent. were negative, 25 per cent. tuberculous, of whom one-fifth died, 14 per cent. suspect, 14 per cent. unseen, and 15 per cent. dead from unknown causes. On the whole the increased risk to the child from breast-feeding under these circumstances seems negligible. As concerns the husband, Ward looks on it as certain that the husband will be infected sooner or later if not congenitally immune, or with a smoldering infection of his own.

2: 591-636 (Sept. 22) 1923

Insulin and Its Value in Medicine. J. J. R. Macleod.—p. 591.
Bacterial Infection of Urinary Tract in Infancy and Childhood. E. B. Smith.—p. 595.
*Pulmonary Amebiasis. P. Manson-Bahr.—p. 599.
*Gastromyotomy: Operation for Cure of Chronic Ulcer of Stomach. T. C. Clare.—p. 602.
Alkali Deficit in Nephritis. J. R. Marrack.—p. 604.

Primary Pulmonary Amebiasis.—Three striking instances of what appear to be primary pulmonary amebiasis caused by infiltration of the lung by *Endameba histolytica,* independent of liver abscess, have recently been seen by Manson-Bahr. All three cases responded in dramatic and striking manner to emetin therapy. Pulmonary amebiasis may develop independently of hepatic abscess. It may simulate a bronchopneumonia or miliary tuberculosis. The diagnosis is based on the previous evidence of amebiasis, the leukocytosis, and the remarkable and lasting response to emetin and ipecacuanha. Rupture of a hepatic abscess into the lung may take place without previous warning or the coexistence of hepatic symptoms. One such case is cited. The resulting pulmonary infection may closely resemble idiopathic disease of the lung, such as tuberculosis or bronchiectasis, both in local signs and general effects. The therapeutic action of emetin and ipecacuanha is as striking in this as in the first condition described and, as generally recognized, is more rapid and lasting than in amebic infections of the bowel. Secondary infection of the

respiratory tract with yeast fungi (*Monilia*) may occur (so-called bronchomoniliasis). This appears to be of little diagnostic and possibly of no etiologic importance. One case is cited.

Gastromyotomy for Gastric Ulcer.—Clare has performed gastromyotomy only when laparotomy has revealed a chronic indurated ulcer of moderate size in the neighborhood of the small curvature, uncomplicated by hour-glass contraction and not adherent to the panereas. If the ulcer is on the anterior wall of the stomach, a curved incision, about 4 inches long, with the convexity downward, is made below the ulcer and sufficiently far from it to be free of indurated tissue; this incision divides the peritoneal coat only. The peritoneum is separated from the muscular coat for about a quarter of an inch on each side of the incision, and the musele fibers are defined. The incision is then carried down to the muscularis mucosae, thus dividing all the circular musele fibers passing to the ulcer bearing area. The divided muscle fibers are separated on either side of the incision by means of gauze wiping, and the peritoneal coat is sutured by Lembert sutures in such a way that the cut edges of the peritoneum are inverted into the gap that has been made in the muscular coat. After the usual inspection of the appendix, etc., the wound is then closed. When the ulcer is on the posterior wall Clare exposes the stomach through an opening in the mesocolon and makes the incision in the posterior wall of the stomach; but as the muscle fibers appear to be thinner in that situation than in the anterior wall, the anterior incision is also made, thereby practically isolating the ulcer as far as the circular muscle fibers are concerned.

Archives de Médecine des Enfants, Paris

26: 521-584 (Sept.) 1923

*Treatment of Epidemic Poliomyelitis. M. Bergamini.—p. 521.
Multiple Anomalies from Inherited Syphilis. L. Agote.—p. 545.
Skin Diseases in Children. P. Jourdanet.—p. 555.
Protection of Young Infants Against Tuberculosis. J. Comby.—p. 559.

Effectual Treatment of Acute Anterior Poliomyelitis.—Bergamini relates that during the 1921 epidemic of poliomyelitis at Modena, Bordier's method of treatment was applied on an extensive scale with encouraging results. This is a combination of roentgen-ray exposures and diathermy, applied to the paralyzed limb to stimulate the circulation and start repair, with electrotherapy later to combat the atrophy of the paralyzed muscle. It has been established that a chilled normal muscle may simulate the reaction of degeneration, while it reaets normally when warm. This combined treatment was applied as soon as the subacute phenomena had subsided. Sixteen cases are described in detail; the ages ranged from 5 months to 6 years. Four of the children were practically cured; 8 were decidedly and 2 only moderately improved. The 2 others failed to complete the course. The benefit seemed to be proportional to the promptness with which treatment was begun. The best effects were realized when the interval from the onset of the paralysis was not more than twenty or thirty days. The radiotherapy consisted of three sittings on consecutive days each month, exposing the side of the spinal cord in the lumbar or neck region according as the leg or arm was affeeted. The dose each time was about 6 X units. The diathermy was applied in four or five ten minute sittings in each series, with a 500 or 600 ma. current. A month generally sufficed to overeome the hypothermia and bring the limb to an approximately normal temperature. Then it was ready for the third part of the treatment, rhythmical galvanization of the paralyzed muscles. Twenty daily sittings of fifteen to twenty minutes, were followed by thirty or forty days of rest. The current should not be over 3 or 4 ma. but this electrotherapy should be kept up perseveringly for months and years if necessary. Considerable improvement has been obtained even when the reaction of degeneration was complete. This Bordier method conflicts with the old doctrine of immobilizing the limb, but Bergamini says that its success is unquestionable in poliomyelitis, whatever the patient's age, when applied before the lesions have become irreparable.

Bulletin Médical, Paris

37: 913-940 (Aug. 4) 1923

Tuberculosis and Pregnancy. L. Bernard.—p. 919.

37: 943-954 (Aug. 11) 1923

*Serotherapy in Scarlet Fever. J. Paraf.—p. 945.

Serotherapy in Scarlet Fever.—Paraf summarizes the work of Weaver, Zingher, Kling and others with injection of convalescents' serum in treatment of scarlet fever. His own experience with it was conclusively favorable, he says, in a case of malignant scarlet fever in a child, the only one thus treated.

37: 957-968 (Aug. 18) 1923

*The Insane in Morocco. J. Comby.—p. 959.
*Present Status of Postoperative Peptic Ulcer. A. C. Guillaume and I. Haralambidis.—p. 961. Conc'n.

The Insane in Morocco.—Comby relates that the nonviolent insane in Morocco are not segregated. The violently insane are housed in the historie, antique shelters that were built for pilgrims. The small rooms open only on a central court, and are without door or window or furniture of any kind. A long chain is fastened to an iron band around the neck. The other end of the chain passes through a ring in the ceiling and a hole in the wall and is fastened outside. The men are housed on the first and the women on the second floor of these *maristans* which can shelter from twelve to fifty, though they have comparatively few inmates. Delirium tremens is very rare, and general paralysis is even less frequent among the natives; hashish or cannabis indica poisoning is the chief cause for the insanity. Comby says that the inmates are not maltreated, but neither are they treated. There is no medical supervision of these medieval jails, and the cadi orders or suspends the internment in accordance with the testimony of neighbors or friends. The French protectorate, for political and religious reasons, has not interfered with these sacred historieal institutions, but Comby says that the insane should be transferred to places where they can be given proper treatment.

Postoperative Peptic Ulcers.—This review states that twelve surgeons, who are cited, have encountered 199 cases of postoperative peptic ulcers, and a total of nearly 500 cases has been compiled from the records. Usually, signs and symptoms common to all gastro-intestinal ulcers appear first, and are then followed by symptoms of localized peritonitis or of perforation with general peritonitis. The aim should be to detect the ulcer before complications have developed. Visible or occult blood in the stools aids in early diagnosis. Closure of the pylorus seems to be the main factor. This modifies secretion in both duodenum and pancreas, and the resisting power of the jejunum may be impaired by nervous, vascular or functional disturbance. In prevention, local irritation, especially from suture material and from hyperacidity, should be avoided and the natural continuous passage should be reconstructed; but, above all, medical treatment of the tendency to ulcer should be continued after the operation.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 1127-1171 (July 20) 1923

*Acute Chorea in Pregnancy. P. Marie et al.—p. 1127.
Sebaceous Adenoma of Face with Epilepsy and Intracranial Hypertension. H. Roger and C. Mattei.—p. 1135.
Pyrogenic Action of Brewers' Yeast. Urechia and Mihalescu.—p. 1138.
Cerebral Glioma. L. Babonneix and E. Chabrol.—p. 1142.
Case of Pure Alexia. Crouzon and Valence.—p. 1145.
Febrile Urticaria with Psychic Prodromes. Idem.—p. 1149.
Neuralgia of Superior Laryngeal Nerve. M. Lévy.—p. 1151.
Purpura at Onset of Typhoid Fever. Laignel-Lavastine and G. Poetz.—p. 1156.
Case of Splenic Anemia. J. Ricux and G. Delater.—p. 1157.
Elastic Pseudoxanthoma. G. Caussade and J. Surmont.—p. 1163.

Case of Acute Chorea in Pregnancy.—Marie, Bouttier and Trétiakoff report the clinical history and give illustrations of the necropsy findings in a case of chorea of pregnancy.

47: 1173-1329 (July 27) 1923

Case of Lead Poisoning. J. Troisier and P. Lefèvre.—p. 1174.
*Fate of War Tachycardias. M. Leconte and Tisné.—p. 1180.
Auricular Fibrillation and Bradycardia. C. Laubry and D. Routier—p. 1185.
Dilatation of Ascending Aorta Near the Sinus. H. Grenet and Peignaux.—p. 1189.
*Acquired Trophic Edema. M. Garnier and R. Huguenin.—p. 1192.
Hematomas of Rectus and Psoas Muscles. M. Loeper and R. Turpin.—p. 1204.

Unilateral Arsenical Erythema. M. Loeper and R. Turpin.—p. 1213.
*The Gastric Leukopedesis Test. Loeper and G. Marchal.—p. 1219.
*Gastric Crises and Sympathicotonia. M. Labbé and J. Sebileau.—p. 1224.
*Pure Amebic Bronchitis. Petzetakis.—p. 1229.
Renal Amebiasis, Diuretic Action of Emetin. Petzetakis.—p. 1233.
Meningism. H. Eschbach and A. Lapradc.—p. 1236.
Chronic Vertebral Rheumatism. Dargein and Plazy.—p. 1238.
Severe Anemia; Two Cases. J. Rieux and G. Delater.—p. 1242.
*Operative Treatment of Gastric Crises. D. Danielopolu.—p. 1249.
Involvement of Lung with Right Pneumococcus Endocarditis. E. Lenoble and Labellec.—p. 1256.
Plague in Paris; Two Cases. Guinon, de Pfeffel and Lamy.—p 1259.
Amebic Lung Abscess. A. Pissavy, Bréger and Chabrun.—p. 1265.
*Diazo Reaction in Body Fluids. Mironesco and Tomovici.—p. 1268.
Pure Pulmonary Amebiasis; Recovery After Emetin. Trabaud.—p. 1270.
*Polyneuritis from Emetin. Louis and Trabaud.—p. 1273.
Statistics of the Station for Tuberculous Women in Brévannes. Marcarian-Porcher.—p. 1275.
Pancreatic Lipase in Duodenal Juice. Chiray et al.—p. 1282.
Induced Congestion of Liver. Chiray et al.—p. 1293.
Eczema and Bacterial Poisons. Anaphylaxis. V. G. Brabant.—p. 1299.
Asthma and Anaphylaxis to Eggs. V. G. Brabant.—p. 1302.
Artificial Pneumothorax After Pleural Effusion. P. Ameuille and P. Aris.—p. 1312.
Cancer of Lung in Abscess Form. P. Ameuille.—p. 1315.
Special Type of Progressive Muscular Atrophy. G. Guillain and T. Alajouanine.—p. 1318.
Mycosis Resembling Carcinomatosis. J. Thiroloix and Lafourcade-Cortina.—p. 1320.
Paroxysmal Flushing of Face in Case of Bronchomediastinal Infiltration. Loeper and Turpin.—p. 1324.

Fate of War Tachycardias.—Leconte and Tisné have recently reexamined twenty-eight patients who had been under observation with functional heart disturbances at the end of the war. In twenty the tachycardia had not changed or had become worse; none had any sign of heart insufficiency or enlargement. This "cardiac instability" is of nervous origin rather than an actual heart disease. Tremors were frequent in these patients.

Acquired Trophic Edema.—Garnier and Huguenin present a patient suffering from a progressing edema of the right thigh. The edema fluid, which could be obtained in large quantities by punctures, contained no sugar. Its glycolytic action was strong.

The Gastric Leukopedesis Test.—Loeper and Marchal found that the normal gastric juice contains about 1,500-1,800 leukocytes in 1 c.mm. in the first hour and 2,500-2,000 two hours after ingestion of 125 gm. of a 1 per cent. solution of peptone. These cells are rapidly digested and probably their ferments aid in the digestive process. They found that this diapedesis of leukocytes is minimal in patients who are oversensitive to certain proteins. The difference is quantitative only; a smaller dose of peptone induces some leukopedesis even under these conditions. If such small doses (0.5 gm.) are repeated for several days, the reaction becomes normal. The diagnostic value of the test lies in the probability that a delayed or insufficient leukopedesis indicates a toxicity of the ingested protein for this individual.

Gastric Crises and Sympathicotonia.—Labbé and Sebileau report the history of a patient with typical gastric crises, but without signs of syphilis. Clinical examination and functional tests revealed signs of increased tonus of the sympathetic nervous system. They attribute the disease to an irritation of intrathoracic sympathetic ganglions by an adhesive pleuritis. Physostigmin brought relief.

Pure Amebic Bronchitis.—Petzetakis observed a surprising amelioration after emetin injection in some peculiar cases of bronchitis in patients who had previously suffered from amebic dysentery. He therefore examined carefully the sputum in such cases, seeking for amebas and cysts. He publishes three cases in which recovery followed injections of emetin.

Operative Treatment of Gastric Crises.—Danielopolu found that irritation of visceral fibers does not cause pain when the corresponding cerebrospinal neuron is interrupted. He tried, therefore, to suppress the gastric crises of tabes by anesthetizing the left seventh to eleventh intercostal nerves. The experiment was successful. He believes that this proves that sensory irritation from exaggerated motor functioning of the stomach plays an important rôle in the continuation of the crisis. Anesthesia interrupts the vicious circle thus formed. He recommends resection of the fifth to the tenth intercostal nerves, and believes that it would usually suffice to restrict the operation, which is not dangerous, to the left side. He hopes that secondary ascending degeneration of the neuron will make the results permanent. The possibility of suppression of visceral pains by resection of the corresponding spinal nerves might be applied as a general principle in conditions in which the motor part of the spinal nerve is not essential.

Diazo Reaction in Body Fluids.—Mironesco and Tomovici found a negative diazo reaction in the aqueous extract of different organs, even when the reaction had been positive with the urine. The alcoholic extract of the suprarenals gave a feebly positive reaction, even in cases with a negative urine. The bile was positive, whenever the urine was positive.

Polyneuritis from Emetin.—Louis and Trabaud describe a case of polyneuritis due to emetin treatment. The main symptoms were pains in the muscles.

Journal de Chirurgie, Paris

22: 225-278 (Sept.) 1923

*Technic for Extrapleural Thoracoplasty. L. Bérard.—p. 225.
*Results of Idem. C. Lenormant.—p. 240.

Technic for Extrapleural Thoracoplasty in Pulmonary Tuberculosis.—Bérard's profusely illustrated article shows the various steps of the operation and the amazing collapse of the side of the chest. As the apex is practically always involved, ample resection of the second and first ribs is particularly important. In twenty-three personal cases, four died in the following two weeks with signs of sepsis. He resects the posterior segment of all the ribs except the twelfth.

Results of Extrapleural Thoracoplasty.—Lenormant reviews the reports of various surgeons in different countries citing groups of patients cured for several years. He has collected nearly 600 operated cases, with clinical recovery in nearly 300, and great improvement in many others.

Journal d'Urologie Médicale et Chirurgicale, Paris

16: 1-80 (July) 1923

*Tuberculosis in Bladder Diverticulum. J. Duvergey.—p. 1.
*Access to Kidney. V. Richer.—p. 7.
*Test of Kidney Function Before Prostatectomy. M. Negro and G. Colombet.—p. 12.
Cystic Cancer of Bladder. C. Blavet di Briga.—p. 29.

Tuberculosis in Bladder Diverticulum.—Duvergey presents what he thinks is the first systematic study of tuberculous lesions in a bladder diverticulum. He has found only one other case (Jeanbrau) like that he describes. Corner's case (1905) was not a diverticulum but an inguinal cystocele. Duvergey's case was a necropsy surprise. The kidney was the source of the tuberculosis in all three cases, but the entire urinary apparatus was involved.

Access to the Kidney.—Richer extols the advantages of access through the sheath of the sacrolumbar mass of muscle. This leads directly to the kidney, passing through the aponeurosis of the latissimus dorsi and of the transversalis. In front of them there is only the quadratus lumborum, covered merely with perimysium.

The Phenolsulphonephthalein Test Before Prostatectomy.—Negro and Colombet tabulate the findings with this stain test and the Ambard constant in fifty-eight patients with hypertrophied prostate. The stain test was applied ninety-eight times, the constant was determined seventy-seven times. The findings confirm anew the value of the stain test as an almost certain guide for operation if 45 per cent. is eliminated in sixty minutes after intravenous injection, regardless of the Ambard constant or urea content of the blood.

Lyon Médical

132: 683-724 (Aug. 10) 1923

*Induration of Tuberculous Ureter. Reynard.—p. 683.

Induration of the Tuberculous Ureter.—While induration of the ureter especially characterizes tuberculosis, there are other urinary or extra-urinary affections that lead to ureteritis or, at least, resemble it. With a calculus in the pelvic

ureter there are also induration of the tube, paroxysmal pains or those provoked by palpation, cloudy urine, etc., but the induration is a hard lump, not an indurated cord. An important differential point is the reaction in the bladder with tuberculosis above, a demicystitis. The tuberculous kidney affects the bladder more than nephrolithiasis. Reynard reports eight cases in which the diagnosis of renal tuberculosis was based mainly on the induration and obstruction of the lower ureter.

Néoplasmes, Paris

2: 49-96 (March and April) 1923

The Cancer Ferment. A. Robin.—p. 49.
Action of Antineoplasm Vaccines. J. Thomas.—p. 52.
*Urine Stain Test for Cancer. J. Fuhs and W. Lintz.—p. 62.
*Cancer Research Institute at Madrid. J. Goyanes.—p. 65.
Radiotherapy of Fibroids. P. Delbet.—p. 70.

Urine Stain Test for Cancer.—Fuhs and Lintz add a little Loeffler's methylene blue to the urine and incubate for twelve or twenty-four hours. They found that urine from carcinomatous patients and a few other diseases (acute articular rheumatism, nephritis, etc.), decolorizes the dye.

Cancer Research Institute at Madrid.—This new institution was mentioned in THE JOURNAL, Sept. 29, p. 1124.

Paris Médical

13: 129-140 (Aug. 18) 1923

*Diagnosis of Tuberculosis. J. J. Vitón (Buenos Aires).—p. 129.
Swedish Gymnastics. Joland.—p. 132.
Extraction of Foreign Bodies Under Roentgen Control. Petit.—p. 136.

Method of Tuberculosis Diagnosis.—Vitón describes a method of diagnosis of tuberculosis, employing tuberculin in a manner entirely different from that of Koch. Instead of using large doses to provoke a febrile reaction and the appearance of other physical and functional phenomena, the author injects an infinitesimal quantity of tuberculin and thereby obtains, instead of the aggravation that is the result of Koch's method, a considerable amelioration of all the phenomena which characterize the disease. The excessive weakness of the dose is what insures obtaining a favorable reaction, since, if the dose is increased, the reaction is unfavorable, prejudicial and contraindicated. In order to obtain the weak dose necessary, the tuberculin must be greatly diluted, one part of tuberculin to 9 parts of 0.25 per cent. aqueous solution of phenol; this solution being obtained, it is further diluted in 9 parts of the same solution, the process being repeated until a proportion of 1:1 octillion (10^{27}) is reached, and even less. This method has the advantage of making repetition of injections and increase of strength of dosage possible when improvement is not shown to be the result of the use of dosages of lesser strengths. His previous communications on the subject have been reviewed in THE JOURNAL from time to time, as on page 1402, Nov. 1, 1919.

Presse Médicale, Paris

31: 733-740 (Aug. 25) 1923

*Operative Pneumothorax in the Dog. P. Duval.—p. 733.
Recent Research on Eclampsia. L. Cheinisse.—p. 734.

Operative Pneumothorax in the Dog.—Duval apologizes for having contradicted Graham's statements in regard to the communication between the pleural sacs in dogs. Duval now states that, although anatomically there is no communication, yet the extreme fragility of the dividing membrane entails laceration at the slightest difference in tension on either surface, so that pneumothorax cannot occur without being inevitably bilateral. Duval says further that he has never had mishaps from extensive opening of the thorax. He recently removed a large intrathoracic fibroma through a 12 by 15 cm. opening, and the operation proceeded smoothly.

31: 753-760 (Sept. 1) 1923

*Micro-Ureameter. L. Ambard.—p. 753.
*Laryngeal Tuberculosis. L. de Reynier.—p. 755.

Micro-Ureameter.—The urea content of even 2 c.c. of plasm can be determined by Ambard's micro-ureameter, which uses sodium hypobromite. He describes it, with four illustrations.

Laryngeal Tuberculosis.—De Reynier regards tuberculosis of the larynx as the most curable form of tuberculosis. It healed spontaneously in 34 per cent. of his 100 cases (1912) and the proportion has been even higher since. Syphilis renders the outlook graver, and the larynx is extremely sensitive to menstrual disturbances. The laryngeal process may be entirely latent except during the menstrual period. If intervention is required, if the lesions are on or above the vocal cords, he applies 50 per cent. lactic acid every two weeks. If this fails, he prefers the galvanocautery. In 103 thus treated, 62 were cured, with the voice normal; 5 were cured but the voice was modified. The outcome is not known in 16, and 20 have died from pulmonary lesions or intercurrent disease. He has had only 4 cases rebellious to these measures; in one there were fatal complicating visceral lesions. In another, there was only a slight pulmonary lesion but the intensely painful laryngeal tuberculosis progressed for two months to a fatal outcome, only transiently relieved by cautery, injection of alcohol, ice, etc. He practices at Leysin.

Schweizerische medizinische Wochenschrift, Basel

53: 681-700 (July 19) 1923

Treatment of Congenital Syphilis. J. Bernheim-Karrer.—p. 681.
*Treatment of Atonic Ulcers. R. Feissly.—p. 684.
Heart and High Position of Diaphragm. K. Kistler.—p. 687.
Intermittent Ischemia of the Heart. L. Bischoff.—p. 690.

Treatment of Atonic Ulcers.—Feissly treated a torpid ulcer successfully with local applications of dried horse serum.

Archivio Italiano di Chirurgia, Bologna

7: 329-516 (July) 1923

*Muscular Atrophy of Peripheral Origin. M. Arcangeli.—p. 329.
Sarcoma in Ascending Mesocolon. A. Avoni.—p. 360.
*Chronic Jaundice from Tuberculous Glands. G. Pototschnig.—p. 377.
*Treatment of Urinary Incontinence in Women. Lusena.—p. 388.
Primary Cancer of Gallbladder. G. Ceccarelli.—p. 405.
Malignant Adenoma of Parathyroid. G. M. Fasiani.—p. 427.
*Experimental Suture of the Kidneys. G. Ceccarelli.—p. 441.
*Sarcoma of the Knee. U. Faccini.—p. 481.
Foreign Bodies in Duodenum. M. Mairano.—p. 502.

Muscular Atrophy of Peripheral Origin.—The results in certain muscles of severing the sciatic or facial nerve in rabbits and guinea-pigs are shown in thirty photomicrographs.

Chronic Jaundice from Tuberculous Glands.—In removing the gallbladder which contained two large gallstones Pototschnig found a tumor which proved to be a tuberculous gland in the hepatoduodenal ligament. Pressure from this gland had been responsible for the chronic jaundice.

Operative Treatment of Urinary Incontinence in Women.—Lusena has simplified the myoplastic methods for treating urinary incontinence in women, and reports a case to illustrate the excellent results of his technic. The incontinence had resulted from extirpation of an epithelioma of the vulva. He corrected the tendency to incontinence by drawing up the neck of the bladder toward the pubis. This was accomplished with the gracilis muscles. These were mobilized through an incision in the thigh, and were severed about 12 cm. from their attachment to the pubis. Each muscle was then drawn down subcutaneously to the opening in the anterior vagina, and the muscles were crossed and sutured together with catgut. Continence gradually became perfect thereafter. The simple and easy operation is shown in four illustrations.

Experimental Suture of Kidney to Kidney.—Ceccarelli describes two series of experiments on seventeen dogs which demonstrated the feasibility of suturing the two kidneys together without more than slight and transient impairment of function. New vascular connections soon form, and the kidney function proceeds for quite a while even after the entire pedicle of one kidney has been ligated.

Sarcoma of Knee.—The joint capsule of the right knee was the seat of a sarcomatous perithelioma. In eleven somewhat similar cases on record the outcome was disastrous when the lesion had been merely resected. Amputation is the only safe treatment, and this was applied in the case here reported by Faccini in a man aged 38.

Chirurgia degli Organi di Movimento, Bologna

7: 109-224 (April) 1923

*Fracture of the Scapula. D. Mucci.—p. 109.
*The Semilunar Cartilages of the Knee. V. Puccinelli.—p. 142.
*Coxa Plana. O. Uffreduzzi.—p. 149.

Supernumerary Toe Near Heel. S. Crainz.—p. 200.
Congenital Osteochondroma on Finger. R. Zanoli.—p. 210.
Chauffeur's Fracture of Wrist from Contrecoup. I. Ott.—p. 217.

Fracture of Scapula Below the Spine.—A fall from a vehicle was responsible for the fracture through the infraspinous fossa in Mucci's five cases. It healed normally without impairing use of the arm; the lower part of the bone separated in some cases and caused more or less displacement or slight protrusion, or both. He bandaged the arm to the trunk in some cases, but one healed without bandaging. The mechanism is discussed. One man who had been run over recovered perfectly in forty days although the scapula had been fractured at two points, as also the clavicle and three ribs. He said his shoulders had been forced together on his chest, "shut up like a book."

Rupture of Semilunar Cartilage.—The insignificant, overlooked trauma and the severe and progressive disturbances that resulted were special features of Puccinelli's case. The rupture healed with an interfering fibroid fold. Complete recovery followed meniscectomy.

Coxa Plana.—Uffreduzzi applies this term to designate the final outcome of infantile or juvenile deforming osteochondritis or of both. Other causes may be responsible for this flattening of the head of the femur, but it is usually the final outcome of some early mild inflammatory process during the period of growth.

Riforma Medica, Naples

39: 673-696 (July 16) 1923

Old Age. L. Bianchi.—p. 673.
*Camphorated Oil Tumors. O. Cignozzi.—p. 675.
Endogenous and Arthritic Intoxication. G. Cuneo.—p. 679.
Polyserositis in Undulant Fever. C. Cantieri.—p. 680.
*Procain Test for Pregnancy and Infections. R. Costa.—p. 683.
Hydruria in Nephritis. A. Ferrannini.—p. 684.

Camphorated Oil Tumors.—Cignozzi's patient is a man who presents a large tumor of this kind on both thighs. The tumors had developed two years before after repeated injections of camphorated oil in each thigh, in a fluid petrolatum vehicle. They extend over two thirds of the outer aspect of the thighs. The tumors are hard and movable, and during ten days in bed, with application of ice, both subsided by about half their height. Under mercurial ointment they subsided still more. The man is otherwise in robust health.

Procain Test for Pregnancy and Infections.—Costa has found that the serum of pregnant women gives a characteristic reaction when treated with a 2 per cent. solution of procain. To 1.5 c.c. of this solution are added 3 drops of a 5 per cent. solution of sodium citrate. Then 3 drops of blood are added, the test tube is agitated to mix the fluid and then centrifugated or set aside for the erythrocytes to settle. Then one drop of liquor formaldehydi is added. With a positive reaction there is precipitation in fifteen minutes, until a white powdery sediment is deposited or floats in flakes. Only the reaction which occurs in the first fifteen minutes is instructive. After fifteen minutes, precipitation occurs with all serums. Aside from pregnancy, the reaction occurs in the first fifteen minutes only in pathologic conditions, and the intensity parallels the severity of the affection as a rule. The test is very sensitive; it gives positive results even in tertiary neurosyphilis and incipient tuberculosis, and negative results show when the tuberculosis is cured. The erythrocytes alone do not give the reaction. A drop of normal human serum, added before the three drops of blood, retards and attenuates the reaction. Costa is professor of obstetrics at the University of Novara.

Archiv für klinische Chirurgie, Berlin

124: 1-198 (April 12) 1923

*Reaction of Cartilage to Injury. F. König.—p. 1.
*Suture of the Stomach. H. Klose and P. Rosenbaum-Canné.—p. 15.
Adenomatosis of the Stomach. Rosenbach and Disqué.—p. 28.
*Results of Choledochoduodenostomy. Flörcken and Steden.—p. 49.
*Acute Hemorrhages in Stomach and Duodenum. A. Mülleder.—p. 60.
Multiple Granulomas in Tendons. N. J. Kusnetzowsky.—p. 73.
Operation for Rupture of Thumb Tendon and Fracture of Radius. G. Hauck.—p. 81.
*Postoperative Prophylactic Treatment of Cancer. C. M. Rovsing.—p. 92.
*Removal of Entire Lung for Cancer. R. Hinz.—p. 104.
*Blocking the Motor Centers in Epilepsy. S. L. Koljubakin.—p. 114.
*Collateral Vessels in Organs. A. Melnikoff.—p. 120.
Etiology of Köhler's Disease. F. Cahen-Brach.—p. 144.
*Sutured Tendons. E. Just.—p. 165.
*Multiple Gastric and Duodenal Ulcers. M. Friedemann.—p. 178.
Fracture of Patella from Muscular Injury. Blecher.—p. 192.
Bacteriology of "Aseptic" Wounds. Schönbauer and Demel.—p. 196.

Reactive Processes in Cartilage to Various Injuries.—König studied in particular the partial or complete necrosis of cartilage from loss of the synovial fluid, from long exposure to air, and from suppuration.

Suture of the Stomach.—The data presented indicate that any good suture answers the purpose, but the defect heals more rapidly when the opening was made with a knife rather than the cautery. The clamp question is not settled yet; clamps entail subserous hemorrhages and erosions of the epithelium. Eleven photomicrographs illustrate the healing process in the cat stomach.

Choledochoduodenostomy.—The outcome in twenty personal and in forty-six collected cases in which the common bile duct was implanted in the duodenum has demonstrated that the theoretical objections are unfounded. No injury of the intestine from the infectious bile was detected in any instance, and the ultimate outcome was highly satisfactory in 82 per cent. of the cases. This method should be applied only when conditions are clear, and can be thoroughly supervised. A case of acute yellow atrophy of the liver is reported in which this operation was applied as a last resort, but without benefit.

Acute Gastro-Intestinal Hemorrhages.—Mülleder asserts that gastro-intestinal hemorrhage should be attacked with the knife at once, like internal hemorrhage elsewhere (tubal pregnancy, rupture of spleen, etc.). In the effort to save life by an immediate laparotomy, we occasionally open an abdomen without being able to discover the source of the hemorrhage, but this is the less of two evils. In three of the nine cases he describes, the thrombus plugging an erosion of an artery in a gastric ulcer had evidently been eaten away by the gastric juice. The arterial hemorrhage returned three times in one case, and stopped only when the blood pressure dropped too low for it to continue. This man was saved by suturing and cauterizing the artery in a deep duodenal ulcer. Cauterizing alone proved futile in some other cases. Necropsy showed that even when a thrombus plugged a bleeding artery, it did not occlude it completely and the hemorrhage continued. In one case, rupture of an unsuspected aneurysm of the thoracic aorta had caused three hemorrhages; the third was fatal. The exploratory laparotomy in this case was negative. "Resection is certainly the safest way to treat a bleeding ulcer."

Postoperative Treatment of Mammary Cancer.—An autogenous vaccine made from the cancer tissue as soon as it was removed was injected subcutaneously in thirty-one patients, 1909-1918, in Rovsing's service. The proportion of survivals for three years or more was no larger in the vaccine-treated cases than in the others. The vaccine did no harm, and possibly a different technic might give better results. Comparison of results of postoperative roentgen irradiation gives even more discouraging results. "The cure of cancer depends on the time when it is removed."

Extirpation of Lung.—Hinz removed the entire left lung in a case of bronchial cancer in a woman, aged 56. The operation was justified and proved feasible, but the patient succumbed to pulmonary emphysema the third day. In nine cases of partial pneumectomy on record, five survived. Kümmell removed the entire right lung for cancer but death occurred from pulmonary edema the sixth day.

Blocking the Motor Centers in Epilepsy.—Koljubakin reports injection of alcohol into the centers for the arm, face and leg in two cases of jacksonian epilepsy and in a case of continuous partial epilepsy. The results of thus blocking the motor centers involved in the convulsions seem encouraging. The three patients improved, and the trauma of the intervention seemed minimal. He is now studying the influence of alcohol on the central nervous system of animals. He injected into each motor center involved 2 c.c. of an 80 per cent. solution of alcohol through two slits in the dura. The normal physiologic relations of the cortex surface do not seem to be disturbed. He mentions Omorokow's experience

with resection of the motor centers in 24 cases: in 10 the convulsions ceased and in 3 they became attenuated; in 5 no benefit was apparent, and 5 patients died.

Development of Collateral Circulation.—Melnikoff discusses the collateral vessels that form inside or on the surface of organs.

Suture of Tendons.—Just analyzes the factors insuring good function after suture of tendons, as studied in 166 cases in which 210 tendons required suturing. The stumps must be carefully fitted together, the free play of the tendon insured, and mechanotherapy enforced after the preliminary plaster immobilization.

Multiple Gastric and Duodenal Ulcers.—Friedemann found evidences of more than one ulcer in so many of his 230 resected specimens and in the published records, that he says we can count on multiple ulcers in 45 per cent. of the cases. Sometimes they are located far apart. The operation that guarantees best against leaving an ulcer behind is extensive resection of the antrum, pylorus and adjacent duodenum.

Deutsche medizinische Wochenschrift, Berlin

49: 971-1004 (July 27) 1923

Treatment of Diabetes with Insulin. H. Strauss.—p. 971.
Experiments on Duration of Typhus Immunity. A. Schnabel.—p. 972.
Diagnosis of Recurrent Fever. Zlatogoroff.—p. 973.
*Nonspecific Allergy. J. Holló and E. Holló-Weil.—p. 974.
Basal Metabolism in Dermatology. E. Pulay.—p. 975.
Anatomic Basis of Psychic and Nervous Diseases. Dürck.—p. 976. Conc'n.
Blood Picture in Diagnosis. A. Hauer.—p. 979.
*"Fat Stones" in Bladder. L. Kropp.—p. 982.
Treatment of Primary Syphilis with Bismuth. W. Patzschke.—p. 984.
Micromethod for Testing Specific Gravity. Detre.—p. 985.
Advantages of Reinjection of Own Blood After Vaginal Hemorrhages and Operations. F. Burgkhardt.—p. 985.
Extensive Skin Hemorrhages in a Child. W. Neuhaus.—p. 986.
The Odor of Syphilitics. G. Müller.—p. 987.
Palpation of Liver and Spleen in Children. D. Lebeder.—p. 987.
Treatment of Epidemic Encephalitis with Mercuric Ointment and Nonspecific Shock Therapy. Tolle.—p. 988.
Treatment of Whooping Cough. K. Ochsenius.—p. 988.
The Teaching of Hygiene. K. Bornstein.—p. 989.
New Prussian Law on Tuberculosis. M. Neisser.—p. 990.
Financial Clearing-House for Practitioners. F. Reichert.—p. 991.

No Nonspecific Allergy in the Tuberculous.—Holló and Holló-Weil failed to find any difference between the reaction of tuberculous and nontuberculous children to intracutaneous injections of a peptone solution.

"Fat Stones" in Bladder.—Kropp describes fifteen cases of concretions of fatty substances in the bladder. They consisted usually of paraffin, sometimes wax or tallow. Most of them had been introduced for purposes of masturbation.

Klinische Wochenschrift, Berlin

2: 1197-1244 (June 25) 1923

*The Capillaries in Man. O. Müller.—p. 1197.
*Muscle Tonus in Normal Persons. Goldstein and Riese.—p. 1201.
*Solutions of Acid Phosphates in Tetany. Elias and Kornfeld.—p. 1206.
*Uric Acid in Bile. T. Brugsch and J. Rother.—p. 1209.
Weakening of Action of Tuberculin by Human Serum. W. Jadassohn and H. Martenstein.—p. 1210.
*Action of Light on Blood Regeneration. H. Hobert.—p. 1213.
*Mercury Treatment of Epidemic Encephalitis. Billigheimer.—p. 1215.
Changes of Retina in Diabetes. E. Grafe.—p. 1216.
Medical Climatology. F. Baur.—p. 1217.
*Agglutination Tests Before Transfusion of Blood. L. Lattes.—p. 1219.
The Smallpox Epidemic in Switzerland. M. Tièche.—p. 1220.
Changes of Cells in Immunized Animals. L. Gózony.—p. 1220.
Hiccup and Its Treatment. W. Lehmann.—p. 1221.
Isospora Hominis in Stools. J. Rhode.—p. 1222.
Closed Treatment of Suppurations of Joints. A. W. Fischer.—p. 1223.

The Capillaries in Man.—Müller reviews the results of microscopic examination of human capillaries in health and different diseases.

Induced Changes of Muscle Tonus in Normal Persons.—Goldstein and Riese observed changes of the tonus of the extremities of normal persons, which were caused by changes in the position of other extremities, and especially of the head.

Solutions of Acid Phosphates in Tetany.—Elias and Kornfeld injected an acid sodium phosphate solution intravenously. The electric irritability of the nerves was increased in normal subjects, beginning about one hour after the injections. In patients and convalescents from tetany, it was followed by spasms after two hours. The action is due to the phosphate ion.

Uric Acid in Bile.—Brugsch and Rother maintain their opinion on the importance of the presence of considerable amounts of uric acid in the bile (up to 49.84 mg. in 100 c.c.).

Action of Light on Blood Regeneration.—Hobert bled mice and observed the regeneration of the blood under different conditions. It was very slow, if the animals were kept in darkness. They lost appetite and died. When kept in daylight, the regeneration was complete in thirteen or fourteen days after a bleeding with loss of 50 per cent. of the erythrocytes. The ultraviolet rays, applied best in four or five day intervals, conditioned a regeneration in ten or eleven days.

Treatment of Epidemic Encephalitis with Mercury.—Billigheimer reports good results with the use of mercuric ointment or mercuric salicylate in acute and subacute cases of epidemic encephalitis.

Agglutination Tests Before Transfusion of Blood.—Lattes finds that dilution of the serum 1:2 or more prevents pseudoagglutination in testing blood for transfusion.

2: 1245-1292 (July 2) 1923

*Nonspecific Protein Shock Therapy. R. Bieling.—p. 1245.
*Lipases from Organs in Serum. H. Petow and H. Schreiber.—p. 1248.
Sense of Smell in Simultaneous Action of Two Stimulations. E. v. Skramlik.—p. 1250.
*A Tonic Static Reflex in Infants. A. Landau.—p. 1253.
Obesity in Relation to Mind and Nervous System. Lichtwitz.—p. 1255.
Dialysis of the Moving Blood Stream. H. Necheles.—p. 1257.
Bismuth Therapy. G. Giemsa and W. Weise.—p. 1258.
Sensitization of Cutaneous Tuberculin Reaction. A. Aronson.—p. 1261.
*Hypertension and Carbonated Baths. S. Hediger.—p. 1262.
Experimental Syphilis. W. Frei.—p. 1263. Reply. Buschke and Kroó.—p. 1265.
"Chemistry of the Blood." E. Pulay.—p. 1265.
*The Skin in Relation to Leukopenia. Menze.—p. 1267.
"Diphtheria Bacilli in Wounds." K. Kisskalt and W. Anschütz.—p. 1267. Reply. H. Landau.—p. 1267.
Solubility of Uric Acid. K. Harpuder.—p. 1268.
*Crystals in Asthma Sputum. W. S. van Leeuwen and D. R. Nijk.—p. 1268.
Quantitative Tests for Urobilin. Opitz and Brehme.—p. 1269.
Dermoid Cyst in Brain. K. Mendel and E. Unger.—p. 1270.
Indications for Roentgen-Rays in Dermatology. R. Lenk.—p. 1271.
The Berlin Disinfection Service. E. Seligmann.—p. 1273.

Parenteral Protein Therapy.—Bieling reviews the action of nonspecific proteins. If injected, they induce a rapid new formation of certain antibodies (such as agglutinins) which had been present in some preceding period in larger amounts. It does not cause however, a new production of useful antitoxic or bactericidal substances. Their characteristic action consists in the increase of fermentative processes which cause a destruction of the patient's own proteins. The liver and diseased organs are the chief points affected by parenteral protein therapy. Fever may follow the injection, but it is rather a reaction than a cause of the destruction of the proteins of the body. This form of treatment is especially indicated when we do not know the agent of an infectious disease.

Presence in Serum of Lipases from Organs.—Petow and Schreiber have continued research in this line, and confirm the finding of a quinin resistant lipase in the serum of a large majority of patients with diseases of the liver (thirty-two cases) and kidneys (twenty-two). Other patients (forty-six) were negative with the exception of two.

A Tonic Static Reflex in Infants.—Landau states that when an infant lying prone is lifted up, it retains the lordosis and keeps its head high for from half a minute to two minutes. This reflex occurs in 50 per cent. of the infants between 6 and 8 months old, and disappears when the higher static faculties develop. It is especially pronounced in rachitic infants with flabby musculature. Passive flexion of the extended head instantly arrests the contraction of the dorsal muscles.

Hypertension and Treatment with Carbonated Baths.—Observations in the psychiatric clinic convinced Hediger that a mentally conditioned instability of the vascular system plays an important rôle in the development of hypertension. Carbon dioxid baths have a favorable influence.

The Skin in Relation to Leukopenia.—Menze finds an analogy between the leukopenia after intracutaneous injections (Ritter) and the leukopenia which is present in most of the

infectious diseases affecting the tissues derived from the ectoderm (especially the central nervous system).

Nature of Crystals in Asthma Sputum.—Van Leeuwen and Nijk find that the Charcot-Leyden crystals of the typical shape consist of secondary calcium phosphate. The less common rhombohedral shapes consist also of the same, with some calcium carbonate.

Medizinische Klinik, Berlin

19: 1003-1038 (July 22) 1923

Principles for Estimation of Life Expectancy. T. Brugsch.—p. 1003.
*Life Expectancy in Life Insurance. L. Feilchenfeld.—p. 1010.
*Surgical Treatment of Pulmonary Tuberculosis. I. Zadek.—p. 1014.
Surgical Treatment of Gallstones. G. Singer.—p. 1015.
Sedimentation of Erythrocytes in Connection with Tuberculin Skin Test. H. Bischoff and K. Dieren.—p. 1017.
Ossification in Cicatrix. J. Volkmann.—p. 1019.
*Improved Topographic Percussion. J. Oettinger.—p. 1020.
Agglutination of Tubercle Bacilli. Josefowicz.—p. 1022.
Shaking Palsy Not Due to Trauma Nine Years Before. Engel.—p. 1024.
Recent Works on Otology. Haenlein.—p. 1026.

Life Expectancy from Life Insurance Standpoint.—Feilchenfeld reproduces tables compiled by the Gotha insurance company which is soon to celebrate its centennial. The tables are based on 22,017 deaths among 85,781 insured between 1829 and 1878. He compares with these tables some from a Swedish, a French and an Italian company. The Gotha tables show that 11.63 per cent. of the total insured died from tuberculosis, while the proportion was 23.7 among those known to have a tuberculous parent. The corresponding figures for heart disease were 5.81 and 12.9 per cent. and for cancer 5.04 and 9.3. He refers also to American publications, and emphasizes the value of study of such compilations as an aid in the physician's prognosis in the individual case.

Neurectomy with Induced Pneumothorax in Treatment of Pulmonary Tuberculosis.—Zadek quotes Goetze's contention that radical phrenicotomy should always be associated with artificial pneumothorax. Zadek has applied it to supplement the pneumothorax in a large number of cases, and always with evident benefit. The paralysis of the diaphragm makes the pleural space smaller, so that less gas is required, while with the reduced respiration the gas lasts longer before it is absorbed, and the liability to a pleural effusion is materially reduced. Among the other advantages is that the risk is much less when the pneumothorax is finally abandoned. He prefers to cut and pull out the phrenic nerve preliminary to the pneumothorax or any operation on the lung (except with profuse hemoptysis).

Improved Technic for Topographic Percussion.—Oettinger refers particularly to deep percussion of the heart, and mentions several advantages from the method of tapping the distal epiphysis of the middle phalanx, the finger bent at the joint between the middle and the terminal phalanx. The finger is applied with some force but is lifted up immediately as it is lightly tapped.

19: 1039-1072 (July 29) 1923

Artificial Pneumothorax. G. Dorner.—p. 1039.
Bullous Diseases of Skin. G. Stümpke.—p. 1044.
Prophylaxis of Professional Syphilitic Infection. J. Fabry.—p. 1047.
Weninger's Inhalation Treatment of Pulmonary Tuberculosis. A. Dührssen.—p. 1048.
Blood Transfusion. H. Flörcken.—p. 1049.
*Sensory Disturbance and Past-Pointing. B. Fischer.—p. 1050.
Simple Test for Sugar in Urine. E. Schill.—p. 1051.
Vaginal Lacerations. Gottschalk.—p. 1051.
*Growth of Cells in Vitro. R. Erdmann.—p. 1052.
General Paresis Not Due to Injury of Head. H. Engel.—p. 1054.
Endometritis. E. Runge.—p. 1055.
Survey of Insulin Treatment of Diabetes. v. Schnizer.—p. 1059.

Influence of Sensory Disturbance on Past-Pointing.—Fischer reports two cases of hemianesthesia with outward deviation of Bárány's past-pointing test, and lack of experimental inward deviation.

Growth of Cells in Vitro.—Erdmann found that cultures of tumor cells need the presence of stroma and of plasma from an animal suffering from the same kind of a tumor.

Münchener medizinische Wochenschrift, Munich

70: 899-932 (July 13) 1923

*Digitalis Treatment. E. Romberg.—p. 899.
*Treatment of Debilitating Rumination. F. Siegert.—p. 902.
*Onanism and Its Relation to Neuroses. H. v. Hattingberg.—p. 904.
Serum of Thyroidectomized Sheep in Treatment of Exophthalmic Goiter. L. Raab.—p. 909.
Toxicity and Intraspinal Use of Phenobarbital. A. Gmelin.—p. 911.
*Correlation Between Thyroid and Female Genitals. Curschmann.—p. 912.
Rapid Alcohol Method for Hardening Specimens. R. Heinz.—p. 912.
Rapid Celloidin Fixation of Specimens. R. Heinz.—p. 913.
*Orchitis in Infant. K. F. Beck.—p. 913.
Changes in Blood Under Bismuth Treatment. F. Betz.—p. 913.
Examination in Stomach and Intestinal Disease. Cramer.—p. 915.

Choice of Digitalis Preparations.—This is a report issued by the German Council on Pharmacy and Chemistry on dependable preparations of digitalis. Seventeen were analyzed, as also eleven other heart stimulants not containing digitalis. The final verdict lists twelve proprietary preparations, but pulverized digitalis leaves heads the list as the preferable means for administering digitalis, especially in the convenient pill form (0.5 or 1 gm.). Strophanthin is the only heart tonic endorsed outside of digitalis. The infusion of digitalis is denounced as it irritates the stomach, is not durable, and requires nearly double the dose of the leaves.

Treatment of Intractable Rumination.—Siegert has encountered six cases of exhausting rumination in infants. They were starving from loss of the regurgitated milk. One infant, aged 4 months, was in an extremely debilitated condition from this cause, when he succeeded in curing the tendency by mechanical means. He fastened a fish bladder to the stomach tube and introduced it into the stomach after each feeding. The bag was inflated and drawn up against the cardia. This procedure had to be kept up for more than two months, but finally the cure was complete. Siegert suggests that this method might prove useful in uncontrollable vomiting of nervous origin. Also to allow filling the bladder, esophagus or large intestine with air, plugging the outlet in this way, for roentgenoscopic examination. The esophagus could be treated in the same way.

Onanism in Relation to Neuroses.—Hattingberg explains that the injury from onanism, if not carried to excess, is purely psychic. It represents a short-circuiting of social interests, confining them to the ego. The isolation that results entails depression, and the depression drives to onanism anew, a progressive vicious circle. He adds that onanism is not only the most common monosymptomatic neurosis, but there is a hint of onanism in every neurosis.

Correlation Between the Thyroid and the Female Genital Organs.—Curschmann's experience has been that reduction in thyroid functioning has always had a depressing influence on menstruation, generally inducing amenorrhea when the hypothyroidism was pronounced. His experience thus conflicts with that of Knaus, who recently reported that premature and intensive menstrual hemorrhage followed partial thyroidectomy in nineteen of twenty-one patients.

Metastatic Peritonitis in Infant.—In Beck's case, as also in one published by Finkelstein, pus from an infectious orchitis found its way into the peritoneum through the open vaginalis. A physician had operated soon after birth for the assumed phimosis, as the scrotum was slightly swollen, and the peritonitis soon followed. Beck has never heard of a congenital orchitis.

70: 969-1004 (July 27) 1923

Echinococcus Disease. Lozano.—p. 969.
*Treatment of Puerperal Fever with Autovaccines. N. Louros.—p. 971.
*Suggestion in Gynecologic Treatment. T. Brandess.—p. 975.
Eclampsia. E. Zweifel.—p. 977.
Gelatin Culture Mediums for Blood. K. Bingold.—p. 979.
*Action of Roentgen Rays on Bones. W. Müller.—p. 980.
Spastic Ileus. W. Koenneeke.—p. 981.
Periodic Disturbances of Vision After Brain Injury. E. Feuchtwanger.—p. 983.
Congenital Phimosis. C. Moncorps.—p. 983.
Artificial Pneumorhachis. H. Klein.—p. 984.
Protection of Patient and Physician Against Roentgen Injuries. P. Krause.—p. 985.
"Congenital Ankylosis of Finger Joints." J. Duken.—p. 986.

Treatment of Puerperal Fever with Autovaccines.—Louros has not encountered since 1921 any cases of puerperal streptococcal sepsis among the women who had been prophylactically immunized. About 1 per cent. of the others developed sepsis. He treated eight women presenting streptococcal sepsis and three with staphylococcal sepsis with intravenous injections

f autogenous vaccines. All the patients recovered. His work in this line was mentioned in these columns, April 14, 923, p. 1108.

Suggestion in Gynecologic Treatment.—Brandess reports three cases of uterine hemorrhages with recovery under psychotherapy. These patients had been treated before unsuccessfully with various methods, including roentgen rays and even laparotomy.

Action of Roentgen Rays on Bones.—Müller found in experiments no certain indications of a stimulating influence from the roentgen rays on the growth of bones, especially not in young animals. The inhibitory action of larger doses on the formation of callus was apparent, as other authors have found.

Wiener klinische Wochenschrift, Vienna

36: 459-476 (June 28) 1923

The Skin and Immunity. R. Volk.—p. 459. Conc'n, p. 481.
Widal Hemoclastic Crisis. E. Lauda and O. Schmid.—p. 462.
*Glucose Enhances Bactericidal Action. R. Latzel.—p. 463.
Reconstruction of Mandible After Resection. H. Pichler.—p. 465.
Clubbed Fingers and Aortic Insufficiency. E. Czyhlarz.—p. 466.
Quantitative Diazoreaction in Urine. Eiselsberg and Spengler.—p. 466.

Glucose Enhances Bactericidal Action.—Latzel recommends an intravenous injection of 20 c.c. of a 50 per cent. solution of glucose preceding the application of drugs designed to have a sterilizing action. It seems to enhance their bactericidal efficacy.

36: 477-494 (July 5) 1923

Indications from Fetus to Expedite Delivery. V. Hiess.—p. 477. Conc'n, p. 498.
Relations Between Herpes Febrilis, Epidemic Encephalitis and Influenza. G. Holler.—p. 484.
Pathogenicity of Bacillus Lactis Aerogenes. S. Beckmann.—p. 485.
*Menstrual Hyperemia in Relation to Tuberculosis. Maendl.—p. 487.

Menstrual Hyperemia in Relation to Tuberculosis.—Maendl draws attention to the exaggeration of the auscultation findings in the lungs of tuberculous women during menstruation. No woman should be pronounced cured unless examined for this "menstrual reaction" before passing judgment on the case.

36: 495-512 (July 12) 1923

*Fight Against Rabies in Dogs. J. Schnürer.—p. 495.
*Precipitation of Diphtheria Toxin. B. Busson.—p. 500.
Increased Frequency of Gastric Cancer. E. Schütz.—p. 502.
*Chemical Diagnosis of Hypertension. E. Maliwa.—p. 503.
Radial Paralysis After Forceps Delivery. M. Floris.—p. 504.

Fight Against Rabies in Dogs.—Schnürer recommends general prophylactic immunization of dogs against rabies. The idea was suggested by Pasteur and has been realized in Japan with excellent results.

Precipitation of Diphtheria Toxin.—Busson was able to precipitate 50-75 per cent. of diphtheria toxin with sulphosalicylic acid.

Chemical Diagnosis of Hypertension.—Maliwa determines the protein, the cholesterol and the bilirubin concentration in the first and last portion of blood from a large venesection (350-500 c.c.). He found three different groups of changes, and hopes that they will make possible fine distinctions in the differential diagnosis of hypertension.

36: 513-530 (July 19) 1923

Specific Treatment of Infectious Diseases. B. Busson.—p. 513.
*Ammonium Phosphate in Tetany. Adlersberg and Porges.—p. 517.
Experimental Pigmentation of Tarred Mice. B. Lipschütz.—p. 520.
Roentgen Diagnosis of Pathologic Gallbladder. F. Eisler.—p. 521.

Treatment of Tetany with Ammonium Phosphate.—Adlersberg and Porges use in treatment of tetany acid ammonium phosphate, which tastes better than ammonium chlorid. The dose is 18 gm. of the salt, $NH_4H_2PO_4$, daily in a liter of water, with sugar or fruit juices. The effect is almost immediate. The dose may be decreased later to 9 gm.

Zeitschrift für Tuberkulose, Leipzig

38: 241-320 (July) 1923

Duration of Pulmonary Tuberculosis. K. Siegfried.—p. 241.
Phrenicotomy. H. Schulte-Tigges.—p. 254.
*D'Espine's Phenomenon. K. Klare and E. Dehoff.—p. 260.
Primary Pulmonary Focus in Tuberculosis of Children. M. Lange.—p. 263. Conc'n.

D'Espine's Phenomenon and Roentgenogram.—Klare and Dehoff confirmed d'Espine's phenomenon with the roentgen rays in 99 per cent. of children under 10 years, and in 95.3 per cent. over 10 years.

38: 321-400 (July) 1923

*Pregnancy and Pulmonary Tuberculosis. F. Melion.—p. 321.
Rough Breath Sounds. A. Winkler.—p. 329.
*Reaction of Tuberculous Organism to Intracutaneous Inoculation. E. Lange.—p. 334.
Action of Tuberculin. E. Szasz.—p. 342.
Rare Incidents During the Diagnostic and Therapeutic Use of Tuberculin. E. Hoke.—p. 346.
Survey on Remedies and Food for Treatment of Tuberculosis in 1923. G. Schröder.—p. 348.

Pregnancy and Pulmonary Tuberculosis.—Melion emphasizes the importance of measures taken in the beginning of pregnancy for the fate of tuberculous women.

Reaction of Tuberculous Organism to Intracutaneous Inoculation of Alttuberculin, Tuberculin from Acid-Fast Saprophytes, and Nonspecific Substances.—Lange found a distinct parellelism between the reaction of fifty patients to "old tuberculin" and a product from saprophytic acid-fast bacilli, which was prepared in a similar way. There was no parallelism between these reactions and those following nonspecific injections (colon bacilli and diphtheria toxin).

Zentralblatt für Chirurgie, Leipzig

50: 1049-1080 (July 7) 1923

*Surgical Treatment for Gallstones. Finkenheim.—p. 1050.
Extirpation of High Carcinoma in Upper Rectum. Bayer.—p. 1053.
Resection of Cervical Sympathetic Nerves. Brüning.—p. 1056.
A Case of Traumatic Apoplexy. E. Metge.—p. 1059.
Suture of Vas Deferens. L. Seyberth.—p. 1062.
A Modification of Stomach Clamps. Unger and Löwenstein.—p. 1063.
*"Instrument for Removing Plaster Casts." Franke.—p. 1063.

Surgical Treatment for Gallstones.—Finkenheim gives his experiences of thirty years in 670 operated cases and internal treatment of 6,000 patients with gallstones. He sorts his material according to the character of the changes caused by the gallstones. Mere mechanical obstruction was comparatively seldom the cause for operation, but rather the inflammation entailed by irritation from the concretions. There were persisting pains in 172 cases in chronic inflammation of the gallbladder, and seventy-five cases with a sudden attack of pain, the cause for which at operation was found to be an acute recurrence of the inflammatory process. In sixteen cases perforation of the gallbladder had occurred. In only fourteen cases was inflammation absent; the cause of the persisting symptoms in these cases was the mechanical obstruction of the gallbladder outlet; in seven cases the cause for the operation was sudden obstruction. In a group of seventy-four patients, fifty-seven presented at operation evidence of previous inflammation that had subsided, but in whom no further stones were found. Seventeen patients at operation revealed neither inflammatory processes nor stone. Finkenheim discusses the indications for operation, the procedures and the results.

Removing Plaster Casts.—Franke recalls that strong brine softens plaster casts so they can be easily cut.

Zentralblatt für Gynäkologie, Leipzig

47: 1233-1280 (Aug. 4) 1923

Uniform Carcinoma Statistics. G. Winter.—p. 1233.
Congress Discussion on Cancer Statistics. W. S. Flatau.—p. 1237.
Rectal Examination During Childbirth. Von Mikulicz-Radecki.—p. 1239.
Further Experiences with Kielland Forceps. H. Heidler.—p. 1245.
*Gynecologic Irradiation of Pituitary. P. Werner.—p. 1260.
Delivery Through Perineum. K. Scheven.—p. 1264.

Roentgen Irradiation of the Pituitary in Amenorrhea and Dysmenorrhea.—Werner reports that he has secured surprisingly good results from application of small roentgen doses (one field of irradiation and ½ erythema dose) to the hypophysis in affections referable to hypofunction of the ovaries. In cases of amenorrhea and dysmenorrhea, and in deficit symptoms during the menopause, he was able to rid the patients of their symptoms, usually within a very short time. He has never been able to get as good results from drugs or operative treatment. Whether the results will prove permanent is still a question. From some observations already made he fears that in some instances the effect will "wear

off." By repetition of the treatment, however, good results are again secured. As the treatment is absolutely harmless, painless and easy to apply, he invites a trial of the method. He had previously applied more intense dosage but with less satisfactory results.

Casopis lekaruv ceskych, Prague

62: 797-820 (July 28) 1923

Varices of Intestines. V. Kreisinger.—p. 797.
Case of Vulpian's Type of Progressive Muscular Atrophy. F. Sádak. —p. 802.
*Antigens in Urine in Tuberculosis. J. Jedlicka.—p. 804. Conc'n.

Antigens in Urine in Active Tuberculosis.—Jedlicka injected urine from patients suffering from active tuberculosis into the skin of tuberculous guinea-pigs. The reaction was similar to the phenomenon observed by Koch in reinfected tuberculous animals. It is therefore probable that it was due to toxic antigenic products of tubercle bacilli in the urine. Repeated injections of urine from patients with active tuberculosis produced a typical anaphylactic state. He did not have good results with Wildbolz' reaction.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 326-440 (July 28) 1923

*Heredity of Cancer. W. F. Wassink and C. P. Wassink-Van Raamsdonk.—p. 326.
*Phagocytic Function of the Spleen. H. C. Voorhoeve.—p. 335.
*Diabetes and Syphilis. J. A. Roorda Smit.—p. 345.
Case of Oligohydramnion. M. W. Scheltema.—p. 353.
Hydrogen Dioxid in Treatment of Burns. A. de Groot.—p. 354.
*Injury of Larynx from Roentgen Treatment of Cervical Glands. A. van Rossem.—p. 355.
Occupation in Treatment of Pulmonary Tuberculosis. P. J. L. de Blocme.—p. 379.

Heredity of Cancer.—Practically this same article was reviewed, Oct. 20, 1923, p. 1395, when published elsewhere.

Destruction of Erythrocytes in the Spleen.—Voorhoeve regards the spleen as a filter for all kinds of bodies which normally do not belong in the blood. This includes erythrocytes of abnormal shape and composition. In pernicious anemia, the number of abnormal red corpuscles is large, and the spleen tries to collect them all. Nothing is known that demonstrates a hemolytic action in the spleen; no hemolytic action has been detected in extracts of spleens from hemolytic conditions. In short, all the testimony seems to point to a phagocytic rather than a hemolytic action on the part of the spleen.

Diabetes and Syphilis.—Smit cites four recent French cases in which treatment for syphilis cured the diabetes, and a large number from older literature. He has had twelve cases in his own experience in which there was a history of syphilis preceding the diabetes. Two patients with diabetes insipidus recovered under treatment of the syphilis; three others with diabetes mellitus recovered from this and also from diabetes insipidus that developed later. Another with diabetes mellitus recovered under potassium iodid alone. In another with diabetes and a positive Cammidge reaction, the reaction changed to negative as the glycosuria subsided under specific treatment. Two other patients improved, but the glycosuria was not completely banished; and in another patient the diabetes was not modified by antisyphilitic treatment. The syphilitic manifestations in all twelve cases were mostly of cerebral type, and he thinks that the diabetes was of cerebral rather than pancreatic origin.

Injury of the Larynx from Roentgen-Ray Exposures of Cervical Glands.—The young woman had been temporarily hoarse after the roentgen-ray exposures, but the swollen lymph glands had subsided to normal size and the ulceration had healed under the courses of irradiation. Six years later hoarseness and symptoms developed anew which were interpreted as a tuberculous perichondritis of the larynx. Death occurred suddenly from suffocation and van Rossem argues that this perichondritis must be attributed to injury from the roentgen exposures years before, which had transformed the tissue in the neck into a mass of connective tissue without tuberculosis. Marschik has reported a similar case, only the interval was three instead of six or seven years, and there was no sequestrum. Van Rossem has found records of seven other cases of the kind. In Schmid's case the rays had been applied for sycosis, and the exposure was followed at once by hoarseness and six months later by perichondritis, tracheotomy, expulsion of a fragment of cartilage, and fatal gangrene of the larynx ten months after the exposure. In one case this fatal course followed irradiation of a harmless keloid. Marschik urges the necessity for long intervals (eight weeks at least) between exposures, and epinephrin treatment of the larynx before the irradiation. Hoarseness after exposure of the neck region is a warning of a reaction in the larynx, and of the necessity for keeping the patient under supervision.

Hospitalstidende, Copenhagen

66: 489-504 (July 11) 1923

*Influence of Chancroid on Syphilis. H. Haxthausen.—p. 489.
*The Hasselbalch "Regulation Test." A. Bisgaard.—p. 502.

Mixed Chancres.—Haxthausen reports the details of 7 cases in which a coincident chancroid seemed to modify the course of syphilitic infection. It attenuated both primary and secondary symptoms and also the Wassermann reaction in these and in 18 other cases of the kind. This attenuation may explain the cases in which chancroid alone was diagnosed and treated by specialists, and yet some of these patients (18 in Quarelli's 300) presented symptoms of syphilis later. In Müller's 5 cases, 1 patient presented tabes, 1 general paralysis and 3, other manifestations of syphilis. The cerebrospinal fluid seems to escape the attenuating influence of the chancroid, and hence lumbar puncture is indispensable when there is the slightest doubt of associated syphilis with venereal ulcer.

Reaction of Urine in Relation to Epilepsy.—Schrøder has devised a colorimetric technic which shows the ammonia content of the urine. Bisgaard's six years of research have convinced him that ammonia is the physiologic regulator of neutrality, and that the ammonia content of the urine fluctuates to a remarkable extent in epilepsy. This was confirmed by Schrøder's research on large numbers of epileptics; the ammonia curve is as different from the normal curve as the fever chart in sepsis from the chart with continuous fever. But further research on numerous other patients showed that similar fluctuations occur sometimes with encephalitis and in certain other diseases. Hence the ammonia content of the urine does not throw the anticipated differential light on the nature of convulsions and spasms. Some metabolic disturbance seems to be responsible for this dysregulation—as it is called—associated with some predisposition to spasms.

Ugeskrift for Læger, Copenhagen

85: 467-482 (July 5) 1923

Incarcerated Hernia in Obturator Foramen. H. Rud.—p. 467.
Case of Pulsating Exophthalmos. H. Bruun.—p. 472.
"Nutralbin" Bread. C. Jürgensen.—p. 474.

85: 501-516 (July 19) 1923

*Myelomas with Leukemic Blood Changes. V. Ellermann.—p. 501.
Chemical and Ion Requirements of Solution of Drugs Suitable for Injection. E. Walbum.—p. 503. Conc'n.

Myelomas with Leukemic Blood Picture.—In Ellermann's case, the man, aged 48, presented signs of aortitis and two tumors in the left thorax, severe pains in the lumbar region, and the blood picture of leukemia. There was a history of old syphilis, and necropsy, the tenth week, revealed other myelomas in the ribs and vertebrae and myeloblast infiltration of the liver, kidneys, spleen and lymph glands.

85: 517-540 (July 26) 1923

The Temperature of Normal Children. Steenberger.—p. 517.
*Acute Yellow Atrophy of the Liver. H. Jacobsen.—p. 523.

Acute Yellow Atrophy of the Liver.—Jacobsen states that nine cases of this kind have come to necropsy at the Copenhagen clinic in the last twelve months, an unprecedented number. Neither syphilis nor alcohol could be incriminated in any case. Gastro-intestinal symptoms were the first disturbance, cardiac oppression, vomiting and early jaundice, with intense pains in the liver region, simulating gallstone colic in some cases. This stage of the disease may last for three or four weeks before the onset of headache, spasms, agitation or delirium with terminal coma. Bacteriologic examination was constantly negative.

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THE SIGNIFICANCE OF A SEROHEMORRHAGIC OR HEMORRHAGIC DISCHARGE FROM THE NIPPLE*

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A discharge from the nipple of a nonlactating breast is often the first indication to the patient of a lesion of the breast. It is frequently the cause of consultation with the physician. Palpation of the breast may reveal a tumor which may or may not be the source of the discharge or may not reveal any changes at all. In the former instance, the correct interpretation of the significance of the discharge may be a deciding factor in the differential diagnosis, while in the latter it may be an aid in reaching an opinion as to the character of the lesion.

A review of the literature indicates that the significance of a serohemorrhagic or hemorrhagic discharge from the nipple has been a matter of dispute among clinicians for some time. A thin serous or blood-stained discharge is regarded by many as indicative of an intracanalicular papilloma; a frank bloody discharge of carcinoma; and a mucoid or dark chocolate colored discharge of chronic cystic mastitis. Bloodgood [1] is of the opinion that a discharge from the nipple of a nonlactating breast is evidence of a benign rather than of a malignant lesion. If the discharge is serous or serohemorrhagic in character, it is almost a positive sign of an intracanalicular papilloma. In senile parenchymatous hypertrophy, a thick brownish or chocolate colored material formed by the accumulated products of degenerated blood and epithelium may often be expressed from the nipple.

Deaver and McFarland [2] state that a bloody discharge from the nipple is due in the majority of cases to papillary growths or to benign intracanalicular papillomas. They also state that in malignant disease of the breast a discharge occurs in but from 3 to 5 per cent. of the cases, and that when a discharge does occur in such cases it is as a rule due to involvement of the milk ducts in the malignant process. A discharge may apparently be due in such cases to changes in the ducts associated with the malignant process, but not malignant in themsleves. In rare instances a dilated milk duct in an area of abnormal involution, which may or may not have undergone malignant change, is the source of a hemorrhagic discharge.

Lewis,[3] in studying seven breast tumors associated with a serohemorrhagic discharge, found chronic cystic mastitis in two cases and small intracanalicular papillomas in five. Greenough and Simmons,[4] in reporting twenty papillary cystadenomas, laid particular stress on the frequency of a bloody discharge from the nipple and the characteristic location of the tumor—superficially in the region of the nipple.

According to Sistrunk,[5] a duct papilloma is the most likely cause of a hemorrhagic discharge from the nipple, even when no tumor can be palpated. Judd,[6] in discussing intracanalicular papillomas, says that a bloody discharge is the characteristic feature. The discharge is odorless and sticky, and stains the clothing a pale yellow. As a rule, it is slight in amount and comes in drops. Occasionally a considerable amount may be expressed by digital pressure applied directly over the tumor. In chronic cystic mastitis the discharge is usually thick and colorless, while the discharge associated with a carcinoma is more watery, darker in color, greater in amount, and often of rather a foul odor.

Those cases in which a serous or serohemorrhagic discharge occurs from the nipple and in which no tumor can be palpated in the breast form an interesting group. Bloodgood,[7] in referring to this group of cases, mentions two in which the breast was removed and small papillomatous cysts containing blood found when the breasts were sectioned. There were no recurrences in these cases five and fifteen years, respectively, after the operation. In five other cases with a discharge and no palpable tumor, no operation was performed; the bloody discharge stopped, no tumor developed, and the patients remained well. In one case a tumor developed three years after the patient was first seen. This was removed and found to be an intracanalicular papilloma. Bloodgood believes that a discharge from the nipple is observed in malignant diseases of the breast before a tumor is palpable in but about 1 per cent. of the cases.

Cheatle,[8] as the result of an exceedingly careful microscopic study of sections removed from different parts of breasts secured at operation and at necropsy, has classified papillomas as uniradicular and multiradicular. The former have a single fibrous stalk, are usually multiple, and occur in the deeper portions of

* Read before the Section on Surgery, General and Abdominal, at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Bloodgood, J. C.: Am. J. M. Sc. **135**: 157, 1908; Benign Lesions of Female Breast for Which Operation is Not Indicated, J. A. M. A. **78**:859 (March 25) 1922.
2. Deaver and McFarland: The Breast, Anomalies, Diseases and Treatment.
3. Lewis, Dean: Surg., Gynec. & Obst. **22**: 666 (June) 1916.
4. Greenough and Simmons: Ann. Surg., February, 1907.
5. Sistrunk, W. E.: New Orleans M. & S. J. **75**: 47 (Aug.) 1922.
6. Judd, E. S.: Journal-Lancet **37**: 141 (March 1) 1917.
7. Bloodgood, J. C.: Personal communication to the authors.
8. Cheatle, G. L.: Brit. J. Surg., October, 1921; **8**: 149 (Oct.) 1920.

the breast. They are rarely malignant. The multiradicular papillomas have a broad base, with many stalks of attachment, containing many blood vessels, being almost cavernous in nature. These, as a rule, occur

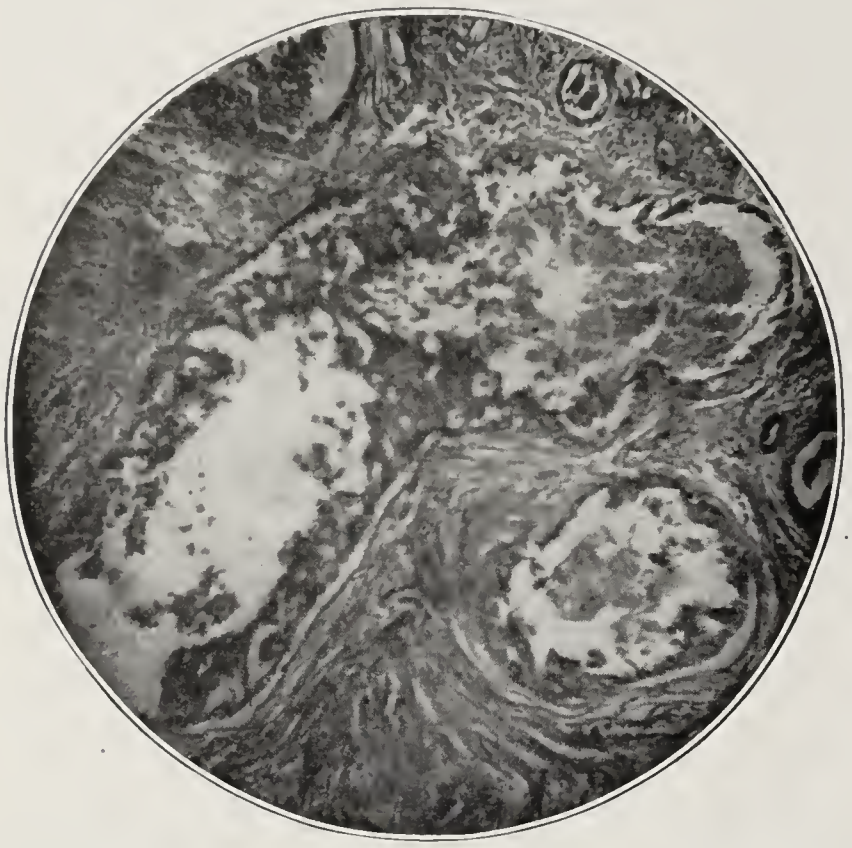


Fig. 1.—Low power view of papillary carcinoma in a breast with serohemorrhagic discharge from the nipple.

singly, most often near the ampulla of the milk ducts, and are very apt to become malignant. He has found in breasts in which no tumor could be palpated the following lesions: a large number of very minute benign papillomas; benign papillomas in the deeper portions of the breast with a beginning carcinoma near the



Fig. 2.—Low power view of a large carcinoma of the breast with serosanguineous discharge at the nipple; the papillary character of the growth in the center should be noted.

ampulla; a malignant degeneration of the epithelium of almost an entire milk duct, and two areas in widely separated portions of the breast in which were early malignant changes, either of which might have been the source of a hemorrhagic discharge. Weishaupt [9] found the source of hemorrhage in one case of chronic cystic mastitis to be a cavernous hemangioma, and in another case a vascular sarcoma.

Hald,[10] Tietze,[11] Dickinson [12] and Peachel,[13] by careful microscopic examination, have found malignant changes in the walls of what appeared clinically to be benign papillary cysts. Tietze found in forty-three cases of chronic cystic mastitis (Schimmelbusch) three that were malignant. Greenough and Simmons [4] found evidences of malignancy in 15 per cent. of the twenty intracanalicular papillomas studied by them.

Catherine Lewis,[14] in her study of 251 breast tumors, found that there was a discharge from the nipple in twenty-six. Among these were four spheroidal cell carcinomas, four duct carcinomas, four duct papillomas and six cases of chronic cystic mastitis. Her studies showed that 7 per cent. of the spheroidal cell carcinomas, 36.3 per cent. of duct carcinomas, 13.3 per



Fig. 3.—A small papillary carcinoma of the breast with pure blood discharge from the nipple; the tumor occupied an area close to the areola.

cent. of the cases of chronic cystic mastitis and 100 per cent. of the papillomas were accompanied by a discharge from the nipple.

Judd [6] reported 100 cases with a discharge from the nipple. In fifty cases the discharge was bloody; in fifty, nonhemorrhagic. In 54 per cent. of the first group, the lesion was a carcinoma; in 24 per cent., chronic cystic mastitis; in 16 per cent., intracanalicular papilloma, and in 6 per cent., Paget's disease. In 60 per cent. of the second group the lesion was a carcinoma; in 28 per cent., chronic mastitis; in 8 per cent., intracanalicular papilloma, and in 4 per cent., a simple cyst.

SCOPE OF PRESENT REPORT

This report is based on the study of 700 breast tumors observed at the Presbyterian Hospital, forty of which at some time during their clinical course were

9. Weishaupt, E.: Arch. f. Gynec., 1917, p. 107.
10. Hald, J. K.: Norsk Mag. f. Lægevidensk, **83**: 592-601 (Aug.) 1922.
11. Tietze: Deutsch. Ztschr. f. Chir. **56**: 512, 1900.
12. Dickinson, G. K.: Am. J. Obst. & Gynec. **3**: 31-34 (Jan.) 1922.
13. Peachel, G. E.: Lancet, December, 1906, p. 1660.
14. Lewis, Catherine: Lancet, June 3, 1922.

accompanied by a blood-stained discharge from the nipple. Two hundred and seventy-four of the 700 cases were benign, and 426 malignant. Forty (5.7 per cent.) of the patients either gave a history of, or on examination presented evidence of, a pathologic discharge from the nipple; in one instance, the discharge, rather large in amount, was milky in character.

In thirteen instances the lesion associated with the discharge was benign, and in twenty-seven malignant. In proportion to the total number of cases, 4.3 per cent. of the benign and 6.3 per cent. of the malignant tumors were associated with a discharge from the nipple.

BENIGN LESIONS

The following pathologic changes were found in the breast in the thirteen benign lesions: In six cases the



Fig. 4.—Bloody discharge from the nipple for a period of one month; region of nipple occupied by a benign papilloma; beneath the areola was an indefinite mass which presented the clinical features of a malignancy; microscopic sections, however, showed adenomatous tissue.

lesion was an intracanalicular papilloma; in four cases, chronic cystic mastitis, two of which presented definite papillary changes within the cavities of the cysts; in two cases the lesion was described as a fibro-adenoma, and in one as a cystadenoma.

Absence of a Palpable Tumor.—In five instances no tumor was noticed by the patient, and none was palpated by the examining surgeon. In two of these cases a small papilloma was found deep in the substance of the breast. In another case the lesion was a chronic cystic mastitis; in another, a cystadenoma. The discharge in all these cases was blood tinged. In one of these cases the patient, aged 35 years, had noticed for some time a serohemorrhagic discharge from the left nipple. No tumor could be palpated. When pressure was made on the upper and outer quadrant of the breast, the amount of discharge was increased. An operation was performed. The areola was reflected from the outer side. When this was reflected, a milk duct containing a blood clot was exposed. The por-

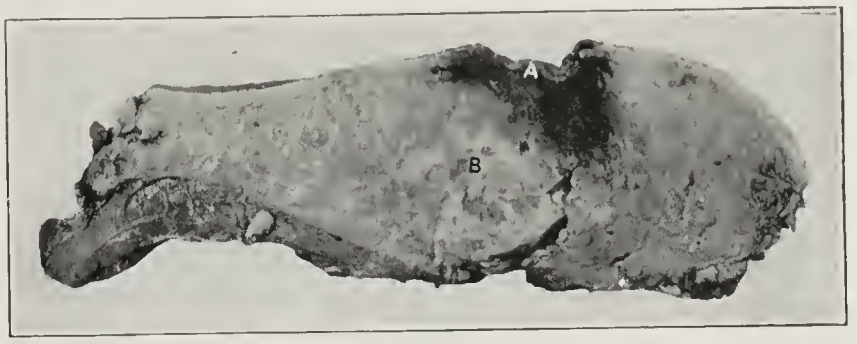


Fig. 5.—Cross section of gross specimen after excision of the papilloma which occupied the nipple region: *A*, region occupied by benign papilloma; *B*, adenomatous tissue.

tion of the breast communicating with this duct was then excised. When sections were made of the breast, a small papilloma, the size of the head of a black beaded pin was found deep in the substance of the breast. It is nine years since this operation was performed, and there has been no recurrence of the discharge.

Time of Appearance and Location of the Tumor.—In eight of the thirteen benign lesions, the discharge from the nipple was noticed before the tumor. In five cases the tumor was noticed before the discharge. In eight cases the tumor was located superficially beneath the areola (five intracanalicular papillomas; one cystic mastitis; one cystadenoma; one fibro-adenoma). In five cases the lesion was situated deep in the substance of the gland.

Treatment.—In ten of the benign cases, local excision of the tumor or resection of a portion of the breast

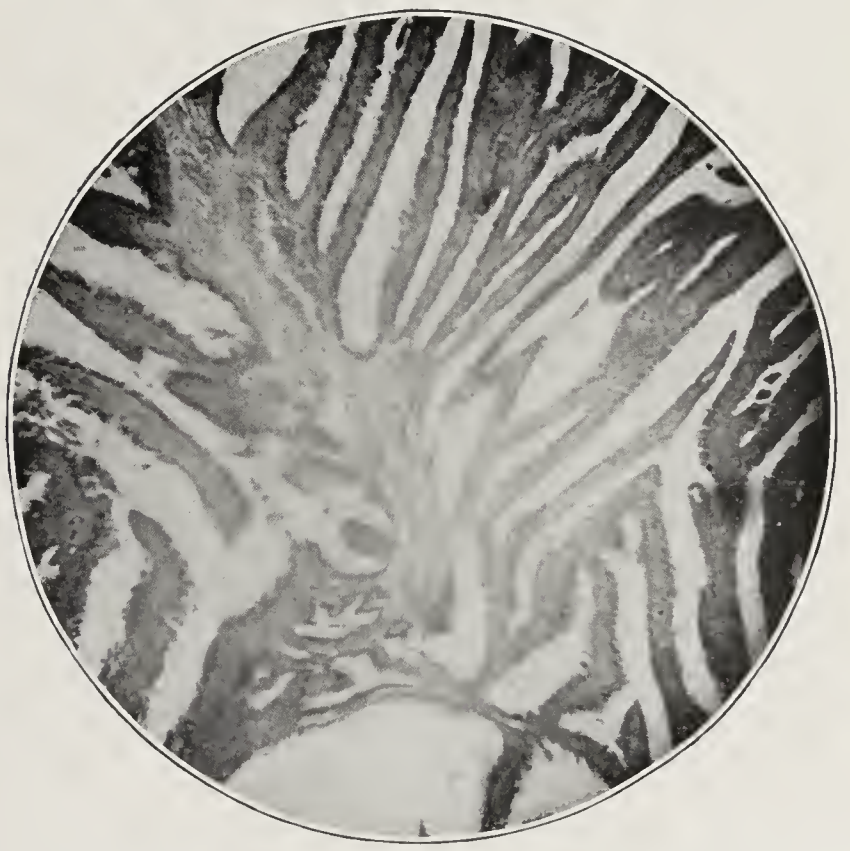


Fig. 6.—Low power section through the papilloma, which protruded at the nipple.

adjacent to it was performed. There have been no recurrences.

In three cases a radical amputation of the breast was performed. The radical operation was performed because of suspicion of malignancy. No

malignancy was found in these cases when a microscopic examination was made.

MALIGNANT TUMORS

Twenty-seven of the tumors proved to be malignant on microscopic section. In eleven of these cases, the



Fig. 7.—Section made through the tumor mass beneath the areola, showing a cystic area lined by papillary elevations, in the center of which is epithelial débris containing blood.



Fig. 8.—A dilated milk duct led from the nipple back to a malignant papillary cyst; blood clots filled the dilated duct: *A*, nipple region; *B*, dilated duct containing blood; *C, C*, malignant papillary cyst; *D*, blood.

discharge was bloody. In some of the remainder the discharge was described as blood-tinged and even clear and watery. In four, the character of the discharge was not noted. In three cases the discharge changed from a serous to bloody character. In four cases the discharge could be forced from the nipple by digital pressure. The character of the discharge in malignant disease seems to us to be much more often bloody than in benign lesions. The discharge may not be as great, but it is distinctly bloody in character.

Time of Appearance and Location of the Tumor.—In sixteen cases the discharge from the nipple was the first indication of a lesion of the breast. In but nine cases was the patient conscious of a tumor before the discharge appeared. In thirteen cases the tumor was located about or in the nipple, while in fourteen cases it occupied the deeper portions of the breast. In five cases the disease appeared on the surface as an erosion or growth within the nipple, tumor formation occurring subsequently in the areola.

Treatment.—In all cases a radical operation was performed. In one case (in a woman, aged 29), both breasts were radically removed. In one case in which a supposedly benign tumor was removed locally, a



Fig. 9.—Low power view showing the papillary character of the carcinomatous cyst.

recurrence developed shortly afterward, necessitating a radical operation. The following illustrative cases will be cited:

CASE 1.—S. H., aged 42, entered the service of Dr. Lewis, June 27, 1916. In January, 1915, she had noticed a blood stain on her night dress, and wondering whence it came, squeezed the right nipple and saw some blood. There was no pain, and she had not received any injury. She had never had trouble with that breast before, but during her first nursing period the opposite breast had twice been lanced. On examination, blood exuded from the nipple on pressure with the finger over the upper inner segment of the areola. No tumor was palpable. In the left breast were three healed scars. At operation, the following day, a semicircular incision was made along the edge of the areola, the gland tissue completely excised, and a reconstruction of the breast done with purse string sutures. The specimen removed showed an intracanalicular papilloma and a chronic cystic mastitis.

This patient was readmitted, July 6, 1921, complaining of pain in the left breast and a discharge from the left nipple. A lump had been noticed in the breast for several years, but the discharge was observed only the day before admission. On examination the right breast was small and depressed at its center. In the left breast could be felt a hard mass the size

of a lemon just above and connected with the nipple. On pressure over it, a drop of thick greenish material exuded from the nipple. The skin was somewhat dimpled over the tumor, and the axillary glands were palpable. At operation a curved incision was made along the latero-inferior margin of the breast, and a subcutaneous excision of the entire breast performed. The specimen contained several cysts filled with a green, mucoid material. Microscopically, several of the cysts contained small, papillary elevations, and throughout the tissue there was considerable round cell infiltration. The diagnosis was chronic cystic mastitis.

CASE 2.—Mrs. A. D., aged 51, entered the service of Dr. Lewis, May 16, 1911. Three months before, she had bumped the right breast. Four months later she noticed a hard nodule in the breast about 1 inch above the nipple, and two months later noticed a discharge at times from the nipple. It was at first serous; later it became blood-stained. There were intervals of ten days or more with no discharge, during which time the breast in the vicinity of the nodule felt full and distended. Then suddenly the discharge would appear and the feeling of the fulness pass away. There was some tenderness on pressure, but no real pain. On inspection, both



Fig. 10.—Low power section showing the papillary carcinoma.

breasts appeared normal. On palpation of the right breast, a firm nodule could be felt just above the nipple. It was not firmly fixed, and when it was squeezed a serosanguineous discharge exuded from the nipple. At operation a radical amputation was done after the tumor was removed locally and found to be suspicious of malignancy in one small area. The diagnosis was papillary cyst adenoma with early malignancy.

This patient entered the hospital again in 1916, for some other trouble, and more recently has had the opposite breast removed because of cystic disease; so there may be some question as to the malignancy of the original tumor.

CASE 3.—Mrs. N. C., aged 32, entered the service of Dr. Lewis, Nov. 28, 1919. The right breast had been swollen and red about three months after the delivery of a child, two years before. The swelling remained three or four weeks, and disappeared. The soreness, however, remained off and on since that time. Several months ago the breast began to enlarge again and she attributed this to a probable pregnancy, but before long she noticed a hard lump which rapidly increased in size. There was some redness about the nipple, and a thin, yellowish green discharge exuded from it. On examination, the right breast was enlarged to about four times its normal size, hard and nodular. A thin, serous, greenish fluid exuded from the nipple. No regional glands were palpable. The patient was in the seventh month of pregnancy. When a radical operation was performed, carcinomatous metastases were found in the axillary glands. The diagnosis was scirrhous carcinoma.

CASE 4.—Miss I. W., aged 29, entered the service of Dr. Lewis, May 15, 1922. A tumor mass had been noticed in the upper outer part of the right breast for about eight months,



Fig. 11.—Section of a papilloma removed from a dilated milk duct; dilated portion of duct containing growth situated superficially beneath the areola to the outer side of the nipple; a serohemorrhagic discharge escaped from the nipple, the amount of the discharge being increased by pressure.

and the lower portion of the breast had also been hard and painful. Occasionally during this time a slight yellowish discharge appeared at the nipple, and the last two times appeared distinctly bloody. On examination, a large, movable tumor mass, 5 cm. in diameter, occupied the upper half of the right breast. Below and medial to it was a hard, tender nodule. The nipple was covered by a bloody secretion. In the opposite breast could be felt a small, movable nodule just medial to the nipple. A radical amputation of the right breast revealed a carcinoma. May 29, 1922, the patient

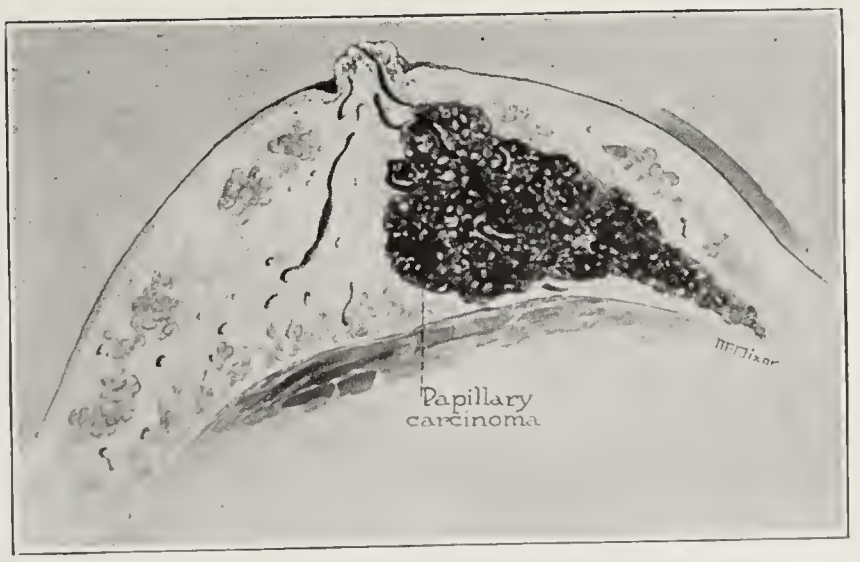


Fig. 12.—Papillary carcinoma associated with a serohemorrhagic and hemorrhagic discharge from the nipple; milk duct encroached on and invaded by the growth.

returned to the hospital for amputation of the opposite breast, which also showed carcinoma.

CASE 5.—Mrs. I. B., aged 54, entered the service of Dr. Lewis, March 9, 1920. Ten years before, she noticed that the left breast was more firm than the right, and at times gave her pain. During the last year a tumor had become quite

definite, had grown larger, and had become more painful. At times she observed spots on her underclothing, sometimes a yellowish clear fluid, sometimes pure blood. At times there was shooting pain in the axilla, and occasionally her arm appeared swollen. On examination, the left nipple was slightly inverted, hard and very tender, and fixed to a frozen-in mass in the region of the areola. A radical operation was performed, revealing a carcinoma. Within eighteen months she returned with a recurrence in the cervical glands.

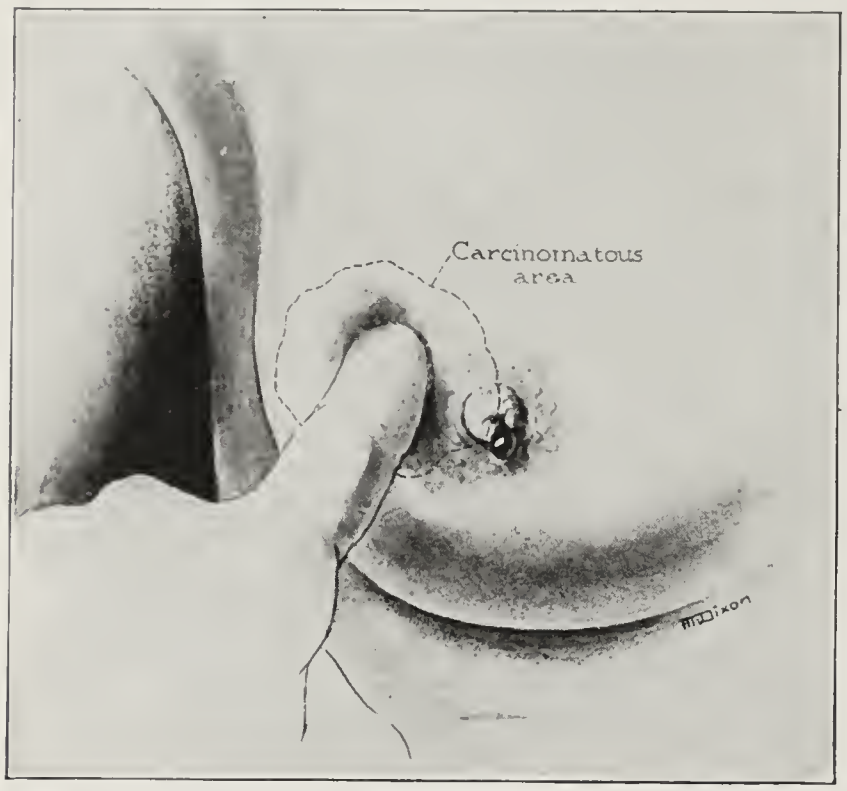


Fig. 13.—Increase in discharge on pressure; this growth is situated deeper in the breast than is the intracanalicular papilloma.

CASE 6.—C. F., aged 35, admitted to the Presbyterian Hospital May 12, 1914, complained of a serohemorrhagic discharge from the left nipple, which had been noted for several months. This was the chief complaint. Because of it she consulted a surgeon. When the breast was palpated, no tumor could be felt. Pressure was made over different parts of the breast. When pressure was made over the upper and outer quadrant, the serohemorrhagic discharge was increased in amount. At the operation, the areola was reflected. When this was done, a milk duct was found which contained a blood clot. This was traced backward into the breast, and the portion of the breast communicating with this duct was resected. When the tissue was examined, a small papilloma the size of the head of a black beaded pin was found deep in the breast. There has been no recurrence of the discharge, and the patient has been perfectly well.

CASE 7.—P. E., aged 31, admitted to the Presbyterian Hospital, Aug. 26, 1923, in the service of Dr. Lewis, for about three years had noticed a slight, cream colored discharge from the right nipple during each menstrual period. One month before admission, she noticed bleeding from the nipple, and a scale would form which she would pick off. Two weeks before admission, while at a dinner party, there was profuse bleeding from the nipple, and the following day she consulted a skin specialist, who applied ointments for a few days and then referred her to the surgeon. On examination, a raw, red, cherry-sized tumor with a smooth, shiny, moist surface occupied the position of the right nipple (Fig. 4). About its base the skin was pale, but normal. The breast tissue beneath the nipple was firmer than in the normal breast, but no definite tumor could be made out. Blood was not expressed from the nipple by manipulation. At operation, on the suspicion of malignancy, a radical amputation was done. Microscopic sections, however, showed the papilloma to be benign and the underlying tumor to be adenomatous tissue, with cystic dilatation of the ducts lined by papillary elevations (Figs. 5, 6 and 7).

CASE 8.—C. G., aged 25, two days before admission to the hospital noticed a blood stained discharge from the nipple. This appeared after the use of a Turkish towel used rather roughly while drying after swimming. This discharge was not large in amount, but stained her clothing. No tumor had been noted before. When she entered the hospital, July 15, 1921, a tumor was found just beneath the areola of the left breast to the outer side of the nipple. When pressure was made on this, the amount of discharge from the nipple was increased. The size of the tumor could be reduced by pressure. No other changes were found in the breast. An intracanalicular papilloma was removed from a dilated milk duct. This, on microscopic examination, proved to be benign. The patient was examined two years after the operation, and no evidence of any disease of the breast was found.

CONCLUSIONS

1. About the same proportion of benign and malignant tumors in the series studied has been associated with a discharge from the nipple (benign, 5.7 per cent.; malignant, 6.3 per cent.).

2. About half of the benign tumors having a discharge were papillomatous in character, occurring either as duct papillomas or papillary ingrowths in chronic cystic mastitis.

3. The discharge was bloody in almost one half, seventeen of the forty cases, and ten of these were malignant. It was serohemorrhagic in eleven cases, and eight of these were malignant.

4. In twenty-two cases the discharge was present before the tumor appeared. Eighty per cent. of these cases were malignant.

5. In nineteen cases, the tumor occupied the region immediately about the nipple, and about two thirds of these were malignant.

It is quite obvious, from the analysis of the cases cited, that a serohemorrhagic or hemorrhagic discharge

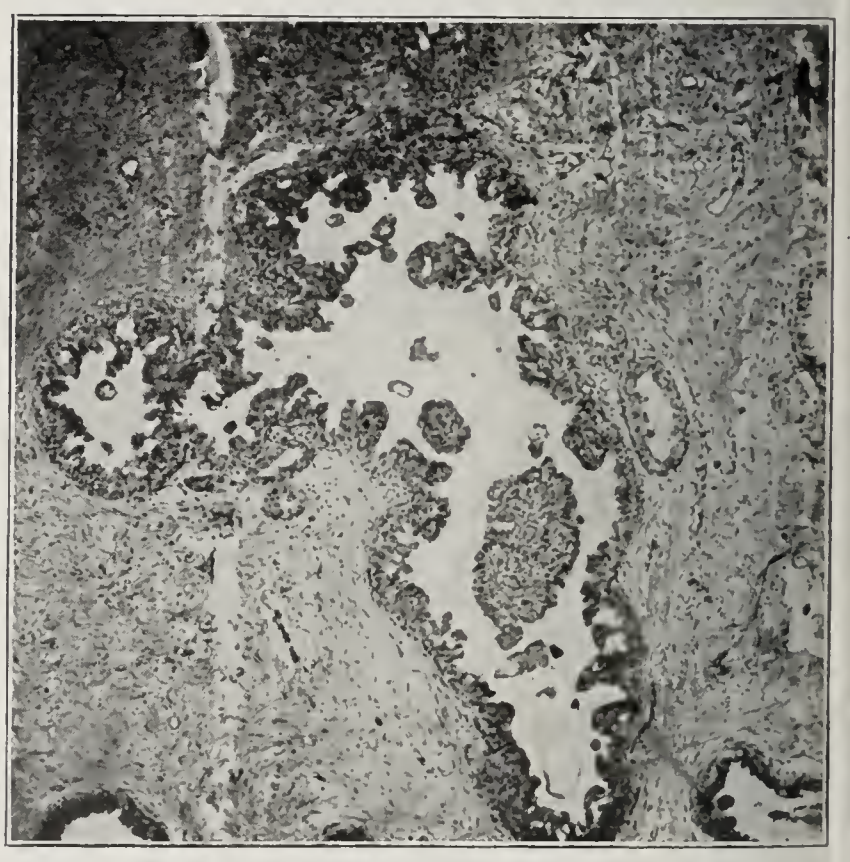


Fig. 14.—Chronic cystic mastitis; papillary growths into the cavity of the cysts; the discharge in this case was chocolate colored or dark, owing to alteration in blood which was retained in the cysts.

from the nipple may be associated with either a benign or a malignant lesion. The outstanding fact is that the character of the discharge may vary considerably with the same type of lesion, and that the same kind of discharge may be associated with lesions considerably different in character. The amount, color, odor and consistency of the discharge depend not only on the

pathologic lesion from which it originates, but also on the degree to which it is altered before it reaches the surface of the nipple. An eroded vessel will always bleed, no matter whether at the tip of a benign papilloma or adjacent to or within a papillary carcinoma. If the tumor from which the hemorrhage occurs is near the nipple, the blood will appear on the surface of the nipple but little changed. If, on the other hand, the bleeding arises from a papilloma or carcinoma in the wall of a cyst or dilated milk duct lying deep in the breast, the blood, degenerated and intimately mixed with the products of cellular disintegration, slowly finding its way to the surface of the nipple will be much changed in appearance.

The presence of a discharge from the nipple of a nonlactating breast is evidence of a pathologic lesion, but the diagnosis must be made on the usual signs and symptoms associated with benign and malignant lesions. The discharge cannot be regarded as of any great significance in differential diagnosis.

When a serohemorrhagic discharge occurs and no tumor is palpable, the lesion is in all probability a small, benign, intracanalicular papilloma situated deep in the substance of the breast. Such, we believe, should be removed. If the areola is partially reflected, after the portion of the breast has been determined which on pressure gives rise to the discharge, a milk duct containing a blood clot can usually be found, and the portion of the breast communicating with it can be resected.

AMEBIC INFECTION IN THE STATE OF WASHINGTON *

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Since the original statement of Lösch concerning disease-causing amebas, there has been discussion and dispute, first, as to whether these organisms actually caused the clinical symptoms and pathologic changes with which they were charged; secondly, as to their classification, differentiation and pathogenicity; thirdly, their nomenclature, various phases of their life cycle, cultivability and methods of transmission; and, finally, these points of dispute having been reasonably well settled, there still seems considerable difference of opinion as to the geographic distribution of the organism and as to whether the clinical manifestations of the disease caused by *Endameba histolytica* are modified by location or whether the disease in temperate climes may be caused by an organism morphologically indistinguishable from *E. histolytica,* but less toxic in its action. Further, doubters are not few among clinicians and even among laboratory workers of limited experience who charge that the harmless *E. coli* is often miscalled *E. histolytica,* and that the mild diarrheas and colitis seen associated with amebic infections of the intestinal tract are not caused by *E. histolytica,* but merely force a stool examination which discloses the presence of the commensal *E. coli,* which is then misnamed and blamed.

A healthy skepticism has always been of value in restraining undue enthusiasm in medicine, but the same quality carried beyond limits begets prejudice and reaction. It would seem that the report by conservative workers of endemic infection with *E. histolytica* of dwellers in the Northern states should have lessened the doubt; but the continued existence of questioning minds is the reason for the report of this small group of cases.

If such mistakes as have been charged are being made frequently, discussion should enlighten those most in need of education; and if diagnoses are being missed because of reactionary ideas, discussion is demanded for the enlightenment of the other group of offenders.

In the present report, little time will be spent on the morphology and differentiation of the different forms of endamebas, as that has been and can be given better by those more directly engaged in laboratory investigation. As this is primarily a clinical report, more space will be given to the clinical aspect.

Thirty cases in all are reported from my work and that of my associates in Seattle. These are cases of infection with *E. histolytica* recognized in the study of 13,000 patients coming with all varieties of complaints covered in the departments of medicine, general surgery, orthopedic surgery, urology, eye, ear, nose and throat, and radiology. No effort has been made as yet to determine by routine examination of stools the percentage of carriers in the Puget Sound region. All patients proved hosts of *E. histolytica* had stool examinations because of some point in their histories suggesting the possibility of parasitic intestinal infection. Many were examined who were not hosts. Many were found harboring *E. coli,* a few were found infected with *Endolimax nana,* and some had more than one variety of parasite. Some who, from their clinical history, were confidently expected to show infection, failed to do so, and I still believe that we have failed to demonstrate *E. histolytica* a few times when it was present. No diagnosis of such infection, however, has been made without the demonstration of the organism.

Until two years ago it was practically impossible to have the diagnosis of *E. histolytica* infection confirmed by the local laboratories unless the case was clinically definite and recently imported. This conservatism has forced the clinicians also to be very circumspect, so that in classifying a case as one of *E. histolytica* infection we have demanded rigid proof and have refused to accept as such infections any cases which the laboratory worker did not unqualifiedly certify.

Laboratory diagnosis has been based primarily on the finding of large, actively motile amebas of classic appearance, especially the finding of ingested red blood cells having been insisted on. These amebas have been found either in freshly passed feces, the second or third stool passed after a saline cathartic, or in mucus removed from the bowel wall or ulcers during proctoscopic examination. Confirmation in some cases has been made by observations on the cyst stage. In one case, amebas were demonstrated in the contents of a solitary liver abscess. Valuable aid in diagnosis has been rendered and moral support given by Prof. A. P. Jamieson, protozoologist in the Department of Zoology of the University of Washington

OBSERVATIONS

Of the thirty cases here reported, sixteen were in men and fourteen in women. Twenty-four patients were married, five were single, and one was widowed. The youngest was 20 years of age, the oldest 62. Five were under 30, twelve between 30 and 40, six between 40 and 50, five between 50 and 60, and one over 60.

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

Seven were of foreign birth; Austria, two; Russia, two; Switzerland, one; Italy, one, and Canada, one. All others were native Americans, all except two having been born in Northern States. These two were natives of Mississippi and of Texas.

That occupation played small part in the infection is evidenced by the fact that no fewer than nineteen occupations were stated: housewife, seven; office worker, three; police officer, two; missionary, two; United States Navy enlisted men, two, and one each of miner, cook, hospital employee, lumber camp superintendent, trained nurse, dairyman, grocery clerk, stationary engineer, machinist, civil engineer, rancher, physician, milliner and miller. Two classified as civilians had received their infection while in the army in France; one of the policemen was infected in the Philippine Islands during the Spanish-American War, and the two navy men and the missionaries were infected in the Orient. Just so far was occupation of importance.

Twelve apparently received their infection in the state of Washington; three in other Northern states and territories, Michigan, Indiana and Alaska; two in Southern states, Mississippi and California; two in France while in military service; one in Switzerland; one in Austria; two in China; one in India, and two in the Philippine Islands. There is no record as to place of infection of the other four.

Twenty-five gave a history of chronic or intermittent acute diarrhea. Five denied ever having had diarrhea. The shortest period of duration of symptoms was two months. This patient was acutely ill with amebic dysentery contracted just before leaving China. Two patients had histories covering thirty years, one twenty-five years, one twenty and one eighteen years. The remainder had been ill for shorter periods. Four gave such an indefinite or unintelligent history as to make impossible an accurate estimate of duration of symptoms. Twenty-two of the thirty patients had been operated on for a total of thirty-five operations. Fifteen of the operations were abdominal. Four were for cystic ovaries, all on the same patient; two were for the repair of postoperative hernias; one was a hysterectomy; one was a salpingectomy, and seven were appendectomies. Of the seven whose appendixes had been removed, only two received any relief. These were both operated on during acute attacks of appendicitis, one before he had ever had any symptoms of colitis, and one after his dysentery was long established. Both of these were completely relieved by the operation of the symptoms for which the operations were performed. Of extra-abdominal operations there were eight tonsillectomies, six operations for tuberculous cervical adenitis, all on one man; one hemorrhoidectomy; one operation for varicose veins of the leg; one bilateral castration; one curettement; one thyroidectomy for exophthalmic goiter, and one biopsy on a tumor in the rectum.

Conditions associated with the colon infection, but not necessarily related, were diagnosed with the following frequency: neurasthenia, eight; migraine, four; diseased tonsils, four; chronic bronchitis, colloid goiter, mitral stenosis, abscessed teeth, and secondary anemia, twice each; and hemorrhoids, adenomas of the thyroid, uterine prolapse, obesity, chronic arthritis, endocervicitis, chronic infection of the maxillary sinus and cholecystitis with gallstones, one each.

The primary complaint was in eight cases "stomach;" in seven, diarrhea; in five, abdominal pain; in three, "debility," and in three rectal; and in one each it was constipation, leg pains, headache and pruritus ani. As secondary complaints, diarrhea and general debility occupied prominent places, with five each. Constipation and abdominal cramps gave three each; dull abdominal pain and distress, gas in the bowels and stomach distress, were each complained of twice; and fever, sweats, hemorrhage and pus from the rectum, leg pains, goiter, and bad taste in the mouth, once each.

Most of the symptoms just mentioned were more frequent than noted, but were not volunteered by the patient, but brought out on questioning closely. Thus, diarrhea was actually complained of only twelve times, but on questioning was found present in twenty-five of the thirty.

A composite history of these patients would give a picture of a patient in middle life, a chronic sufferer from vague and variable abdominal and gastro-intestinal troubles; indigestion, gas in the stomach and bowels, flatulence, cramps, dull aches and tender colon; repeated attacks of diarrhea with intensification of all symptoms; occasional blood and pus with diarrheal stools; chilliness, fever and sweats; often constipation between acute attacks; and sometimes rectal pains and cramps; as secondary symptoms intimately or remotely related to the colitis, a marked degree of neurasthenia; at times loss of weight, back pains, leg and joint pains, hemorrhoids and pains at the tip of the coccyx, recurring ischiorectal abscess, pruritus ani, and bad taste in the mouth, nausea and vomiting; and finally and prominently, a general run down condition and *E. histolytica* in the stools.

As accidents are added abscess of the liver and pelvic abscess from perforation of an amebic ulcer.

Gastric analysis was done in nineteen cases. The highest acidity was free hydrochloric acid 61, and total acids 81. Eight had acids considered low, and of these three had achylia. One of these had gallstones and a chronic cholecystitis, which was considered a possible factor in the production of the achylia. One other had migrainous headaches.

No attempt was made at treating any patient without placing him at rest in a hospital. Thirteen patients in all submitted to treatment in some form. While all of the thirty had gastro-intestinal symptoms which suggested examination of the stools, at least five told a story so vague that we were compelled to class them as contact carriers. Some patients hesitated to undertake the rigid treatment outlined, in view of the guarded prognosis given, and a few cases recently diagnosed are not yet under treatment.

Amplifying the statement made above as to contact carriers, we have discovered no contact carrier who did not give on questioning a history of troubles which could be explained by an underlying colitis. And further, we have still to see a wholly symptom-free convalescent carrier, and we wonder whether continued careful investigation from the clinical side will not confirm us in our opinion that most if not all hosts of *E. histolytica* pay a price in lowered health for the continued harboring of the parasites.

TREATMENT

In the treatment of these cases, ipecac in some form has been the drug relied on. The earlier patients treated were put to bed and ipecac in keratin-coated

capsules was administered early each morning on a fasting stomach. Ninety grains (6 gm.) were given the first morning, eighty the second, and so on, the dose being reduced to 10 grains (0.65 gm.) each day until a 10 grain dose was reached. This dose was continued daily for one month. These patients were kept in bed two weeks. As a matter of fact, very few of them continued their treatment with any degree of regularity after leaving the hospital. Most of them required one-half grain (0.03 gm.) of morphin hypodermically before the ipecac was administered, to reduce the attending nausea sufficiently to permit the patient to retain the dose. Each patient, after he received his ipecac, was kept as quiet as possible for six hours, lying on his right side, and during that period received nothing by mouth. After that time, if he desired, he had two slices of toast and a cup of tea. Very few desired or could retain food so soon. Later in the day, liquid ad libitum was given, and a full tray of food at night.

In addition to the ipecac by mouth, 1 grain (0.065 gm.) of emetin hydrochlorid was given hypodermically every other day during the stay in the hospital, and every other day an enema of a pint of kerosene was given, the usual precautions to prevent burns being used. Practically all the patients lost weight while taking treatment. Nine patients were treated by this method, with some slight modification. Not every patient was able to take a daily dose of ipecac. One patient acutely ill of amebic dysentery was relieved completely of her symptoms, but not of her amebas, by three injections of emetin hydrochlorid, whereupon she continued her journey East. One refused to continue her treatment after three days' effort. One received two complete courses of treatment as outlined above without clearing his colon of amebas. The other six were relieved of their parasites.

One of these patients, shortly after treatment, developed a pelvic abscess from perforation of an amebic ulcer in the sigmoid. Diagnosis was confirmed by operation and later by necropsy. One of the thirteen treated patients came under observation suffering from a liver abscess. This was drained surgically, and in the typical pus *E. histolytica* was demonstrated. Death finally ensued from septic infection. There was no necropsy. This patient received only surgical treatment.

The last three patients treated have been put to bed, cleansing enemas only given as needed, and a daily dose of 3 grains (0.2 gm.) of emetin bismuth iodid in a lightly coated keratinized capsule given by mouth at 5 a. m. each day until a total of 36 grains (2.3 gm.) has been given. Each dose had been preceded by morphin sulphate, ½ grain (0.03 gm.) or pantopon, ⅓ grain (0.02 gm.) hypodermically, and the regular routine as to food and quiet observed. Sometimes nausea and depression caused treatment to be suspended for a day. After the twelve days of treatment, the patients required about two days before getting on their feet.

In none of the three patients treated by the latter method have amebas been demonstrated in the stools after treatment. None have developed neuritis.

In comparing the two methods of treatment, we have discarded ipecac and the hypodermic administration of emetin for the following reasons: 1. The hypodermics of emetin hydrochlorid are quite painful. 2. Five patients developed a sensory neuritis of such a degree that complaint was bitter for a long time, and complete relief from pain was not secured for three months in one case. The first symptom these patients complained of was a weakness. To this were shortly added increasing pains in the distribution of peripheral nerves, particularly in the arms and legs. This continued for a variable period, but the weakness apparently increased for a time and persisted for a much longer time, in one case for three months. 3. At least one patient with myocarditis already present had his heart symptoms made markedly worse, apparently from the toxic effects of the drug. 4. Failure to clear the stools of the amebas occurred in one patient whose treatment was very carefully and repeatedly carried out. Other failures were caused by the refusal of the patient to continue a treatment considered by him unduly punishing. 5. It is admitted that more than one course of this treatment is usually necessary.

Since we changed to the emetin bismuth iodid treatment given by mouth, no failures have been encountered, either by reason of the patient's refusal or inability to continue the treatment, or through failure to remove the amebas completely from the stool. The experience of others runs parallel with ours. Only one course is needed. If failures have occurred, none have been demonstrated by frequent examination.

The discomforts to the patient from this treatment are, first, the necessity for him to remain in bed for the major portion of his time while under treatment; second, nausea caused by the exhibition of the drug, and the disagreeable effects of morphin or pantopon given to control the early nausea. Nausea caused by morphin often persists in susceptible individuals almost to the time of the next dose of emetin, but its administration is usually necessary to prevent vomiting of the specific.

No neuritis has been observed in our small series of cases thus treated.

RESULTS

The condition of the patient following treatment calls for comment. Though he may be relieved of his intestinal parasites, it has been our experience that he still has colitis requiring careful dietetic treatment, and his general condition, instead of better, is often worse immediately following his specific medication. All patients leaving the hospital receive diet lists and careful instructions as to care of the bowels later. The neurasthenic habit of years is not easily broken, and the problem confronting the physician is frequently identical with that of the sufferer from a mucous or nonspecific colitis. The few we have been able to keep in bed and under the dietetic and physical regimen for treatment of the asthenic state have made most progress toward recovery. Here, too, let me say that treatment of a colitis by ordinary dietetic means is futile if the colitis is caused primarily by *E. histolytica*. The amebas must be got rid of first.

One took the hypodermic treatments and ipecac with some clinical improvement, but still has his infection with amebas. He has not yet received a course of emetin bismuth iodid. Six receiving this treatment (ipecac and emetin) were freed of their parasites. An appendical focus has been mentioned as a possible source of reinfection after treatment.

Three patients treated only with emetin bismuth iodid have been relieved of their parasites, and two of them have made marked improvement clinically. The third classed as a carrier has now no demonstrable amebas, but complains still of pruritus ani, though rather less than formerly.

CAUSATION

The concentration of Oriental population on the Pacific Coast is well known. The percentage of Japanese and Chinese to the total population of the United States is only 0.163 per cent.; in California, 2.9 per cent.; in Oregon, 0.9 per cent.; in Washington, 1.5 per cent.; in King County, which includes Seattle, 3.2 per cent., and in Pierce County, which includes Tacoma, 2 per cent. In the whole United States there are only 172,649 Japanese and Chinese, and of these, 127,755 are found in the states of California, Oregon and Washington.

Because of the 19,750 Orientals in the county of King (3.2 per cent.), careful inquiry was made of each patient to determine, if possible, whether his infection had such an origin. No direct support of this hypothesis was found. But the fact that there is such a rapidly increasing Oriental population, and that the Japanese, particularly, are largely interested in the production and marketing of our fresh vegetable supply, plus the fact that Pacific Coast ports are gateways of entry for Orientals and Caucasians returning from the Orient, must keep our attention focused on the Orient as a possible source of infection.

SUMMARY

1. Infection with *E. histolytica* is not negligible in the Pacific Northwest, and should be borne in mind in investigating vague and obscure abdominal complaints.

2. Carriers, while undoubtedly present, are not usually symptom-free.

3. Serious complications occur (liver abscess; perforation of ulcer).

4. Emetin bismuth iodid by mouth is to be preferred to ipecac by mouth and emetin hydrochlorid hypodermically as a specific.

5. Clearing the bowel of the amebas is only one step in the cure of the patient.

6. No evidence connecting our Oriental population with the infection has been secured.

ABSTRACT OF DISCUSSION

DR. F. D. GARRETT, El Paso, Texas: We have rather warm summers in El Paso and a good deal of dysentery. Being on the Mexican border and having a large U. S. Army post gives us more or less contamination with the tropics. Our location somewhat favors the presence of carriers of the infection. In its distribution, the infection at present does not seem to be limited to any stratum of society, being quite as likely to be in the home of the banker as in the homes of the poorer classes of people. I have the impression that those who eat a great many fresh vegetables and fruits are a little more likely to contract the disease than the very poor who cannot afford them. As to the best form of treatment, according to the observations that I have been able to make, I find ipecac to be effective. Emetin I still use, but I use it more for controlling the symptoms. The early cases I have seen have nearly all responded to intensive ipecac treatment. Ipecac, 5 grains every hour for ten hours during the day, accompanied by half a grain of emetin hydrochlorid once or twice a day, usually results in controlling the acute symptoms inside a week. Retention enemas of quinin bisulphate, 1:1,000, with thymol, 1:3,000, are helpful. I use other forms of treatment, as emetin bismuth iodid, and large doses of thymol, which seems to have a better effect in chronic cases. I desire also to call attention to the importance of getting rid of the encysted forms. It is very inaccurate to rely on the motile forms of amebas for diagnosis. If we do rely on them we are often misled. In my opinion it is far more important and much more reliable to be guided by the finding of pathogenic cysts.

DR. HAROLD W. WRIGHT, San Francisco: During the past year I have analyzed twenty-five cases of this infection. Every one of these patients was referred to me because they were nervous, and were considered to be neurasthenics. There was some neurotic disturbance. The average duration of symptoms before the final diagnosis was three and a half years. Some of these men seemed to have contracted their infection at Camp Lewis, and the rest in France and in the Philippines. As to the arthritis cases, only two were found, involving the upper spine; at the level of the pain were calcified deposits. Dr. John B. Long, who was formerly in the Philippines, told me that not only did he frequently find arthritis in amebic and dysentery cases, but also the roentgen ray had shown calcified deposits at the level of the spine to which the pains were referred. They were all outpatients, and the treatment was very unsatisfactory. In most instances ipecac was given with considerable improvement. Five appeared to be cured after a year, thirteen improved, and in seven no improvement was noticeable.

DR. F. C. YEOMANS, New York: This paper is important as illustrating the distribution of this infection. We know that the amebas exist everywhere. They are not killed by freezing, but are found in the arctic regions as well as in the tropics, owing to the expansion of commerce. Proctoscopy is an important aid in the diagnosis. In early active cases of amebic dysentery the ulcers are characteristic. You may make the diagnosis by seeing these pearl-like ulcers in the rectum and in the sigmoid, where they usually occur in this latitude, and, while the tube is in position if material is taken from the ulcer and examined under the microscope, we usually find the motile organisms. After the ulcers have existed a long time and have become secondarily infected, their appearance is not pathognomonic, but resembles a chronic ulcerative colitis. I believe that these cases should be reported to the health department and isolated, because they are a menace to the community. At present they are not reportable in many states. Those suffering from the disease should be kept under observation till cured, and rules should be prescribed as to the kind of work they may engage in, as well as rules of general hygiene.

DR. J. RAWSON PENNINGTON, Chicago: Captain Armitage of the British Army reported a case of fatal brain abscess following amebic abscess of the liver. He says that motile endamebas were found without difficulty, and that they resembled exactly the endamebas seen in dysenteric stools. Furthermore, examinations of pus from the brain abscess showed *B. coli,* streptococci and staphylococci. Now, while amebas are of microscopic size, they are gigantic in comparison with microbes, and if the animal parasites can be carried from the intestinal canal to the brain, why not the vegetable ones as well? If the amebas can get through, from the intestinal canal, and produce a cerebral abscess, why can not other forms of bacteria do the same? Moreover, not only bacteria but toxins from the intestinal canal, especially those arising from infections of the anorectal region, may give rise to many nervous and mental affections.

DR. G. A. DOWLING, Seattle: I do not believe that I have brought out anything particularly new, except to call attention to the existence of the infection in a part of the country where it had not been reported as being prevalent before. Also, I want to emphasize once more the insidious character of the disease—that is, the absence of distinct symptoms on which a diagnosis can be made, and particularly to the occurrence of more or less chronic and neurotic symptoms, neurasthenia and exhaustion. These symptoms seem to be of great importance, particularly in the chronic infections that we have seen in the North. In regard to the necessity for the isolation of cases suffering from the infection, as brought out by Dr. Yeomans, I would say this: In the state of Washington these cases are reportable, and patients are subjected to a modified form of isolation—that is, they should not use the same articles as the other members of the family, and things of that sort. It seems a little illogical that there should be such a ruling, because in the promulgation of this order only cases of real amebic dysentery apparently were considered. Patients actually sick with diarrhea were considered, and those apparently are not the cases which are dangerous in

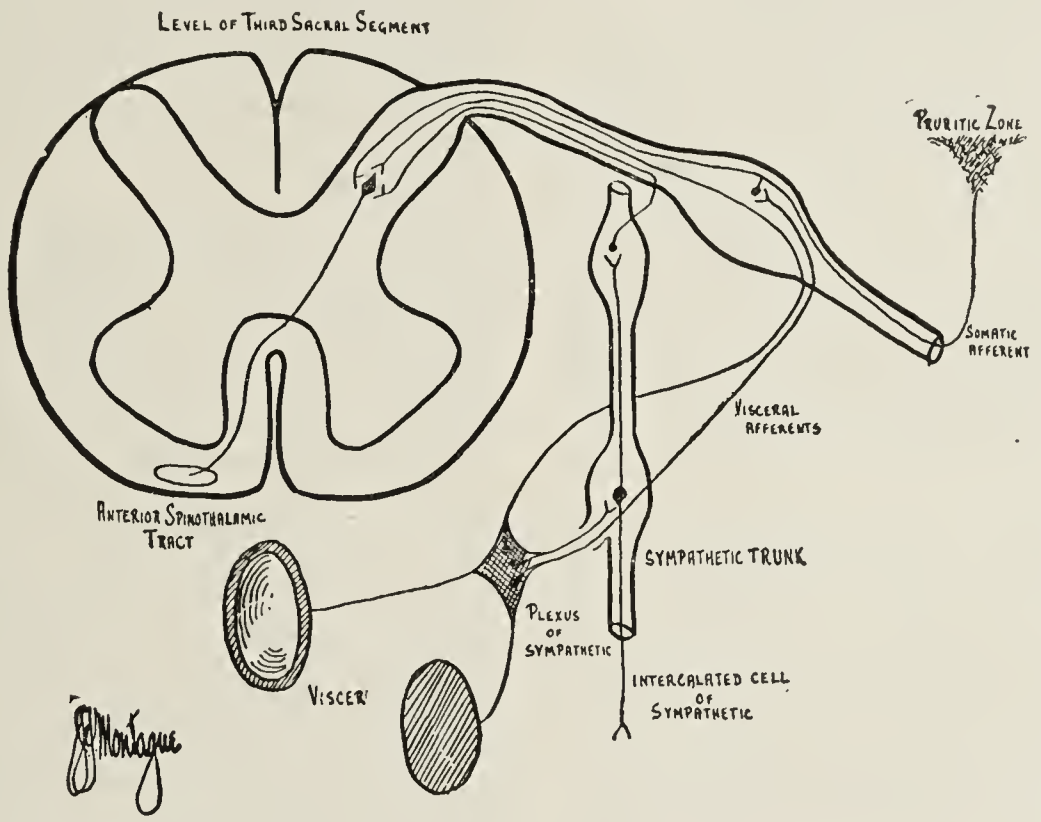
the carrying of the disease. The encysted stage is the dangerous one, and carriers cannot be picked up except by a routine examination of the entire population. So at present it does not seem useful to carry out any such plan.

RELATION OF PRURITUS OF ANUS TO CHRONIC DISEASES OF ABDOMINAL AND PELVIC VISCERA*

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Pruritus of the anus is a general term denoting an intolerable itching of the anal and often the entire perineal region. I recognize two distinct forms—the distinction depending on whether the irritative cause is within or outside the zone in which the pruritus is felt. In the two forms the general character and location of the itching is identical, but the seat of the cause is not always within the area affected and often not in the perineal region at all.

Concerning that form in which a source of direct irritation to the nerve endings in the pruritic zone is evident, nothing will be said except that I believe it to be a distinct clinical entity, and like to refer to it as pruritus ani. We are, however, here concerned more particularly with the other form, which I designate with the term anal pruritus. In this form the causes at work in the production of the itching are located in an area other than that in which it is felt. The phenomenon, being the subjective manifestation of another clinical entity, is merely a symptom. It is, in truth, an unrecognized early manifestation of chronic visceral disease. This fact and its significance have not as yet been recognized by any other than myself.



Diagrammatic representation of anal pruritus (indirect pruritus of the anus).

Anal pruritus, as defined above, has often been observed to bear an apparent relation to the presence of pelvic or abdominal disease. There are so many instances of this on record that I will simply refer briefly to a few that are noteworthy.

Innumerable clinical observations and the bulk of medical literature will support the statements that I am about to make. I quote no authorities for the reason that they have been observed and reported by so many that it is needless.

In many of those chronic diseases of the stomach associated with dyspepsia, chronic gastritis, there is added to the clinical picture the condition known as anal pruritus. This is particularly true in cases associated with much gastric fermentation. In these cases, a cure or relief of the gastric condition often brings about a parallel relief in the pruritus. Medical literature reports the association in some cases of carcinoma of the stomach with pruritus; and many other chronic diseases of the gastro-intestinal tract, such as chronic colitis, chronic constipation and fecal retention, have also been observed to have an apparent relation with the causation of pruritus of the perineum.

In a closely similar manner, an identical apparent relation has been observed in some patients with chronic diseases of the genito-urinary tract. As examples of this, chronic endometritis, chronic prostatitis, hypertrophied prostate and chronic urethritis may be mentioned.

Of the other chronic visceral diseases which at times appear to bear a relation to this condition, obstructive derangements of the liver, such as hypertrophic cirrhosis of the liver, are notable instances. Chronic cholecystitis, chronic nephritis, cystic calculus and neoplastic growths of the liver have each contributed their share of examples of this relation to pruritus of the anus or perineum. Other instances might be furnished, but these are sufficient at present for our purpose.

If we bear in mind the observations mentioned above, it will be noted that the general factors involved are that chronic visceral diseases are very frequently associated with pruritus of the perineum. These chronic visceral diseases are those that are associated in most cases with chronic inflammation, and in almost all cases with a departure in size from the normal either by virtue of hypertrophy, hyperplasia, congestion or distention. Since we know that each of these viscera is supplied with a network of nerve fibers which are particularly abundant in the capsule, it is logical to assume that a departure from the normal size of such organ would cause the generation of afferent nervous stimuli. Those diseases which Osler states as having pruritus as a concurrent condition are diabetes, Hodgkin's disease, lymphoid leukemia and exophthalmic goiter. All of these diseases, it will be noted, involve a departure in size of the viscera they affect.

This is my firm belief: Whenever a viscus is the seat of a chronic inflammation, congestion, hyperplasia, hypertrophy, distention or dilatation, a stream of afferent stimuli are generated by the mechanical tension on the neural arborizations terminating in its capsule, and such stimuli are transmitted by the afferent visceral nerves to the central nervous system.

The viscera, however, are supplied by fibers of the autonomic nervous system, and these fibers are not able to convey pain. Langley, Dogiel and Ranson, however, have proved that the afferent nerves from these viscera come into synaptic relation with the

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* From the Rectal Clinic, University and Bellevue Medical College.
* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

somatic afferents in the ganglion of the posterior nerve root and also in the lateral horn of the spinal cord (as shown in the accompanying diagram).

It seems plausible, therefore, to assume that these abnormal afferent impulses from the viscera lead to the stimulation of somatic afferents by creating an irritable focus in the posterior spinal ganglion, and that, the function of sensation being more commonly utilized in reference to the somatic afferents, the irritant stimulus is referred in consciousness, not to its true source but to the place from which such stimuli are habitually received, and hence the irritation is referred to the skin of the area supplied by the particular somatic afferent nerve affected. This is a transference of sensation which is exactly analogous in principle with the misreference of pain; but that it is not a reflex must be evident from an examination of the anatomic facts.

Now, in applying this hypothesis to the particular instance of pruritus of the anus, attention is drawn to the following facts of anatomic structure:

The pruritic zone is supplied by sensory nerves which have their origin in the first four sacral segments. These segments are in intimate neural connection not only with the pelvic viscera but also with the other abdominal viscera. It will be remembered that the third, along with the second or fourth sacral nerve, in addition to gray rami communicantes to the sacral autonomics, sends a large, white ramus communicans or visceral branch direct to the pelvic plexus and viscera. The intimate connections between the various plexuses, the hypogastric plexus and the aortic plexuses bring the superior and inferior mesenteric plexuses into close relation with these sacral segments.

The afferent nerves from the viscera have long been assumed, first by Dogiel and later by others, to end their travel centripetally by coming into synaptic relation with the cells of the posterior spinal ganglion by means of the white ramus communicans; or, by means of the same channel, they may pass through the posterior spinal ganglion and end in the lateral horn of the spinal cord in synaptic relation with the commissural cells of the intermediolateral tract at that level or some higher or lower level. The sympathetic neurons, in contradistinction to those of the central nervous system, have been shown to come into multiple relations with the various segments. It is thus readily seen that this transference of sensation may come in segments apparently removed from the source of afferent visceral stimuli.

Clinical observation of the frequent association of visceral disease can thus be linked in a very logical manner with this manifestation of transference of afferent stimuli and their consequent misreference of localization. This phenomenon is evidenced clinically as pruritus of the anus of the indirect type or anal pruritus.

The fact that it is an indirect pruritus is clearly demonstrable by its continued existence after the tissue of the pruritic zone has been thoroughly infiltrated with a local anesthetic, after sacral nerve blocking or after superficial neurotomy.

In answer to the question which probably presents itself as to why such a transference of sensation is not evidenced as pain, it must be recalled that pain, like other sensations, has a definite threshold. If we assume that the irritative stimulus which produces the transferred impulse causing the sensation of pruritus is below that threshold, and hence incapable of producing the sensation of pain, we can readily conceive how it is appreciated in consciousness as an irritation to which we have given the name of itching or pruritus. As a matter of clinical fact, these patients with pruritus will frequently tell us that at some time the pruritus becomes so intense that it actually does pain them, and in such cases I assume that the threshold of pain has been crossed.

To recapitulate: I believe that all cases of pruritus of the anus can be clinically divided into two classes: The one, a direct pruritus (pruritus ani) due to the direct irritation of the peripheral nerve endings in the pruritic zone, in which cases the source of irritation actually causes a primary pathologic condition whose direct nature can be demonstrated by the abolition of pruritic sensation by local anesthetization or superficial neurotomy; the other, an indirect pruritus (anal pruritus) due to the perception of the pruritic sensation which in consciousness is referred to the pruritic zone, an area which is, at the inception of the pruritus, devoid of any pathologic condition at all. This phenomenon is due to the transference of an irritable stimulus from the visceral afferent nerves to a normal somatic afferent nerve channel or pathway, and the consequent misreference or error in localization of the sensation.

This indirect pruritus, although devoid of local lesions at its inception, induces a desire to scratch which results in the pathologic changes previously noted; namely, first, a traumatic, chronic dermatitis, and in many cases, secondly, an infective chronic dermatitis. These secondary pathologic changes in the tissues of the pruritic zone lead to an added component of direct pruritus. As a matter of clinical fact, sooner or later in all these cases of indirect pruritus there is superimposed the element of direct pruritus.

In the type of pruritus I have just described, indirect pruritus, local therapeutic measures are decidedly not indicated unless the patient's efforts at relief, such as scratching and rubbing, have induced a direct pruritus either of a mechanical or an infective nature. It is decidedly illogical to expect local operative procedures or topical applications to remedy a condition symptomatic of visceral disease. Where local disease has been induced, it must, of course, be treated; but we must bear in mind that it is a condition of effect rather than a primary causative factor.

Since the prevailing method of treating these sufferers is chiefly by means of treatment applied to the pruritic zone, I urge the recognition and acceptance of this interpretation. Until the treatment of these cases is guided by this, it must continue futile in that very definite percentage of cases of pruritus of the anus which have an etiologic relation to chronic disease of the abdominal and pelvic viscera.

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ABSTRACT OF DISCUSSION

Dr. W. M. Beach, Pittsburgh: Pruritus ani is a most persistent symptom, and very bolshevistic. There are a certain number of cases that respond to the usual treatment as practiced by surgeons and proctologists, and a certain number that do not. Perhaps we can cure by the ordinary methods of subcutaneous division, and other means, in the neighborhood of 60 per cent. Forty per cent. will persist in spite of what we do. I think that the work Dr. Montague is doing may help us out on that 40 per cent., in which the symptoms are so persistent and the cause so remote. We all know that it is due in great measure to a low grade infection, but there is a neurotic element to consider in the etiologic considera-

tion of the subject. It seems to me that Dr. Montague is doing a good work in establishing these fundamentals in reference to the cause of pruritus ani. This bacteriologic research work is a subject that I do not feel qualified to discuss.

DR. F. C. YEOMANS, New York: I should like the doctor to explain how he differentiates between pruritus ani, so called, and the cases that I referred to?

DR. MARY D. ROSE, New York: I should like to ask how he explains pruritus ani in diabetes.

DR. R. A. WHIFFEN, San Jose, Calif.: I have known many cases of pruritus ani to occur during the menopause. I should like to get some explanation of that.

DR. J. F. MONTAGUE, New York: My attitude toward the entire subject of pruritus of the perineum has been to consider it as a problem in diagnostics rather than a problem in therapeutics. Unless we know what the component conditions are that we are dealing with we certainly cannot hope to treat the disease successfully in its entirety. The differentiation of these cases into either a direct or an indirect type cannot be made by a casual examination of the area to which the symptom is referred. At Bellevue Hospital I have a clinic in which I treat nothing but cases of pruritus ani. When a case presents itself I initiate a series of examinations, first of the perineal region, that is, the area to which the pruritus is referred, and then proceed with a complete proctosigmoidoscopic examination. Should I fail to find a sufficient pathologic cause in these regions, I then make a complete physical examination. It is my opinion that a definite conclusion in regard to a condition such as this cannot be reached unless a thorough physical examination is made. Many urge the importance of a rectal examination in connection with general physical diagnosis, and I should like to insist in a similar manner on the importance of a complete physical examination in all cases of pruritus of the perineum. If sufficient local cause for the pruritus is found, treatment may be instituted on that basis. There are certain causes that will induce a direct pruritus. If treatment after the correction of local pathologic conditions is not successful, we can be fairly certain that there is some hidden visceral cause. I generally do not wait until we arrive at this point, but make a complete physical examination to begin with. I thus frequently detect visceral pathologic changes at the start, and their removal or correction brings about a prompt cure of the pruritus from that source. The explanation that I offer for the occurrence of pruritus ani and vulvae in diabetes is very simple. It is asserted that these conditions are due to an excess of sugar in the blood of a diabetic patient. Such a statement is manifestly illogical; for, if it were incident to the circulation of an excessive amount of sugar in the blood stream, we would not get a localized pruritus, such as these conditions are, but rather a generalized pruritus as we do in urticaria. When we consider, however, that in cases of diabetes mellitus the liver is usually considerably enlarged; that dilatation of the stomach is common; that a diffuse nephritis is often present, and that the constant lesion of the disease is a chronic interstitial pancreatitis; we can readily conceive the generation of enough afferent, abnormal visceral stimuli to cause an indirect pruritus referred to its appropriate anatomic area, i. e., the perineum. That is my explanation of the cause of localized pruritus in diabetes. By their efforts to relieve by scratching and rubbing, patients may induce a chronic mechanical or infective pruritus; but the fundamental pruritus in these cases is an indirect pruritus, and cannot be relieved by treating merely the symptoms.

DR. SIDNEY K. SIMON, New Orleans: I have had occasion to observe a case of severe diabetes in a middle-aged woman, the main clinical manifestation being a very severe, almost intolerable, form of pruritus ani. Under the insulin treatment, the pruritus vanished almost magically. When the blood sugar ran up over 25 per cent. she immediately had a return of the pruritus. There seemed to be a direct relationship between the hyperglycemia and the pruritus.

DR. MONTAGUE: How do you presume that insulin affects diabetes favorably—by what mechanism?

DR. SIMON: There is relief in the hyperglycemic state.

DR. MONTAGUE: My reason for asking you that is that insulin therapy is in rather an embryonic state at present. Insulin supplies a substance that relieves a local pathologic condition in the pancreas. Insulin undoubtedly relieves or stops the progress of that pathologic condition. No one knows exactly how insulin works. I believe that its beneficial powers are exerted through the action of the pancreas. So far as hyperglycemia is concerned, it is entirely illogical to assume that hyperglycemia would cause localized pruritus. If we contend that the blood that contains the toxin circulates throughout the entire mass of the tissues of the body, and selects only a certain few of them for action in the hyperglycemic blood, we are straining the theory of the selective actions of drugs a little, if we assume that all of those tissues are normal. If we do not assume that they are normal, then pruritus is secondary, and not primary. But I do not believe that the pruritus of diabetes is due to the hyperglycemia. Not all patients with diabetes have pruritus, but they all have hyperglycemia.

DR. JAMES T. PILCHER, Brooklyn: It would certainly appear that the author strains himself far more in trying to account for pruritus ani through transferred nervous stimulus from a stretched liver or liver capsule than the observer who attempts to account for it through the condition of hyperglycemia. It is rather difficult to account for the fact that the irritation of a plexus high up in the cord should so frequently skip all the intervening plexuses and attack merely that conveying impressions to the perineum. It would further seem that the reader of the paper has obtained a wrong conception of the action of insulin. I do not think that its sponsors claim any action on the pathologic condition of the pancreas itself, but merely that it supplies a chemical substance to the blood to further the oxidation of the retained sugars. The fact is that many patients exhibiting sugar in the urine do not invariably show a sclerotic or enlarged pancreas; some that have been surgically explored show a very marked deficiency of glandular substances. In examining a large number of patients operatively explored for concomitant upper abdominal trouble, it was found impossible to surmise invariably the condition of the pancreas preoperatively. I myself am of the opinion that pruritus ani in those conditions in which there is a concomitant diabetes present will be found to be the result of the toxic condition of the blood and most probably caused by the hyperglycemia or the accompanying acidosis; and while it is not a simple question to answer, it will appear a much easier explanation than that of a nervous reaction due to stretched capsule over the pancreas or liver.

DR. J. F. MONTAGUE, New York: I am sorry that I offend Dr. Pilcher if I appear to strain myself in explaining this condition from the standpoint of neural physiology. The fact of the matter is that if we accept the theory of the misreference of pain we must, by the same token, accept the interpretation that I propose for indirect pruritus. I myself cannot conceive how blood laden with an irritating principle and circulating throughout all the tissues of the body can affect the sensory nerve endings in certain skin areas and leave unaffected homologous sensory nerve endings in other skin areas unless we grant a local pathologic condition in such area to begin with. If we grant that, then we must also grant that pruritus so produced is secondary and not primary. In regard to the pathologic changes noted in the pancreas: I did not state that we always have an enlargement for the reason that the process is a chronic pancreatitis and the inherent quality of all connective tissue is to contract, so finally we get a sclerotic condition bordering on atrophy. But in my argument I stated distinctly a departure in size, which may be an increase or decrease, and I believe that that process, which, you will grant, is abnormal, is sufficient to cause the stimuli that are present. I do not believe we are straining our imagination, because I have demonstrated this to my own satisfaction clinically and in the laboratory, and my experiments have been along the lines of Head and Rivers in explaining the misreference of pain.

DENTAL IMPACTIONS AND THEIR SEQUELAE *

E. F. THOLEN, M.D.
LOS ANGELES

The majority of impacted teeth that came under my observation during the last three years caused no pathologic changes or symptoms that could be detected by clinical or roentgenographic examination. The minority, however, which I now wish to report, namely, a series of eighty-four cases, gave rise to numerous serious and puzzling conditions that required the removal of the teeth and of the pathologic reactions to which they gave rise. In forty-eight from among these cases, the conditions were due to infection; in twenty-three, the symptoms could best be explained by the theory of reflex disturbances due to nerve pressure. In thirteen cases, I saw the patients because of postoperative complications.

In the group of forty-eight cases there were nine in which local infection of the overhanging soft tissue or gingival involvements resulted in osteomyelitis, periostitis and necrosis. In one of these there was a temporal abscess that was cured by free drainage, and another resulted in infection of the temporomandibular joint, with necrosis of the temporal bone. This case terminated fatally.

In thirty-five instances there were evidences of rarefaction of bone about the teeth, and the patients were referred to me because of some general infection. This included arthritis, neuritis, iritis, gastric lesions and asthenia.

In two patients in whom maxillary sinusitis complicated upper third molar impactions, lodged high in the antrum wall, the removal of the teeth and intranasal drainage of the antrums cured the cases.

One case of chronic lymphadenitis of the right submaxillary group was cured by the removal of an impacted lower third molar.

This series includes one case of a deeply impacted partially developed third molar lodged under the second molar and communicating with the socket of the latter through a small fistula. This condition caused a severe persistent secondary anemia. The blood picture improved greatly by uncovering the tooth and subsequent drainage. It is my intention to remove the tooth as soon as the condition of the patient allows.

The second group of twenty-three cases included only those in which the reflex symptoms were relieved by removal of the impactions that appeared to be the causative factors. These included two of facial paralysis which showed no other etiologic factors and were cured within two months after removal of lower third molars on the same side.

There were ten cases of neuralgia of one or more branches of the fifth nerve. There were four cases of cysts, three being located in the mandible, and two arising from impacted bicuspids.

There was one case of severe headache in a woman, aged 20, in whom brain tumor had been diagnosed by an eminent authority. She was cured by the removal of all impacted third molars. In two cases of migraine, the removal of impacted teeth gave no relief. There were three cases of absorption of roots and trophic changes in adjacent teeth, and one of epileptiform attacks in a youth, aged 17 years, who was completely cured by removal of all third molars.

I am including a group of thirteen cases in which the patients came to me for postoperative work. Nine showed acute cellulitis about the submaxillary and pharyngeal regions which were relieved by drainage. Two were accompanied by fracture of the mandible, resulting from the operation, and in six there followed necrosis. One had persistent neuralgia of the left premaxillary region, and two persistent anesthesia of the inferior dental nerve. As a result of these complications, five patients were the worse for operation, and suffered greatly for a while afterward.

Of the eighty-four cases reported, forty-five were of the mandibular third molars (one of which included the second molar); thirty-two were of the upper third molars (one being locked in the second molar and requiring its removal); six were upper canines and one lower bicuspid. In twenty-eight there were multiple impactions. One of the multiple cases showed sixteen impacted teeth that gave no general symptoms and had never been painful. Examination showed two fistulas, which exuded a straw-colored fluid. They were easily removed, for the bone was cancellous about them.

CONCLUSIONS

It is apparent that it is not of so much importance that impacted teeth are present, but it is what they do to the system that counts.

The great majority of impactions do not give rise to pathologic lesions.

A minority give rise to very serious lesions.

It requires close study of each case and weighing of all factors concerned to diagnose these cases properly. While the roentgenogram is of great diagnostic value, it is often overrated and a great injustice done these patients by relying on it exclusively.

The seriousness of the operative treatment is underrated, and the treatment often results in traumatic lesions more serious to the patient than the original impaction.

Conservatism should be the rule, except in those cases in which the patient is seriously menaced, or in which there are good reasons for believing that the tooth is actually causing trouble.

ABSTRACT OF DISCUSSION

DR. H. A. POTTS, Chicago: There is no question that these teeth do produce serious trouble, but, as Dr. Tholen stated, simply because they "are" does not mean that they should be removed. The question is, What trouble are they causing? One of the results is the mutilation in their removal. We all have seen patients in serious condition after such removal. I think it is best to remove teeth that communicate with the mouth, and the teeth that are in contact with and are abrading the roots of other teeth. Reflex pain may at times be relieved by their removal. Then, too, comes the consultation with the medical men. If some of these obscure conditions are present and all other sources have been eliminated, then I take out those also; but the simple fact that a tooth is unerupted does not call for its removal. There is a normal bone absorption about the crowns of all these teeth. Regarding a great many of these things, I try to look at them in a practical way. For various reasons, most of us cannot afford to carry a five hundred thousand dollar life insurance policy, and consequently I am content to bear some of that risk myself because I cannot pay the premium. If you want to hand a five hundred thousand policy to a patient—almost anybody I will say—he has to pay the price of that policy and that means the removal of teeth which have lost their pulps, which I do not think is the proper thing; it means

* Read before the Section on Stomatology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

removal of the appendix, excising the gallbladder, etc. Many people have died following the infection of a hangnail or an ingrowing toe-nail. We should use a little horse sense in all these things. One hundred per cent. prophylaxis is nonsense, except for the individual who is at the time suffering from some serious malady which we have reason to think had its origin in some focus of infection.

DR. S. B. FONTAINE, Oakland, Calif.: I agree with Dr. Tholen. Impacted teeth are too often accused as a source of infection. When patients have signs of neuralgia or other disturbances, and when a definite pressure against the opposing tooth can be seen, extraction is warranted. This is especially true of cuspids impacted in the palate. When there is no definite pressure, no definite area of infection or necrosis, I do not see any good reason for surgical intervention. A case was referred to me, within the last few weeks, for the removal of an embedded cuspid lying over the apexes of three vital teeth. This patient had no symptoms of pain; the embedded tooth had a slight rarefaction around its crown due to the dental capsule. There was no evidence of pressure. What would have been the result and what damage would follow the removal of that tooth? It would absolutely have devitalized three perfectly normal teeth, and subjected the patient to a useless operation. It would have been impossible to remove that cuspid without having to devitalize those three teeth, in spite of careful surgery. Hence, I again commend the care and caution that Dr. Tholen has so well expressed—before we operate on impacted teeth we should be sure we are doing the patient definite good, and careful that we are not doing irreparable harm.

DR. H. A. TUCKEY, San Francisco: Relative to operating on badly embedded or unerupted lower third molar teeth, when the mutilation will be so great and the inevitable anesthesia following traction on the inferior dental nerve are important factors in the prognosis of these cases, it may be well to suggest the partial removal of bone over these teeth and give them a year or two to come up, if they will, and forestall a mutilating operation. When these cases are referred to men doing special work, and something must be done immediately, the suggestion of partial surgery in some of these cases is important.

CHANGES IN TOOTH STRUCTURE RESULTING FROM DEFICIENT DIETS*

JOHN A. MARSHALL, D.D.S., PH.D.
SAN FRANCISCO

The present report deals with alterations in the teeth of dogs, which have been produced by imposing restricted diets. It is, in a sense, preliminary in nature, for the results have been so striking that a repetition of the experiment is advisable before complete data can be compiled and presented.

That portion of the problem which includes a study of the diet and changes produced in the bony growth of the animals will be reported elsewhere. My principal concern lies with a statement of changes produced in the teeth. My participation in this research has been secondary in that I have had no direct responsibility in working on the food or excreta of the animals. Through the courtesy of Dr. W. P. Lucas, professor of pediatrics, University of California Medical School, and Dr. Martha Jones of the George Williams Hooper Foundation for Medical Research, I have had the opportunity of examining the skulls of the animals after necropsy. Since the details of the diets are to be reported later by Dr. Jones, I wish merely to point out the fact that the changes in diet of these animals were concerned mainly with the content of calcium and phosphorus. They had vitamins and sunlight, but apparently insufficient or improperly proportioned inorganic elements.

The history of the animals may be of some interest. Nine puppies of the same litter, born Sept. 10, 1921, were segregated and fed a restricted diet from about September 25 until they were killed in May and June. An examination of the specimens has revealed at least two abnormalities in the teeth: (1) marked delay in dentition, and (2) relative absence of dentin, although there is a normal amount of enamel.

It is well known that dog and man are similar in that they erupt both deciduous and permanent teeth, and the shedding of the deciduous set ordinarily occurs without any observable discomfort to the animal and at fairly regular intervals. In the specimens, the deciduous teeth were apparently normal in size and shape, but they were not shed in the usual manner. Furthermore, it has been observed that in the permanent set the incisors, cuspids and molars of the mandible were more generally affected than the corresponding teeth of the maxilla.

This was emphasized in Dog 7, and in addition it was noted that the lower permanent incisors were malposed and presented the appearance of arrested growth, so that the position in the arch, as well as contour and size of the teeth, was influenced. The peculiarity of contour is shown by an area near the tip of the crown, which is bounded by a distinct constriction and which serves to differentiate the crown into two parts. It is quite obvious that the calcification of the tip of the tooth proceeded at first normally and then ceased altogether, or at least became very retarded. This cessation of normal growth is characterized by a ring and a corresponding constriction, which suggests the beginning of hypoplasia. Calcification was later resumed, but the period of subnormal growth remained definitely inscribed in the tooth structure. In the same dog, the right cuspid is anomalous. While the position of the latter is apparently normal, the changes in form already described are clearly manifest. On comparison of the maxilla with the mandible, it is found that these variations in the degree of calcification are less marked in the upper jaw. As an outstanding feature, however, the retention of the deciduous teeth must be mentioned.

In Dog 8, the bones have undergone such marked degenerative changes that they can easily be cut with a pocket knife, and the mandible on exhibition has been cut in this manner on both surfaces. The maxilla exhibits even more striking alterations. Nearly all of the teeth have lost their attachment to the peridental membrane, and as a consequence are very loose. Both the deciduous and the permanent lower cuspids are in place in the arch; although the left deciduous cuspid is quite firm, the permanent cuspid on the opposite side is fully erupted, but at necropsy was so loose that it could be extracted with the fingers.

The surfaces of the teeth are rough in some cases, as though they had been placed in acid. In nearly all the animals, some abnormality is evident to a greater or less degree. Since the resorption of the roots of the first set of teeth is the normal result of body growth, it is apparent that a marked delay in the process must be due to an alteration in the normal development of the animal.

In many of the specimens, the permanent set showed evidence of a profound disturbance of a different character. On extraction of some of the teeth, notably the

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* From the University of California College of Dentistry.
* Read before the Section on Stomatology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

cuspids, it was found that the dentin even in the crowns had undergone a noteworthy change. Underneath the enamel cap was a definite mass of soft tissue closely resembling pulp, but there was no observable normal dentin between the enamel and this fibrous area. If the dentin had been absent only in the roots of the tooth, it might be supposed that there was a definite delay in the formation of the root; but the lack of calcified dentin in the crown portion is not readily explained. Furthermore, the soft tissue beneath the normal enamel was more firm than pulp tissue, and was highly vascular. It appears that these abnormalities were the outcome of a process of rarefaction which affected the whole bony framework of the dog. This is further exemplified by examination of the long bones, in which a definite osteoporosis had developed.

The microscopic examination of the tissue which had replaced the dentin is also of interest. On section, it was found that both the inorganic and the organic portions of the dentin had been altered to such an extent as to render their identification impossible. Neither the dentin tubules nor tubular contents remained. Even the organic matrix, which is very characteristic in the decalcified section, had undergone profound changes. In its place there was loose areolar and fibrous connective tissue, richly supplied with fine capillaries which freely anastomosed throughout the structure. At various places in the section, there were inflammatory tissue elements which indicated that active processes of tissue change were occurring at the time of necropsy. These facts throw doubt on the proper classification of this tissue Is it dentin or pulp? From its relation to enamel, it is obviously dentin; but, from its histologic structure, it resembles pulp.

To what extent this research may be correlated with clinical dental lesions is not yet apparent, but perhaps it points the way for more extensive effort. If, by relatively simple diet experiments, it is possible to produce such profound changes in dentin in a short space of time, how much more significant becomes the study of the influence of diet on the growth cycle of the organism. We are a long way yet from a clear understanding of all the changes occurring during the absorption and utilization of lime and phosphorus by the body. That there is a definite correlation with functional activity even of muscle tissue has been proved beyond question. The relationship of the hard structure of the body is also well known, but the control exercised by dietary factors on calcification is still undetermined. Although I am at present at a loss to interpret definitely these results, I hope that sufficient funds will be provided for a more concentrated experimentation along these lines, and that some additional facts bearing on calcium and phosphorus metabolism may be demonstrated. One of our many problems today in the wide field of operative dentistry is that which is related to this question of absorption, utilization and excretion of inorganic salts. Dental caries, on the one hand, may be an example of an insufficiency; while, on the other, the condition commonly denominated as pyorrhea may indicate a degree of abnormal excretion of these substances.

Within the last few months, there has been published a series of reports by McCollum and Grieves and their co-workers,[1] dealing with studies in experimental rickets. The authors have shown "that the internal structure of the skeleton of the rat may be changed at will by varying the ration which the animals received." In other words, bone is a tissue easily and definitely influenced by nutritional conditions. According to their experiments, three factors are concerned in producing rickets: (1) a new vitamin, found in fats, but not identified with the so-called fat soluble A; (2) the calcium content of the food, and (3) the phosphorus content. Those diets which exhibit excessive amounts of calcium, but are low in phosphorus and vitamins, produce rickets. Likewise, a diet with a satisfactory amount of phosphorus and vitamins, but deficient in calcium, produces rickets. Coincident with the development of rickets, there have appeared also, definite oral manifestations. These were more noticeable when the diet was low in lime, protein and vitamin, and were least noticeable when the animals were maintained on a diet either high in calcium and low in vitamin, or high in both calcium and cod liver oil vitamin.

The dental lesions noted are described as, first, "caries-like" defects; second, loss of the attaching tissues of the teeth, or of the teeth themselves; third, fracture of teeth, and, finally, pulp exposure and the production of osteodentin. McCollum states that "severe oral disease may result from diets which are only relatively defective, where the disturbance appears to be out of all proportion to the cause." This outspoken opinion, based on the most careful experimentation, must be given due consideration, for it indicates, indirectly, that changes in tooth structure may occur either during or after the formative period of the teeth. The systemic conditions of the animal may be so altered as to produce caries-like lesions, or conversely, to protect the animal from the disease.

It is suggested that this experiment of Dr. Lucas and Dr. Jones will throw new light on the results reported by McCollum, and that we may hope for a more complete understanding in the near future of the whole story of calcium metabolism.

1. McCollum, Simmonds, Kinney and Grieves: Bull. Johns Hopkins Hosp. 33: 202-215 (June) 1922.

ABSTRACT OF DISCUSSION

DR. H. A. POTTS, Chicago: I should like to ask Dr. Clark whether he can correlate some of the work of Dr. G. V. Black. I was associated with him in the preparation of his last book, and his conclusions were that the precursor of calculus formation was the rich protein diet. That was arrived at in this manner: We made collections of parotid secretions after giving a dozen or more students a heavy protein meal. In about twenty-five or thirty minutes after the meal, the flow of saliva started, a perfectly clear fluid dropping into a test tube. Then came a milky drop of saliva, and that would continue for from twenty-five to forty minutes, and during that time one could see, by the refraction of light, a cone built up on that cover glass. This was calcoglobulin, which later became a calculus.

DR. GUY W. CLARK, San Francisco: I think that the explanation is, you were taking your saliva at the time of maximum absorption. The digestive processes were going on at high speed. The blood is then rich in all of the constituents, much richer than it is in a postabsorptive state, and would naturally contain more of the various mineral constituents. I think that it would be possible even to demonstrate the actual enrichment of saliva, just as we do with the blood. These saliva samples are collected every week at the same hour, just two or three hours after meal time, so that we have them after that peak has been obtained from the digestion, and we are getting what we feel is a nearly normal resting level. Saliva is a very complex and variable mixture, and its composition depends on which glands are secreting at the time the sample is obtained. We have made a com-

plete analysis of the blood at the same time, and perhaps we shall find that there is some correlation. For instance, in one case a very high chlorid content was found in the blood the day we found a high chlorid content in the saliva. Whether there is a definite correlation between blood and saliva, I cannot say at this time. The work is not complete.

DR. H. A. POTTS, Chicago: I neglected to say that seemingly from Dr. G. V. Black's previous investigations, the diet might have some bearing on calculus formation, as it seems that persons who are used to the high protein diet readily excrete those products which make up calculus. It means that after a heavy meal the blood is surcharged with these products of digestion, and in those persons one would find a tendency to the deposition of calcium which might be used in the formation of calculi in other parts of the body—renal calculi, etc.

DR. JOHN H. MARSHALL, San Francisco: I can not discuss the problems of the physician. It has been the practice to reduce calcium in the diet of a pregnant woman with the hope that the bones of the child will be so soft that its birth will be made more easy. If the diet is going to be deficient in calcium, where is the calcium coming from for the growth of new bone? In these animals we purposely restricted either calcium or phosphorus, or, at any rate, we altered the proportion of calcium to phosphorus with the result that the dentin suffered a definite change.

CHEMICAL SOLVENTS USED IN DISSOLVING FOREIGN SUBSTANCES IN URINARY BLADDER

PARAFFIN, BEESWAX, GUM AND URETHRAL PENCILS *

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AND
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DETROIT

Foreign bodies gain entrance into the urinary bladder by way of two routes—first, through the urethra or ureter, and secondly, as the result of trauma or operative procedure. Of the many foreign bodies found in the bladder, we are interested only in those which are capable of being dissolved in vivo and which are not infrequently encountered, such as paraffin, beeswax, gum and urethral pencils. In this respect, modern textbooks on urology advocate the removal of foreign bodies, if possible, through the urethra by means of the Kretschmer rongeur, lithotrite, grasping instruments through the operating cystoscope, or by means of suprapubic cystotomy.

The inability to grasp and remove, through the urethra, foreign bodies such as paraffin, beeswax, gum and urethral pencils was the basis of this study to establish, if possible, satisfactory treatment for cases of this kind.

The reasons for persons passing these substances into the urethra and bladder are many and varied, including curiosity as to where the urethra leads, the relief of sexual desires, the dilation of strictures, and the correction of enuresis.

Work along this line of endeavor is not entirely new. On searching the literature, we find as early as 1907 that Lohenstein dissolved beeswax in the bladder by use of benzin. He injected into the bladder 15 c.c. of benzin and let it remain for forty-five minutes; then he added 25 c.c. for ten minutes. The next day the injection was repeated, the result being the voiding of the dissolved and softened mass without any serious consequences to the patient.

Hottinger,[1] in 1919, reported a case of paraffin in the bladder, and used xylene, as he thought xylene was more antiseptic and cleaner than benzin. He first irrigated the bladder with water; then, leaving the bladder practically filled, he injected 12 c.c. of xylene and had this retained for four hours, during which time the patient complained of burning and other unpleasant sensations. He advised the patient to massage the abdomen—the effect thus obtained being like shaking the solution in a test tube. At the end of four hours, the patient voided a chyle-like fluid, and cystoscopy showed a clean bladder, free from paraffin. A rapid recovery from cystitis followed.

Caples,[2] in 1920, reported a case in which cystoscopy showed paraffin in a mass within the bladder and firmly lodged in the upper margin. After three unsuccessful attempts to remove it with the cystoscopic rongeur, pieces of the original candle, measuring 1 cm., were cut off and put in a series of test tubes. Five cubic centimeters of xylene, kerosene, liquid petrolatum and gasoline, and also varying proportions of other solvents, were added to the test tubes. The tubes were then incubated at a temperature of 37 C., and from time to time a little urine was added to each one. The cubes in gasoline and xylene were dissolved in ten hours, in kerosene in eleven hours, in liquid petrolatum in thirty-six hours, and in a solution of 33⅓ per cent. of gasoline and liquid petrolatum in twelve hours. The latter could be held in the mouth several minutes without irritation, while the others were more or less irritant. Through a retention catheter, 125 c.c. of gasoline and liquid petrolatum at 110 F. was injected into the bladder. This was easily tolerated and retained comfortably for one and one-fourth hours. After this injection, the retention catheter was found to be no longer necessary. Six subsequent injections, each of 125 c.c. and at a temperature of 110 F., were given. These were retained for intervals varying from two to five hours. The entire treatment covered a period of three days, and the total time of exposure to the solvent was seventeen hours. The urine and the solvent were collected after each injection and, on being chilled, paraffin was found to have been precipitated in decreasing amounts down to the fifth specimen. As the sixth and seventh specimens gave no precipitates, the injections were discontinued. In the meantime, the patient's symptoms abated rapidly, and two days after the last injection, his condition was normal.

Geyer,[3] in 1922, reported a case of paraffin in the bladder. The patient brought to the hospital the remaining piece of candle, which was completely soluble in xylene. Fifty cubic centimeters of xylene was instilled into the bladder of the patient. After half an hour he voided urine that brought to light a great mass of disintegrated paraffin. An injection of hot salt solution came back clear. By the use of a mild antiseptic treatment, the irritated region healed up without further complications.

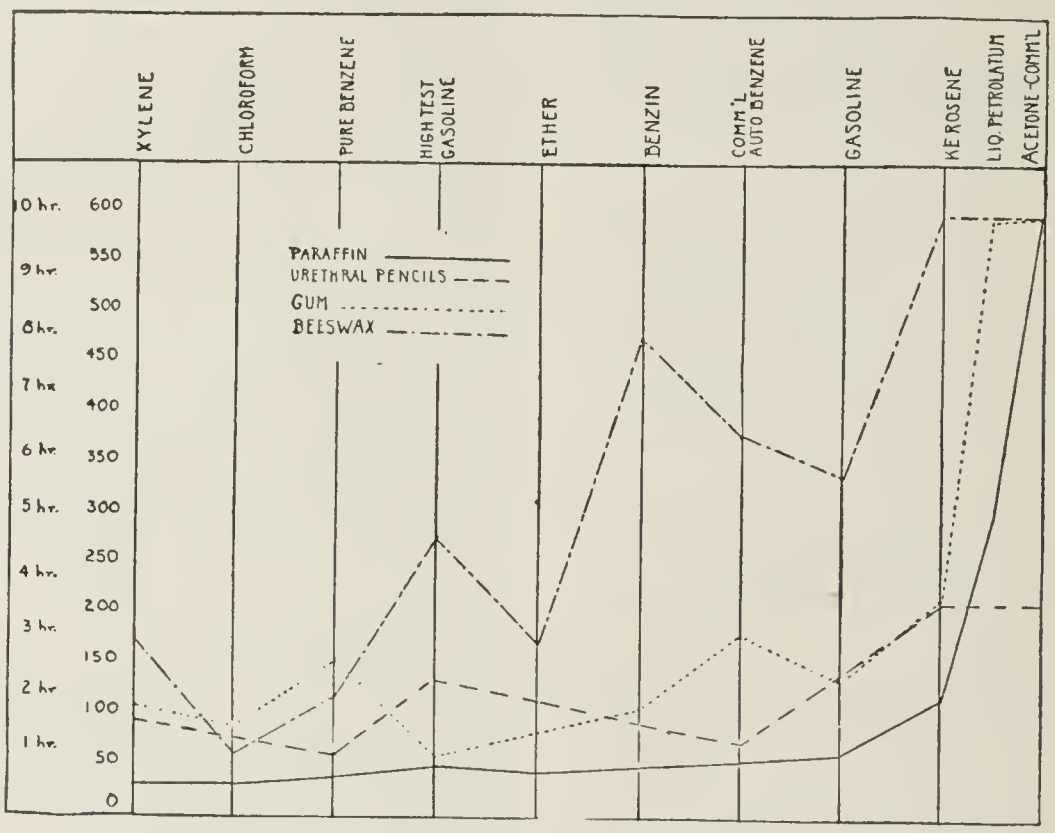
Monis,[4] in 1922, reported a case of paraffin in the bladder. The urine was cloudy, and contained leukocytes and red blood corpuscles, but no casts. The

* Read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Hottinger, R.: Cor.-Bl. f. schweiz. Aerzte **49**: 875 (June 14) 1919.
2. Caples, B. H.: Surg., Gynec. & Obst. **182**: 506 (May) 1920
3. Geyer: Deutsch. med. Wchnschr. **48**: 1284 (Sept. 22) 1922.
4. Monis: Ztschr. f. Urol. **16**: 407, 1922.

capacity of the bladder was 150 c.c. The cystoscopic examination showed a foreign body, dark and shimmering, floating around in the fluid. The bladder mucous membrane was diffusely inflamed and dark red, and in some places there were small ulcerations and bits of coagulated fibrin. The ureteral orifices were in normal position, and otherwise the findings were negligible. A diagnosis of foreign body in the bladder was easily made. As the piece of paraffin floated about in the bladder, one could grasp it with a lithotrite, although the grip would not hold and pieces would break off. So the chemical method was used. After a morphin suppository and after a thorough cleansing, the patient was given 30 c.c. of pure benzin by injection into the empty bladder. The patient held this for ten minutes, and then, when the bladder was emptied, there came the aroma of benzin along with the dissolved wax. During the day, small particles of paraffin passed in the urine. After three days, since cystoscopic examination revealed the fact that there were still portions of a foreign body in the bladder, the same procedure was repeated in detail. After this, the control cystoscope showed an entirely normal bladder as far as freedom from foreign bodies was concerned. After several washings of the bladder, the patient became entirely cured and left the hospital.

Melen,[5] in 1923, reported a case of crayon pencil in the bladder which he successfully dissolved with 30 c.c. of liquid petrolatum heated to 105 F. and injected into the bladder. This was retained for one hour and forty-five minutes without much discomfort. Then the patient voided 300 c.c. of urine. The gasoline floated on the top of the container, and many red particles of crayon settled to the bottom. Six hours later, the injection was repeated and was retained for two hours without discomfort. The patient was up and about, coming to the office for treatments. On the second day of treatment, the voided urine contained many crumbs and fragments of crayon. During the act of micturition, the stream suddenly became interrupted, and the patient could not void. The next moment he passed a large, curved fragment, and at subsequent voidings the urine changed from red (particles of crayon in suspension) to straw color. No further injections of gasoline were given. Cystoscopy two months later revealed the bladder absolutely normal.



Power of solvents tested.

POWER OF VARIOUS SOLVENTS

With this information at hand, with the exception of the case report of Melen, our first problem was to establish the solubility of paraffin, beeswax, gum, and urethral pencils under various conditions in vitro. This was carried out in the following manner: We chose as possible solvents xylene, "automobile" benzene ("Ford benzol"), pure benzene, liquid petrolatum, kerosene, gasoline, high test gasoline, ether, chloroform, benzin, and commercial acetone for gum, paraffin, beeswax, and urethral pencils. In an endeavor to simulate as nearly as possible conditions in the human bladder, all experiments were incubated at 37.5 C. and the containers agitated every five minutes. The paraffin and beeswax were made up into solid spherical 1 gm. balls, and the gum and urethral pencils were rolled into as nearly spherical shape as possible.

Our first study was with paraffin, and was conducted in this manner: To 1 gm. of paraffin was added 5 c.c. of xylene in Bottle 1; 10 c.c. of xylene plus 1 gm. of paraffin in Bottle 2; 15 c.c. of xylene plus 1 gm. of paraffin in Bottle 3; 25 c.c. of xylene plus 1 gm. of paraffin in Bottle 4, and 50 c.c. of xylene plus 1 gm. of paraffin in Bottle 5. These were placed in an incubator and agitated every five minutes, and the time of dissolving was noted.

Next we used the same quantity of paraffin and a like amount of xylene plus 25 c.c. of water in each bottle; these were then incubated, agitated every five minutes, and the time of dissolving noted. We then repeated the second experiment and used urine instead of water, the object being, in this addition, to determine whether either of these fluids made any difference in the time of dissolving, realizing that a foreign body in the bladder would have urine constantly coming down to mix with any solvent instilled.

In like manner, "automobile" benzene, pure benzene, liquid petrolatum, kerosene, gasoline, high test gasoline, ether, chloroform, benzin and commercial acetone were used, after which the solvents were used in a similar procedure with gum, beeswax and urethral pencils.

The result of this study is best shown by the accompanying chart. The solvents acting the most readily on paraffin were xylene, chloroform and pure benzene; on urethral pencils, pure benzene, "automobile" benzene and xylene; on gum, high test gasoline, ether and chloroform; on beeswax, chloroform, pure benzene and ether. These solvents are listed in the order of their respective dissolving power as observed by us.

REACTION OF THE BLADDER MUCOSA

With this study completed, our next step was to show the reaction on the normal bladder mucous membrane of these various solvents which, theoretically, could be used. For this purpose, well and healthy adult female dogs were used that were apparently free of any disease and were not in heat. Our first work was to place in the bladder paraffin, gum and beeswax;

5. Melen, D. R.: Nonsurgical Removal of Paraffin in Urinary Bladder, J. A. M. A. **80**: 685 (March 10) 1923.

:t that remain for twenty-four hours; then to inject he solvent, which was retained for from thirty to sixty ninutes, allow the dog to live twenty-four hours, then :ill it and perform a necropsy to determine the amount)f foreign body left in the bladder and gross path-)logic changes in the bladder wall. The dogs were first :xamined cystoscopically, and only those with normal)ladders were used. The foreign body was then intro-luced and allowed to remain for twenty-four hours, at he end of which time the dog was again examined vith the cystoscope and observation made of the degree)f cystitis present; then the solvent was injected and retained longer than the previous experiments in the :est tubes showed necessary (usually for one hour). The dogs were allowed to go free for twenty-four nours, and then they were again examined cystoscopi-:ally and the presence of foreign body determined. At :his time the dogs were killed and their bladders)btained for studies of the gross and microscopic :hanges.

Paraffin in the bladder after twenty-four hours pro-luced an acute cystitis with symptoms of frequency and painful urination.

Microscopic findings in the bladder of Dog 1 showed epithelial cells swollen, some denuded, and localized areas of congestion in the subepithelial tissues. There were no other changes. The injection of pure benzene did not apparently cause the animal very severe discomfort, the benzene being retained for forty-five minutes, when the dog was killed and the bladder showed a mild congestion and slight edema of the mucous membrane; however, no paraffin was present. The microscopic findings in the bladder of Dog 2 were a slight acute inflammation and edema of the submucosa.

On Dog 3, chloroform was used as the solvent for paraffin, the foreign body being entirely dissolved, although a rather severe cystitis was present; but, we believe, a large part of this could be explained by the trauma of repeated cystoscopies, for in the case of this animal it was not easy to pass the cystoscope because of an irritable disposition and a small urethra. The microscopic findings in the bladder of Dog 3 were marked edema and some congestion of the entire wall. On the mucosa the epithelium was necrotic, with cellular infiltration and diffuse chromatin. The subepithelial tissues were markedly edematous, with leukocytic infiltration. There was marked edema of the serosa.

With Dog 4, gum was used as the foreign body, and high test gasoline as the solvent, the usual symptoms of cystitis resulting from the foreign body. After the injection of high test gasoline, the animal exhibited only mild discomfort. It was killed twenty-four hours later. The bladder mucous membrane had numerous small hemorrhagic areas. No gum was present. The microscopic findings in the bladder of Dog 4 showed localized areas of necrosis of epithelium. Some areas were normal and intact. There was a marked edema of the subepithelial tissue, and some congestion of the remainder of the wall.

We placed in the bladder of Dog 15 1 gm. of beeswax and after twenty-four hours, injected into the bladder 50 c.c. of "automobile" benzene. This was retained by the animal for one hour, during which time very little, if any, discomfort was manifested. The dog was then released, returned to her pen and allowed to live for twenty-four hours longer. During this time she was fairly comfortable, suffered very little pain, had a good appetite, and was of a good disposition. At necropsy there was a dilatation of the larger blood vessels and congestion of the outer walls of the bladder. When the bladder was opened, it contained a few drops of bloody fluid, but no beeswax. The mucous membrane was edematous in spots, there being a generalized cystitis.

Having proved that these solvents were capable of dissolving foreign bodies of this character in a much shorter time than heretofore thought possible, we were then desirous of knowing just the amount of pathologic changes produced in the bladder by these solvents. We therefore took a number of dogs whose bladders were normal cystoscopically, and injected the solvents, which were retained for from one to two hours. The dogs were then killed, and studies were made of the gross and microscopic changes.

On Dogs 7, 6 and 5, we used xylene. Dog 7 retained the xylene for one hour, and at death it was still present. The mucous membrane was congested and the blood vessels markedly dilated. The microscopic findings in Dog 7 were: mucosa, intact; only slight cellular swelling; marked congestion and slight edema of the subepithelial tissue; marked congestion of the muscular wall; marked congestion of the serosa, with exudation of leukocytes.

In Dog 5, the xylene was left for two hours, and at death the mucous membrane showed marked congestion with these microscopic findings: marked destruction of epithelium with loss of cell structure; presence of considerable diffuse chromatin; some edema of the subepithelial tissues, with some loss of structural outline; slight congestion of the remaining wall.

In Dog 6, the xylene was retained for two hours. The dog was then returned to her pen for twenty-four hours and, at death, the bladder was normal in size, but tremendously congested, with marked thickening of the mucosa, and with hemorrhagic areas. The larger blood vessels were dilated. The microscopic findings in the bladder of Dog 6 were practically the same as in Dog 5. There was more edema of the subepithelial tissue and more marked necrosis of the epithelium. Congestion of the wall was more pronounced.

On Dogs 8, 9 and 10, "automobile" benzene was used. Dog 8 retained the "automobile" benzene for one hour, and at necropsy the bladder contained "automobile" benzene. There were no gross changes. The microscopic findings showed a marked congestion of the entire wall, with edema of the subepithelial tissue. There was a local swelling of the epithelium.

With Dog 10, the "automobile" benzene was retained for one hour and thirty minutes. At death the bladder was distended with benzene and the outer surfaces of the bladder were congested. The large blood vessels were dilated, there being a generalized cystitis, especially in the base and fundus. The microscopic findings were marked swelling of the epithelial cells of the mucosa with loss of basement membrane, and leukocytic infiltration into spaces between cells of epithelium. There was some edema of the subepithelium. There was a generalized congestion of the vessels of the walls and serosa.

In Dog 9, the "automobile" benzene was retained for one hour, during which time the dog suffered considerably with tenesmus and urgency. The dog, being unable to retain the solution any longer, was released, and exhibited marked discomfort, with frequent attempts to urinate. This cystitis remained quite severe for the next twelve hours, gradually abating, and at the end of seventy-two hours the dog was again apparently her normal self. Since this reaction was the most severe encountered, we allowed this dog to live two months, in order that we might determine the permanent changes as well as the degree of regeneration of the bladder following such a severe reaction. She was then killed, and the bladder findings grossly showed hypertrophy of the muscular wall; microscopically, the bladder was normal.

In Dog 11, ether was used and retained in the bladder fifteen minutes, during which time it became very much distended and there were frequent passings of gas through the urethra. This dog suffered acutely, and she was immediately killed. The bladder was as large as a large grapefruit, and was filled with gas; the blood vessels of the outer surface were tremendously dilated. The gas was easily expelled through the urethra. The mucous membrane showed a very marked diffuse cystitis. Microscopic findings showed a marked thinning of the muscular wall, and generalized edema of the wall. Complete necrosis with loss of cell structure and chromatin was evident. There was tremendous congestion, with some exudation of leukocytes. The picture was that of a rapid escharotic.

Dog 12 had high test gasoline injected into the bladder. This was retained for one hour, during which time very little dis-

comfort was manifested. She was killed (the gasoline was expelled during anesthesia). The bladder was contracted and empty. The blood vessels were moderately congested, and the larger ones were markedly dilated. The mucous membrane was slightly congested throughout. Microscopically, there was an acute inflammatory reaction involving, principally, the mucosa. There was some denudation of epithelium, with considerable swelling of cells. The edema was marked. There was congestion of the vessels throughout.

Dog 13 had pure benzene injected into the bladder. This was retained for one hour and ten minutes. During this time little, if any, discomfort was manifested. She was then killed (the benzene was expelled during anesthesia). The bladder was contracted and empty. There was a slight dilatation of the large blood vessels of the serosa. The mucous membrane showed marked diffuse congestion, the larger blood vessels not showing. In some areas there were elevations the size of a split pea. A section of these areas revealed local swelling of the mucosa. Microscopically, there was a marked congestion of the entire wall. In the subepithelial tissue there was a marked localized edema with some leukocytic infiltration.

Dog 14 had chloroform injected into the bladder. During retention, there was very little discomfort. She was killed at the end of one hour; the bladder was contracted and empty, the chloroform having been expelled fifteen minutes prior to death. There was a very slight external congestion. The mucous membrane was diffusely reddened, especially in the base. Microscopic findings showed the usual picture of an early acute inflammation, consisting of congestion of the blood vessels with margination and extravasation of leukocytes, the polymorphonuclears predominating, and local edema. This was most marked at the serosa and receded in the muscular wall and mucosa. There was little involvement of the mucosa.

The findings present in the bladders of the various dogs into which the various substances were injected and allowed to remain for a period of time are those of inflammatory reaction. The degree of inflammation was somewhat variable, depending on the chemical, the duration of time it was retained in the bladder and the lapse of time before necropsy. In some, the inflammatory reaction was confined to simple congestion and slight edema. In others, margination and exudation of leukocytes occurred, with swollen epithelial cells; in others, desquamation; and in still others, with necrosis with or without loss of chromatin, with or without leukocytic infiltration.

The substance producing the most marked change in a short period of time was ether. The mildest seemed to be pure benzene. However, it is impossible to say which does produce the most severe pathologic condition without considering the question of later infection and resolution, necessitating further and more complete study. Certainly, ether should never be used.

SUMMARY

Foreign bodies, such as gum, beeswax, paraffin and urethral pencils, are soluble in the urinary bladder, obviating the necessity of painful instrumentation or of operative procedures. The degree of safety with which these chemicals can be used in the urinary bladder is apparent. For paraffin, the best solvents are xylene, pure benzene, high test gasoline, and benzin; for gum, high test gasoline, benzin, xylene and gasoline; for beeswax, benzene, xylene, high test gasoline and ordinary gasoline; for urethral pencils, pure benzene, a commercial form of "automobile" benzene ("Ford benzol") and benzin. The presence of water or of urine neither aids nor interferes with the action of the solvent.

CONCLUSIONS

With the establishment of definite time limits for dissolving a known quantity of paraffin, gum, beeswax or urethral pencils in vitro and in vivo, cases of this kind are amenable to office treatment and observation, thereby obviating the necessity of hospitalization. The observations of other workers have been that repeated instillations of the solvent were necessary, the solvent being retained for hours at a time. This, we feel, is unnecessary; however, no permanent damage would result from repeated injections.

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ABSTRACT OF DISCUSSION

DR. ALBERT E. GOLDSTEIN, Baltimore: I have not had much opportunity to observe foreign bodies in the bladder. There have been cases in which the wax bulb has broken off in dilating a ureteral stricture and dropped into the bladder, but they were small and easily passed. On one occasion, it was not passed as soon as it should have been, and the bulb became larger; but with the high frequency current I was able to break it up. I have had some experience with tar being used in the bladder, or, rather, in the urethra and passing into the bladder. Probably, if I had known of some of the methods used by Dr. Morris I would have been able to dissolve these masses. On one occasion, a large piece of tar on which urinary salts had accumulated was found in the bladder and removed with a rongeur. The question arises, Are the solvents we are using dangerous to the bladder? On one occasion, I injected some ether into the bladder of a dog and examined the bladder twenty-four hours later. The mucosa was highly engorged; there was an infiltration of leukocytes, and a fistula opened into the muscle wall. I have had no personal experience with the other solvents.

DR. WILLIAM E. STEVENS, San Francisco: My experience with foreign bodies in the bladder has been almost entirely limited to calculi, common black hairpins and dilator covers. Practically all of the calculi are taken care of with the lithotrite. I wish to sound a warning against the use of one type of Kohlmann dilator covers. These are made in two parts and are very apt to break where they are joined together, leaving a portion of the cover in the bladder or urethra. In the three cases in which this has occurred in my practice, the detached half of the rubber cover has fortunately been passed without much difficulty. The common black hairpin is a favorite instrument for young girls, in particular, to insert into the urethra and bladder. They are easily removed through the ordinary female endoscope or the operating cystoscope threaded over silver wire with a hook on its end. The latter is engaged in the loop of the hairpin, which is then readily withdrawn. If the prongs of the pin point upward, rotation is, of course, necessary before its withdrawal.

DR. HERMAN L. KRETSCHMER, Chicago: Although foreign bodies in the bladder of the type under consideration are not very frequent, anyone who has had occasion to treat these cases knows how difficult it is to grasp wax, chewing gum and such things with the ordinary instruments we have, such as the rongeur, the operating forceps and the lithotrite. In several cases it was impossible, after trying repeatedly, to grasp these foreign bodies with forceps, so that I was obliged to resort to an open operation (suprapubic cystotomy). Dr. Morris has tried to perfect a method of dissolving these foreign bodies of the various types and to get rid of them in this way. The problem, as he worked it out, depended on two fundamental things: first, the type of foreign body one is dealing with, and, second, the amount of damage, either transitory or permanent, the solvent one uses will do. I think we all agree that the use of these solvents will produce a chemical cystitis, but Dr. Morris has shown that these reactions are simply transitory, and ultimately disappear. I think they can be likened to the chemical pyelitis that is produced in pelvic lavage with silver nitrate. No doubt, a certain amount of chemical reaction is produced, but this heals in due course of time and the patient is relieved of the foreign body without an open operation. I think it might be well, in the use of some of the solvents, such as ether, in which

changes are very severe, to let the dogs live longer to whether permanent changes result.

Dr. William F. Braasch, Rochester, Minn.: In the removal wax and other foreign bodies of a similar nature from the ıdder, there is one difficulty that may have escaped the thors: a phosphatic deposit forms and surrounds these bstances very rapidly. I have seen such foreign bodies vered by phosphatic deposits to such an extent that they d become true stones and no chemical solution could pos-ly dissolve them. This probably does not occur often, but ly in cases of long standing. I wish to call attention to other type of foreign body found in the bladder; namely, ch as are placed there by the patient, a condition that might ll be termed "hysterical lithiasis." I have observed five tients, all women, who have deliberately inserted pieces of ne into the bladder. Naturally, a diagnosis of true stone ıs made by the attending physician, since the patients passed e stone with the urine and maintained that they had typical mptoms. Chemical examinations of the stones showed their organic nature at once.

Dr. Homer G. Hamer, Indianapolis: In one case of hys-rical lithiasis we determined that plaster of Paris was the mposition of recurrent calculi.

Dr. Oliver Lyons, Denver: Many years ago I had my st experience in removing chewing gum. I have had two periences since, and learned something from the first case at may be of some advantage. I found that by injecting nzene into the bladder, as Lowenstein suggested, leaving for a few minutes and allowing the patient to void the nzene, I would be likely to recover the chewing gum. That as true to a degree, but not completely. It set up a severe ethritis, and the patient dribbled some benzene onto the crotum and thighs, which areas became infected and caused large blister that gave us considerable trouble. Some years ter I had occasion to use the same method, but this time put in about 1 ounce of water, enough to cover the trigon ıd sensitive bladder neck, and then I floated the benzene in ırough a steel catheter. The chewing gum then floated on ıe benzene. The patient said that he had five cents' worth chewing gum in the bladder, but it certainly looked larger ırough the cystoscope. I was not successful in getting it all ut on the first injection, but it did not produce a blister, ecause I withdrew the benzene through the same catheter ırough which I introduced it, which let the benzene out first nd the water last. There was a considerable bit of gum ft, so I repeated the procedure the following day, and agi-ıted the fluid with the same catheter. I found that it then issolved the gum more readily. I had one experience such s Dr. Braasch mentions. About half of a little candle, such s are used on Christmas trees, was completely surrounded y a shell of phosphatic deposit which could not have been emoved by this method.

Dr. Harold L. Morris, Detroit: In regard to ether, the og was killed as soon as we observed her marked discom-ort. A number of chemicals were used in vitro which we elt would not be applicable to the human urinary bladder. ıs we did not use ether in another dog, I do not know what ıe end-results would have been — probably unsatisfactory rom the findings produced by ether. I was glad to hear Dr. Lyons speak of the cases he had had. As far as I know, no ne else has experienced the marked discomfort and excoria-ions following the use of gasoline. With respect to the hemicals that we used, no reaction of this kind was noted. Unquestionably, Dr. Braasch was correct in his assumption hat foreign bodies such as gum, paraffin, beeswax and urethral encils might be the nuclei for phosphatic deposition and tone formation. That possibility we have not interested our-elves in, as our work had to do only with the dissolving of he foreign bodies mentioned. Judging from the symptoms roduced by foreign bodies in the urinary bladder, I doubt whether patients would go without attention long enough for phosphatic formation to take place on such foreign bodies.

Births at Sea.—During the year 1921, 273 babies were born t sea in British ships, most of them on Atlantic liners.

THE TIME ELEMENT IN GALLSTONE FORMATION

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Although it is well known that small concretions can be produced experimentally in the gallbladder of laboratory animals within a period of a few days—ten days according to Klivert [1]—and that small deposits of bile elements may occur around suture material within a few weeks after its insertion into the human gallbladder, yet conclusive proof concerning the rapidity with which well developed calculi may form in the human gallbladder is lacking. Rolleston [2] quotes Mignot [3] to the effect that it takes five or six months to form a stratified, well-formed biliary calculus. Moynihan [4] cites a case reported by Rokitzski [5] of a probably rapid formation of gallstones in a typhoid fever patient, aged 26, who was operated on at the end of the third week of her illness because of a suppurative cholecystitis. Fifty-



Thirty-eight human gallstones which are known to have formed within a period of eighty-six days.

eight apparently recently formed cholesterin calculi, showing a radiate arrangement, were removed. Cultures of the contents of the gallbladder and also of the centers of the concretions were positive for typhoid bacilli. There was no history suggestive of previous cholecystitis.

A number of such case reports of very probable rapid calculus formation during typhoid are to be found. In none of these reports, however, is the evidence conclusive that no concretions were present before the onset of the fever.

Recently, Mathias [6] stated that there is no accurate information concerning the time factor in gallstone formation, and then proceeded to prove that calculi which he found in the gallbladder of a typhoid patient formed during the course of the typhoid and within a

1. Klivert, D.: Ueber experimentelle Gallensteinbildung, Berl. klin. Wchnschr. **48**: 335-336 (Feb. 20) 1911.
2. Rolleston, H. D.: Diseases of the Liver, Gall Bladder and Bile Ducts, 1905, p. 719.
3. Mignot, R.: Recherches expérimentales et anafomiques sur les cholecystites. Paris, thesis, 1896.
4. Moynihan, B. G. A.: Gall Stones and Their Surgical Treatment, 1904; p. 46.
5. Rokitzski, W. M.: 'Ein Fall von Cholecystitis typhosa calculosa, Annalen der russichen Chirurgie, 1899, No. 1; abst. Centralbl. f. Chir. **26**: 616, 1899.
6. Mathias, E.: Zur Entstehungsdauer von Gallensteinen, München. med. Wchnschr. **68**: 582-583 (May 13) 1921.

period of sixty days. He examined some of these fifteen calculi, the largest of which measured 15 mm. in diameter, with the object in view of eliminating the possibility of previous stone formation. Since cultures of the centers of these stones were positive for typhoid bacilli, and they were not penetrable to other organisms, outside the gallbladder, the author concluded that they must have been formed during the course of the typhoid.

While these data are very suggestive of rapid stone formation, they certainly are not conclusive. It may be that these calculi were penetrable to organisms while in the gallbladder, or that during the course of the fever secondary deposits occurred around old concretions; in either case, Mathias' methods of proof would be fallacious.

Because of lack of definite information on this question, it would seem proper to report a case in which it was positively determined that numerous and well-developed calculi formed in a human gallbladder within a period of eighty-six days. It is very probable that this period of calculus formation was much shorter; but since it is the object of this report to limit it to positively determined facts and to avoid conjectures and even very plausible deductions, no attempt will be made to prove that stone formation occurred within a period of fifty-six days, which is likely, instead of eighty-six days.

REPORT OF CASE

A man, aged 32, for three years prior to admission to the University Hospital had suffered from numerous attacks of right upper abdominal quadrant pain. His history was quite typical of recurring attacks of cholecystitis without jaundice; the last one occurred six days before he entered the hospital. Except for this trouble, the patient had always felt well.

A diagnosis of chronic cholecystitis was made. Since there had been neither fever nor leukocytosis during the eight days that he was under observation before operation, an acutely inflamed gallbladder was not suspected. The patient was operated on, Jan. 17, 1923. The gallbladder was about twice its normal size, acutely inflamed, and tense from distention with fluid. Its walls were thinner than normal; it was free from adhesions. Satisfactory palpation and inspection of the biliary ducts revealed no abnormalities. Because of its acute condition, it was thought best to drain the gallbladder at this time and to remove it at some time in the near future. It was therefore emptied completely by means of a large trocar, which was inserted through the fundus. At first, a colorless, mucoid material escaped, following which normal-looking hepatic duct bile flowed freely through the trocar. Evidently an obstruction of the cystic duct had obtained, but was overcome on evacuation of the gallbladder. This obstruction was probably due to a mucus plug.

With the complete collapse of the thin-walled and well-exposed gallbladder, it was positively determined both by inspection of its interior and by palpation of its walls that no calculi or cholesterin deposits were present. A No. 14 urethral catheter was introduced into the gallbladder and held securely by means of two purse-string sutures of plain catgut. About 150 to 200 c.c. of normal-looking bile drained daily through the catheter for two weeks, after which it was removed. Bile discharged through the fistulous tract for five days and then stopped. There were never any calculi discovered in the discharged bile.

A small amount of pus discharged from the fistulous tract during the time that the tube was in place, and for a few days after its removal.

The patient was discharged from the hospital twenty-four days after operation. At that time the wound was healed except for the old fistulous tract, which was nearly closed and which did close within one week. The patient was instructed to return at the end of three months for a cholecystectomy. On his return home, however, he suffered a great deal from dull, aching pains in the gallbladder region. The fistulous tract opened up and discharged pus but no bile. It healed over and then broke open periodically until the patient's readmission to the hospital, which was thirty-two days after his discharge, or fifty-six days after the cholecystostomy.

A cholecystectomy would have been performed within a few days had it not happened that the patient developed influenza on the third day of his second admission. Three weeks later he was scheduled for operation, which was seventy-nine days after the first operation; just before leaving his bed for the operating room, however, he was seized with a severe attack of pain in the gallbladder region, which was accompanied by chills and fever. The operation was postponed for one week.

Eighty-six days after the cholecystostomy, another operation was performed. When the gallbladder was exposed it was found to be far different in appearance from that discovered at the first operation. Instead of being distended, tense, thin-walled and acutely inflamed, it was shriveled up, opaque and thick-walled, and contained calculi that were evident on inspection. The biliary ducts were not involved. No culture was taken at either operation.

A cholecystectomy was performed. An uninterrupted and complete recovery followed.

The gallbladder contained thirty-eight irregularly shaped calculi, varying in size from 11 by 8 by 5 mm. to 5 by 3 by 2.5 mm.; one much larger, egg-shaped, calculus measured 17 by 15 by 12 mm. in its three diameters. The accompanying illustration is a photograph of these calculi; the largest one is seen in the center of the picture.

Dr. William W. Swanson, of the department of physiology, analyzed these calculi. The weight of the dried and powdered gallstones was 2.770 gm.; of the extractable material (cholesterol), 2.665 gm.; of the calcium, 0.015 gm., and of the pigments and unknown material, 0.090 gm. Thus, the calculi consisted for the most part of cholesterol with a small amount of calcium, bile pigments and a trace of bile salts.

Since rapid formation of numerous and fairly large calculi may occur, it is not unlikely that errors have been made in attributing the presence of gallstones found in the biliary tracts of patients at a second operation to failure to discover them at the previous operation. It may well be that they formed subsequent to the first operation, although the second operation was performed only a few weeks after the first.

Relation of Complexes to Crime.—Repressed complexes are, perhaps, not so much themselves the causes of crime, as part of the mental machinery through which the ulterior causes operate. Complexes similar to those discovered among delinquents and neurotics could, with sufficient exploration, be discovered among normals. Indeed, in spite of all the thorough work by the various psychanalytic schools, it still remains something of a mystery why complexes, apparently identical, should produce abnormal symptoms in one person and none in another. With delinquents, various factors seem to further this unfavorable development; defective family relationships obviously give the usual parental complexes a very unusual form; an overstrict or an overindulgent discipline—particularly when the two alternate within the same household—alike make the conflicts more acute; general instability, and the excessive strength of certain instincts—sex, anger, self-assertion and pleasurable disgust—intensify the lack of emotional balance; other instincts—timidity and unpleasant disgust—make for increased repression. Delinquents, too, manifest a disproportionate number, or at least a disproportionate strength, of certain more primitive complexes—particularly the auto-erotic, the self-regarding, and the more primitive phases of the parental; they often seem to have undergone an arrest or a fixation at these more infantile levels. Finally, innumerable events in the outer and inner life of the delinquent child—removal from home, quarreling at home, immorality at home, and their secret effects on his mind, pernicious companions or painful experiences outside the home—all serve to give a special trend to his unconscious emotional development.—Cyril Burt: *Brit. J. M. Psychol.* **3**:31, 1923.

ROENTGEN-RAY INTOXICATION

ROENTGENOTHERAPY IN MAN IN THE LIGHT OF EXPERIMENTS SHOWING SENSITIVITY OF INTESTINAL EPITHELIUM *

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An increasing amount of experimental data has been cumulating which indicates clearly that the intestinal ithelium is peculiarly sensitive to the hard roentgen ays that are used so much in modern therapy. In the ght of this knowledge, we wish to review some of the attered and incomplete observations in human cases, s we believe the evidence is convincing that the intesnal epithelium in man is likewise sensitive to the hard r short wave length roentgen rays. If this is an estabshed fact, we must use care in the exhibition of roentgen ays when the small intestine is exposed to irradiation; or example, in the treatment of pelvic tumors. There an be little doubt that the small intestine can be injured by roentgen-ray therapy in human beings, and is certain that any such injury is serious. We know nat roentgen-ray skin "burns" or "ulcers" are very hronic, and we are able to state without reservation hat the intestine can be so injured by the roentgen ray s to produce ulcers that are no less chronic than the amiliar skin lesions.

Before reviewing some of the data concerned with uman cases we consider it worth while to recall briefly ome of the recent experimental work that bears on this vhole question. The general constitutional reaction hat may be caused by prolonged roentgen-ray expoures was studied by Hall and Whipple.[1] These writers lemonstrated in this condition an increased nitrogen netabolism and at times a high blood nonprotein nitrogen level. Many of the earlier publications in this field re reviewed by Hall and Whipple, and we refer to heir paper for a discussion of the numerous intoxicaion theories. They also found evidence that the intesinal epithelium was seriously injured by the roentgen ays.

Following a large does of irradiation given diffusely over the animal's body, one observes a remarkably constant clinical reaction which may be pictured here briefly. The first twenty-four hours may be perfectly normal. During the second twenty-four hours, there is some vomiting, loss of appetite, and at times a little diarrhea. On the third day, there is an increasing gastro-intestinal disturbance with frequent vomiting and much diarrhea, with some blood in the semifluid stools. On the fourth day, severe intoxication and often prostration occur, with continued vomiting and bloody or tarry feces. If a lethal dose is given, death usually takes place on the fourth day, but, on occasion, the fatal outcome may be postponed a day or two. In dogs, there is little difference in this picture whether a minimum lethal dose is given, or two or more lethal doses.

This uniform and characteristic reaction was studied in much detail by Warren and Whipple.[2] They were able to show that a standard roentgen-ray dose given over the thorax (abdomen shielded) was quite without clinical effect, but the same dose given over the abdomen (thorax shielded) was fatal in four days, with the clinical reaction described above. These experiments rule out at once, as concerned with the fatal intoxication, any effect produced by roentgen rays on bone marrow or the blood or lymph glands, because of the presence of these elements in the area of thorax exposure. Warren and Whipple gave ample evidence to show that the intestinal epithelium of the dog is remarkably sensitive to roentgen rays, and they described in detail the extensive destruction of the epithelium of the small intestine caused by the roentgen rays. The covering epithelium of the villi and the lining epithelium of the crypts may be almost completely destroyed. The stomach and colon epithelium is much more resistant, but can be destroyed by intensive irradiation. There is no evidence that the liver and pancreas are injured by these roentgen-ray exposures. The spleen and lymphatic apparatus in the dog are injured by these doses of roentgen rays, but not to the extent that might be anticipated, and not in any degree comparable to the extreme injury done the intestinal tract.

McQuarrie and Whipple[3] showed by functional and anatomic studies that the kidneys are not harmed by these exposures. Intensive irradiation given directly over the kidneys might cause a slight temporary decrease in kidney function, but no histologic changes were made out. They found no evidence of the so-called roentgen-ray nephritis.

Warren and Whipple pointed out the fact that the clinical intoxication and the progressive disintegration of the killed intestinal epithelium ran a parallel course, and they reasoned that the clinical intoxication was due to the roentgen-ray injury of the intestinal epithelium. It is evident that a sublethal injury of these same cells of the intestine might cause mild clinical symptoms without recognizable histologic cell injury in the intestinal mucosa. Everybody is familiar with functional disturbances of the mucosa of the small intestine with severe intoxication but without histologic evidence of cell injury (intestinal obstruction).

Recently it has been shown[4] that in animals there is an interesting and important type of roentgen-ray summation. A single large irradiation will kill a dog in four days, but the same total dosage divided into six equal parts and given over six consecutive days will likewise kill a similar normal animal within three or four days after the completion of the total irradiation. We may say that the evidences of clinical intoxication from a sublethal dose may last five or six days, and that any irradiation given within this period of intoxication will show evidence of summation. Conversely, our experiments indicate that doses given at intervals of from six to seven days or longer give no clinical evidence of summation in laboratory animals. This statement applies not only to small doses but also to maximal sublethal roentgen-ray dosage. We have never observed anything suggesting the so-called

* From the George Williams Hooper Foundation, University of California Medical School, and the School of Medicine and Dentistry, University of Rochester.

1. Hall, C. C., and Whipple, G. H.: Am. J. M. Sc. **157**: 453 (April) 1919.

2. Warren, S. L., and Whipple, G. H.: J. Exper. Med. **35**: 187 (Feb.) 1922.

3. McQuarrie, I., and Whipple, G. H.: J. Exper. Med. **35**: 225 (Feb.) 1922.

4. Warren, S. L., and Whipple, G. H.: J. Exper. Med., to be published.

"roentgen-ray anaphylaxis" or increase in intoxication resulting from a properly spaced second roentgen-ray exposure.

When the extensive destructive injury of the intestinal covering epithelium is pictured, one's first thought concerns the overwhelming invasion of intestinal bacteria that should follow. Contrary to expectation, our experiments gave no evidence for this overwhelming bacterial invasion of the tissues, the lymph and blood vessels. One is tempted to stress this observation to indicate that the covering intestinal epithelium is not the all important barrier that protects the tissues from invasion by intestinal bacteria. There may be a more important protective mechanism or a secondary defense formed that guards against bacterial invasion from the digestive tract.

These observations invite speculation as to the slight significance of trifling superficial injury of the intestinal epithelium as related to bacterial invasion of the blood stream.

Recently experiments [4] have shown that the roentgen rays that injure the intestinal epithelium travel in straight lines from the target through much intervening living tissue (such as skin, fat, muscle and intestine) to the cells that are sensitive to the rays. This cone of rays can be sharply limited by impervious lead screens, and this procedure demarcates sharply the area of injury deep in the abdomen. In other words, secondary irradiation, deflection of rays, etc., do not concern this type of cell injury. We may say that a similar conclusion as to deep lying tumor cells may be permissible, if not highly probable.

Observations on the common laboratory animals. (dog, cat, rabbit, guinea-pig and rat) indicate that irradiation over the abdomen causes a common intestinal pathologic condition and clinical picture. The lethal dosage does not vary greatly in the animals. By contrast, we observe a high resistance to radiation on the part of birds, reptiles and frogs. The factors that may be concerned are discussed elsewhere.[4] All these data indicate by analogy the probability that the human intestinal mucosa is sensitive to the hard roentgen rays. There are scattered and incomplete clinical observations that strengthen this opinion, and we may now consider these reports briefly.

Rubel,[5] in 1902, reported a case with a large burn on the abdomen, with intestinal symptoms, alternating constipation and diarrhea, with death three and one-half months after an exposure of forty minutes to a Leed's coil, spark gap, 3 inches. Von Franque,[6] in 1918, reported intestinal injury with recovery after castration doses over the ovaries and uterus. Heck,[7] in 1920, operated on a cecal fistula occurring in a "burn" in the right lower quadrant two years after irradiation, and found a large section of the ileum necrotic. Death occurred eight days after the operation. He reported "ulcerative" changes and atrophy of the ileac mucosa. Among others mentioning intestinal symptoms that may be interpreted as due to direct injury following exposure of the human abdomen to irradiation are Wetterer,[8] Kroemer,[9] Franz,[10] Eymer,[11] Heck,[7] von Franque[12] and Nehrkorn.[13] Engel,[14] in 1907, reported some fatal cases of leukemia following irradiation, and recounted those described by Stone, Lenharts, Faboras, Schiefer, Türck, Fleisch, Senn and Walsh in 1897. Begouin's[15] patient received from twenty to thirty minutes of irradiation weekly, and died six days after the fourth exposure.

Rehfisch,[16] in 1923, recently reported a case of carcinoma of the cervix treated with hard irradiation through the abdomen and back, combined with radium emanation locally. The patient was given 2,200 millicurie hours of radium emanation across and in the cervix. Fifteen days later, she was given 600 milliampere minutes of roentgen irradiation through an "abdominal port 30 cm. in diameter." The next day, she received 700 milliamphere minutes through a "dorsal port." Three days later, 1,776 millicurie hours of emanation was applied to the cervix. The roentgen irradiation (with which we are chiefly concerned) was administered at a skin target distance of 50 cm. One mm. of copper and 1 mm. of aluminum were used to filter the radiation generated at an electromotive force of 200 kilovolts. Ten days after the last irradiation, a severe diarrhea developed, which was unchecked. The patient "died a toxemic death six weeks after treatment." Necropsy demonstrated large, sharply demarcated "ulcers" in the small intestine, cecum and rectum. Microscopically, these showed widespread destruction of the epithelium, with extension into the submucosa and infiltration of the surrounding tissues with lymphocytes and polymorphonuclear leukocytes. These lesions, which we have had the opportunity to examine, do not differ to any great extent from similar "chronic" lesions in dogs. Histologic sections indicated complete destruction of the cancer cells. Rehfisch reports other cases of diarrhea following irradiation, which were "successfully controlled with opium."

It must be kept in mind that most of the observations in human cases do not concern normal persons, but persons suffering from cancer, fibroids, leukemia, pneumonia, and other diseases. These disease conditions obviously complicate the picture and may modify the anticipated reaction. One person may thereby be rendered more susceptible to irradiation (leukemia?) and another more resistant to similar treatment.

These observations must not be interpreted as contraindication to the use of hard or short wave length roentgen rays produced by the modern roentgen-ray tube and high power machines. Radium can produce serious injury, but this does not contraindicate its use in proper cases, with a clear understanding of all its effects. Our experiments indicate that these hard roentgen rays can injure intestinal cells deep in the abdomen, and this arouses hopes that similar influence may be exerted on deep lying tumors; but careful judgment is required when considerable doses of roentgen rays are to be given so as to involve intestinal areas.

It seems probable that a diffuse exposure of the human abdomen to hard roentgen rays equivalent to from 240 to 400 milliampere minutes would cause a fatal intoxication. Smaller doses may cause some clinical reaction and even slight injury of the epithelium of the small intestine. Some symptoms of intoxication

5. Rubel, Maurice: Death Due to X-Ray? J. A. M. A. **39**: 1321 (Nov. 22) 1902.
6. Von Franque: Zentralbl. f. Gynäk. **42**: 1, 1918.
7. Heck: Strahlentherapie **11**: 796, 1920.
8. Wetterer: Arch. f. physiol. Med. u. med. Tech. **7**: 7, 1912-1913.
9. Kroemer: Monatschr. f. Geburtsh. u. Gynäk. **46**, 1917.
10. Franz: Berl. klin. Wchnschr. **54**: 27. 1917.
11. Eymer: Zentralbl. f. Gynäk. **42**: 885, 1918.
12. Von Franque: Strahlentherapie **10**: 1033, 1920.
13. Nehrkorn: Strahlentherapie **10**: 1920.
14. Engel: Deutsch. med. Wchnschr. **33**: 23, 1907.
15. Begouin: Semaine méd. **45**: 535, 1913.
16. Rehfisch: Personal communication to the authors.

may at times follow an erythema dose given over the abdomen.

CONCLUSIONS

Evidence from animal experiments and scattered clinical observations is convincing that the human intestinal mucosa is peculiarly sensitive to the hard and short wave length roentgen rays. A similar condition certainly obtains in the common laboratory mammals.

It is probable that the intestinal epithelium is at least as sensitive as the skin epithelium, and it may be more sensitive when we consider its increased distance from the roentgen-ray target and the intervening body tissues.

Erythema doses or larger doses given over the abdomen or the intestinal areas may cause injury to this sensitive intestinal epithelium. Particular care should be taken when "cross fire" is used over areas that include intestinal coils, as the loops may be seriously injured.

Local roentgen-ray injury to intestinal coils may not give rise to severe clinical intoxication, but may cause ulcers that are no less chronic and dangerous than are the familiar roentgen-ray skin "burns."

It is very desirable that all cases in which erythema or larger doses are given over the abdomen be very carefully studied and reported so that our knowledge as to the danger limits may be comprehensive. Until such time, we must use the data obtained from controlled animal experiments. Such experiments indicate that the intestinal epithelium is quite sensitive to hard irradiation. These facts should receive careful consideration by the radiologist who contemplates radiotheraphy of abdominal areas (for example, pelvic tumors).

UROLOGIC PHASE OF PERNICIOUS ANEMIA

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Recently I have observed an elderly man whose symptoms of difficult urination and retention of urine were due to the spinal cord changes in early pernicious anemia rather than to obstruction from the prostate gland. As pernicious anemia is rarely discussed from an urologic angle, it seems pertinent to stress this phase of my case and to add the cystoscopic findings to the extremely scanty literature on the subject.

REPORT OF CASE

History.—G. S., a man, aged 57, presented himself to his local physician, complaining of frequent and difficult urination. A hurried examination was made, the prostate assumed to be the source of the trouble, and the patient was referred for operation, April 12, 1923. He gave a history of difficult urination with onset two years previously. Before that time, however, he had noticed some difficulty after holding the urine for a long period of time. For two years he had voided every hour and one-half day and night, and frequently was forced to stand from one-half to one hour in order to get the stream started. At times he had been unable to urinate for periods as long as twelve hours, but he had never resorted to catheterization. There was no pain, but a slight burning sensation persisted at the end of urination. At intervals during the last two years, he had passed blood with the stools. This was especially noticeable when he strained in an attempt to empty the bladder. He recalled having bled a little on one or two occasions during January and February of this year. Following these periods, he felt weak. Six weeks previously, he had bled freely for twelve days, and he had noticed that his mouth was sore for two or three days at that time. For three months the left hand and the forefinger and middle finger of the right hand had felt numb. Tingling and numbness on the left side of the body for some period of time had also been noted, and had at times interfered with sleep. The history of changes in the nervous system was elicited only after close questioning, owing to the fact that the patient considered them of no importance and had his mind fixed on the urinary symptoms.

Examination.—The appearance of the patient was rather suggestive of pernicious anemia, but might have been confused with that of patients with advanced renal insufficiency, such as is observed in prostatic hypertrophy. The heart was normal in size; a systolic murmur was heard at the apex. The teeth were carious, with rather marked pyorrhea alveolaris. The systolic blood pressure was 130, the diastolic, 52. Examination of the urine showed: specific gravity, 1.018; reaction, acid; albumin, 1 (on a scale of 1 to 4), and no sugar. Microscopic examination revealed pus, 4.

Examination of the blood revealed: hemoglobin, 40 per cent.; erythrocytes, 2.06; leukocytes, 6,850; polymorphonuclear neutrophils, 64 per cent.; lymphocytes, 33 per cent.; eosinophils, 1.5, and transitionals, 0.5 per cent. There were a few normoblasts, megaloblasts, microblasts, and very marked anisocytosis and poikilocytosis.

Roentgenograms of the kidneys, ureters and bladder were negative. Proctoscopic examination was negative except for internal hemorrhoids. Gastric analysis showed a complete absence of free hydrochloric acid. Blood urea was 37 mg. per hundred cubic centimers of blood. The phenolsulphonephthalein return was 40 per cent. in two hours and fifteen minutes.

On cystoscopic examination, the capacity of the bladder was noted to be about normal; there was 360 c.c. of residual urine, which was very turbid in appearance; the bladder mucosa showed chronic cystitis, especially in the right and left bases. Both meatuses were normally located, appeared small and contracted, and expelled normal spurts of clear urine. Trabeculation of the bladder was not noted. The prostate was normal in size and appearance; the internal bladder sphincter was somewhat relaxed, and there was no obstruction in the urethra or bladder neck. Both ureters were catheterized, pointed No. 5 catheters being used because of the small, firm and resistant meatuses. An unusual amount of pressure was necessary to force the catheters through the meatuses. Both catheterized specimens showed pus: pus 2 from the right side, and pus 1 from the left.

Cystoscopic diagnosis was made of early "cord bladder," bilateral renal infection, and cystitis. The clinical diagnosis of pernicious anemia was made by Dr. Harold Marsh.

Dr. Bleckwen made a neurologic examination, which disclosed hyperreflexia, especially of the lower extremities, ankle clonus of the left foot, but no paradoxical reflexes. There was an area of hyperesthesia posteriorly over both buttocks corresponding to the fourth and fifth sacral segments. There were other areas of hyperesthesia and anesthesia on the arms and legs. No evidence of cranial nerve involvement could be obtained. The bladder was distended. The impression was one of areas of sclerosis of the spinal cord secondary to pernicious anemia.

Treatment.—The usual treatment for pernicious anemia, consisting of blood transfusion and so forth, was recommended with daily bladder lavage, but the patient refused transfusion and care in the hospital. He was, therefore, referred to his local physician, who gave him medicinal treatment for the anemia and lavaged his bladder once a day. About June 15, I learned from his local physician that considerable improvement had been made and that the patient was again able to empty the bladder normally.

Summary.—In a case of marked difficulty and frequency of urination, the prostate was normal in size, the urinary symptoms being due to the spinal cord changes in pernicious anemia. After a few weeks of medical treatment for pernicious anemia and daily bladder lavage, normal urinary function was regained. The history of the changes outside the urinary tract was obtained with difficulty, and not until after a diag-

nosis of "spinal cord bladder" had been made, since the patient did not consider these ailments of sufficient importance to discuss. The points of interest in the cystoscopic examination were: (1), small, firm and contracted ureteral meatuses; (2) relaxation of the internal sphincter of the bladder, and (3) absence of trabeculation.

COMMENT

The literature on "spinal cord bladder" is extremely voluminous, but references to "cord bladder" resulting from pernicious anemia are extremely rare. In my review of the literature, I have found the cystoscopic findings in this condition described only by Kretschmer,[1] who had observed four cases. A comparison of some of the findings in my case with the observations made by Kretschmer brings out several points of interest. All four of Kretschmer's patients were in or past the fifth decade of life; there were two men and two women. In two of his patients (one man and one woman) the chief complaint referable to the urinary tract was, as in my case, difficult urination. In two cases it was noted that the bladders were trabeculated, and in the other two the condition of the bladder wall was obscured by severe cystitis. No mention is made of contraction and rigidity of the ureteral orifices, although Koll[2] is quoted as remarking that such a condition exists in tabetic bladders.

There is considerable difference in the estimates of the frequency with which the spinal cord is involved in pernicious anemia, but the recent writings of neurologists indicate that the percentage is very high. Woltmann[3] states that 80.6 per cent. of a series of 150 patients on whom complete neurologic examinations were made showed evidence of definite changes in the spinal cord. Hamilton and Nixon[4] make a similar estimate of from 75 to 80 per cent. In a review of a series of 264 cases of pernicious anemia, Riley[5] found that approximately 80 per cent. "presented signs and symptoms indicating an involvement of the central nervous system."

Regarding the relationship of the onset of the nervous symptoms and the onset of the disease, Woltmann found nothing constant. The nervous symptoms may precede those of anemia or, on the other hand, a patient may die of pernicious anemia without having had any involvement of the nervous system.

It is difficult to estimate the frequency with which the bladder is greatly involved in cases of pernicious anemia, as statements regarding this phase of the disease are very rarely exact. Riley, in referring to the genito-urinary system, simply states that "in some cases examined during the terminal stages of the disease, there was incontinence of urine." Woltmann in a review of 121 cases of pernicious anemia with involvement of the nervous system, found partial incontinence in 8 per cent., complete incontinence in 0.8 per cent., partial retention in 4 per cent., and complete retention in 0.8 per cent. Of forty-one patients discussed by Hamilton and Nixon, six complained of urinary incontinence on admission to the hospital.

That marked improvement in the vesical symptoms in cases of pernicious anemia may occur concurrently with improvement in the anemia was noted by Cunningham[6] in 1907. He observed a patient with difficult and frequent urination and a large amount of residual urine who had pernicious anemia and also a hypertrophied prostate. The prostatic obstruction was relieved by a Bottini operation, and the patient was studied during several attacks of intermittent urinary retention, which occurred with the relapses of the anemia.

Freund,[7] in 1907, observed a somewhat similar case in which retention of urine occurred with the relapse of the anemia.

CONCLUSIONS

1. Marked urinary symptoms may develop as a result of spinal cord changes in pernicious anemia.
2. In some cases the bladder symptoms may develop early in the course of the disease and before a diagnosis of pernicious anemia has been made.
3. In elderly men, the urinary symptoms of pernicious anemia may be confused with those of hypertrophy of the prostate gland, unless accurate means of diagnosis are employed.
4. In cases of spinal cord bladder in pernicious anemia, as in spinal cord bladder from other causes, the close cooperation of the neurologist, internist and urologist is of great importance.

1. Kretschmer, H. L.: Spinal Cord Bladders Occurring in Pernicious Anemia, J. Urol. **6**: 195 (Sept.) 1921.
2. Koll, quoted by Kretschmer (Footnote 1).
3. Woltmann, H. W.: The Nervous Symptoms in Pernicious Anemia, an Analysis of One Hundred and Fifty Cases, Am. J. M. Sc. **157**: 400-409 (March) 1919.
4. Hamilton, A. S., and Nixon, C. E.: Sensory Changes in the Subacute Combined Degeneration of Pernicious Anemia, Arch. Neurol. & Psychiat. **6**: 1 (July) 1921.
5. Riley, W. H.: A Clinical Study of 264 Cases of Pernicious Anemia with Special Reference to the Involvement of the Central Nervous System, Bull. Battle Creek Sanitarium and Hosp. Clinic **18**: 195-231, 1923.
6. Cunningham, J. H.: Recurrent Intermittent Retention of Urine Occurring with the Remissions in a Case of Pernicious Anemia: The Final Result of a Bottini Operation for Associated Prostatic Hypertrophy, Ann. Surg. **45**: 284-296, 1907.
7. Freund, H. A.: Hemolysis in Pernicious Anemia, Augmented by Urinary Retention, J. A. M. A. **48**: 1476-1478 (May 4) 1907.

BACTERIAL FACTORS IN PYORRHEA ALVEOLARIS

I. MICROBIC CHANGES IN SALIVA*

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The etiology of pyorrhea alveolaris is still unsettled. Howe,[1] in 1921, said, "Notwithstanding all that has been written and said upon pyorrhea alveolaris, the exact cause or causes are unknown, and our conception of the processes involved is vague and indefinite." Again, in 1922, Swank[2] said, "Its etiology has been and still is shrouded in mystery. . . . We can point to no one cause and say it is *the* cause." These statements are still true. In general, there are two groups of theories regarding pyorrhea alveolaris: (1) those which consider the local factors as primary causes, with the general conditions as secondary symptoms, and (2) those which consider the local aspects as secondary manifestations of general conditions.

The early controversial history between these two points of view has been reviewed recently by Bunting,[3] and need not be repeated in detail here. The rationale of the localists, as clearly outlined by Riggs,[4] denies "that peridental disease arises from constitutional causes," but "begins as a local inflammation of the gingival tissues caused by the irritation of calculi and other accretions on the teeth contiguous to or beneath

* This research was sustained in part by a grant from the California State Dental Association.
* From the Department of Bacteriology and Experimental Pathology, University of California. California Stomatological Research Group.

1. Howe: J. Allied Dental Soc. **9**: 584, 1921.
2. Swank: Dental Cosmos **64**: 937, 1922.
3. Bunting: Dental Cosmos **64**: 731, 1922.
4. Riggs, cited by Bunting (Footnote 3).

he free margin of the gum." One of the best arguments for this view is that if the deposits are completely and persistently removed, the disease is often arrested and permanently controlled.

On the other hand, no doubt, there are cases in which constitutional factors predispose to pyorrhea, as long claimed by Magitot, Hopewell-Smith, Talbot, Howe and others.[5]

It is not my purpose here to review in detail the various theories, polymicrobic and monomicrobic, bacterial and protozoan, that have been offered to explain pyorrhea alveolaris. I wish merely to point out certain facts relating to the development of fetor, and to changes in reactions of saliva which have a bearing on the deposit of dental calculus.

One of the most generally accepted theories regarding the deposit of calculus on the teeth has been that calcium is precipitated from saliva on the escape of carbon dioxid, which holds it in solution at the moment of secretion.[6] For many other theories, both ancient and modern, one may consult the review by Prinz[7] in 1921. Prinz himself considered that escape of carbon dioxid is "merely an incident in the precipitation of tartar," and also pointed out that "fresh saliva pumped directly from the gland rarely shows an ammonia reaction with Nessler's reagent, while mixed saliva allowed to drip from the mouth almost invariably does." Prinz emphasized bacterial putrefaction as a factor, and said, "The greater the degree of protein decomposition, the stronger the reaction."

Normal saliva, freshly collected by expectoration under mental stimulus only, is opalescent, owing to the presence in it of numerous squamous epithelial cells, which, as shown by Miller,[8] Pickerill[9] and others, are always loaded with bacteria. "Even a few hours after birth, the mouth of an infant contains a few bacteria, and, as soon as it nurses, the flora immediately increases."[10] The eruption of the teeth, of course, affords many new lodging places for baceria and the débris on which they feed. Saliva may be assumed to be sterile as secreted, but it immediately becomes contaminated with micro-organisms, and there is no evidence that it is germicidal.

Saliva has long been regarded as slightly alkaline in reaction.[11] Lothrop and Gies[12] found it generally alkaline to litmus and acid to phenolphthalein. The following reports of the initial reactions are on record: Bloomfield and Huck,[13] p_H 6.0 to 7.5; Starr,[14] p_H 6.4 to 7.0; La Farga,[15] p_H 6.8 to 7.0, and Prinz,[7] p_H 6.8 to 7.4.

Within a few minutes, the reaction becomes frankly alkaline, as mentioned by Taylor,[16] Graham[17] and La Farga,[15] and confirmed by my observation. During this time, the squamous epithelial cells and food particles, if any, usually flocculate and begin to settle. I have frequently observed a change from p_H 6.6 to 7.6 in my own saliva during fifteen minutes. Normal fresh saliva is odorless.

I have studied some of the changes that occur in saliva through the growth in it of the normal salivary flora. Samples of saliva were secured from my mouth or from that of my assistant, a healthy woman, aged about 22. Neither has pyorrhea, but both have several filled cavities; neither suffers from halitosis. Our mouth conditions are considerably better than the average. Saliva was collected by expectoration under mental stimulus only, unless otherwise mentioned.

Reaction changes were determined colorimetrically by means of the color chart of Clark and Lubs, appropriate dyes being used.

If saliva is incubated at 37 C., within a few hours (from twelve to twenty-four) it loses its initial mucoid consistency, becomes more nearly clear, with a white sediment, develops a slightly sour odor and generally an acid reaction, equivalent in some cases, to p_H 6.6. At this time the squamous epithelial cells can still be recognized, but they are likely to be swollen and indistinct. Further incubation fails to change the macroscopic appearance of the saliva essentially, but it again becomes alkaline and develops the halituous fetor of advanced pyorrhea. The terminal reaction (about p_H 8.6) is reached in from forty-eight to seventy-two hours. At this time, the squamous epithelial cells can no longer be recognized as such. In explanation of these results, we may assume that the initial change in reaction toward alkalinity is due to loss of carbon dioxid. The development of acidity on incubation probably represents the fermentation of carbohydrates residual from food particles or of mucin, a glycoprotein. Carbohydrates derived from food may or may not be necessary. One notes in passing that while Kirk[6] thought normal saliva contained a carbohydrate, Prinz[7] was unable to demonstrate even a trace in the saliva of a diabetic patient with 7 per cent. sugar in the urine. The secondary alkaline change is due to bacterial putrefaction, which occurs only when fermentable carbohydrates have become exhausted, as abundantly shown by Kendall[18] and others. The proteins involved may be, in part, food particles, but are in the main the squamous epithelial cells.

It was interesting to observe the effect of certain procedures on the events mentioned above. Mercuric chlorid (slightly acid in reaction) inhibited all changes, as might be expected; terminal subcultures were sterile. Boiling saliva for five minutes previous to incubation completely inhibited the development of acid and of fetor, but only slightly delayed the development of alkalinity; terminal subcultures showed only sporulating hay bacilli. Refrigeration at about 6 C. for four days curiously has a similar effect; such specimens became fetid on subsequent incubation, showing that the organisms responsible for the fetor were only temporarily restrained. In all specimens treated with mercuric chlorid, boiled or refrigerated, the saliva remained opalescent.

The specimens incubated with excess fermentable carbohydrate (saccharose and glucose) became relatively clear in eighteen hours, with an acidity of p_H 4.6, which increased during three more days' incubation only to p_H 4.4. They were sour after the first day, and did not become fetid at any time. Streptococci predominated greatly, as shown by daily stains and in terminal subcultures on agar. Identical results were secured with saliva secreted while chewing a soda cracker without admixture of other carbohydrates. These experiments, excepting the last, are summarized in Table 1.

5. References are given by Bunting (Footnote 3).
6. Kirk: American Texthook of Operative Dentistry, Ed. 4, 1911.
7. Prinz: Dental Cosmos **63**: 231, 369, 503, 619, 1921.
8. Miller: Mikro-organismen der Mundhöhle, Ed. 2, Leipzig, 1892.
9. Pickerill: The Prevention of Dental Caries and Oral Sepsis, Ed. 2, Philadelphia, 1914.
10. Brophy: Dental Cosmos **63**: 323, 1921.
11. Howell: A Textbook of Physiology, Philadelphia, 1906.
12. Lothrop and Gies: J. Allied Dental Soc. **5**: 262, 1910.
13. Bloomfield and Huck: Bull. Johns Hopkins Hosp., 1920, pp. 31-118.
14. Starr: J. Biol. Chem. **54**: 43, 1922.
15. La Farga: Comptes rend. Soc. de biol. **86**: 412, 1922.
16. Taylor: Digestion and Metabolism, Philadelphia, 1912.
17. Graham: Dental Cosmos **61**: 409, 1919.
18. Kendall: Bacteriology—General, Pathological and Intestinal, New York, 1916.

While in the normal saliva the development of fetor corresponds with the secondary alkaline change, in both boiled and refrigerated specimens alkalinity develops without fetor; these changes, though normally associated, may be separated, and fetor may be ascribed perhaps to species not represented in boiled or refrigerated specimens. The presence of fermentable carbohydrates also interferes with the development of fetor.

It was interesting to compare the effect of cracker (carbohydrate) in saliva, during incubation. Ten cubic centimeters of saliva was first collected from a clean mouth under mental stimulus, requiring six minutes (Sample A). Two grams of soda crackers was then chewed during the collection of 10 c.c. of saliva, requiring three minutes (Sample B). After the mouth had

Table 1.—*Reaction Changes in Saliva* *

	18 Hrs.	48 Hrs.	72 Hrs.	96 Hrs.
Sample A, refrigerated	p_H 7.6 Odorless	7.8 Odorless	8.0 Odorless	8.2† Odorless
Sample B, boiled 5 min.	7.8 Odorless	7.8 Odorless	8.4 Odorless	8.4 Odorless
Sample C, mercuric chlorid, 1:1,000	6.6 Odorless	6.6 Odorless	6.6 Odorless	6.6 Odorless
Sample D, 10 per cent. saccharose.	4.6 Slightly sour	4.6 Slightly sour	4.5 Slightly sour	4.4 Slightly sour
Sample E, 10 per cent. glucose..	4.6 Slightly sour	4.6 Slightly sour	4.5 Slightly sour	4.4 Slightly sour
Sample F, control	6.6 Slightly sour	8.4 Fetid	8.6 Fetid	8.6 Fetid

* Sixty cubic centimeters of saliva was collected under mental stimulus only in a sterile graduate. It was divided into six equal portions in sterile test tubes. All but Sample A were incubated at 37 C.

† Became sour in twenty-four hours, and fetid in forty-eight hours on subsequent incubation.

been thoroughly washed, 2 gm. of cold lean roast beef was chewed during the collection of 10 c.c. of saliva, requiring two minutes (Sample C). After determination of the reactions, all were incubated at 37 C. with the results shown in Table 2.

One notes that, whereas, normal saliva becomes fetid and alkaline on incubation, that containing cracker became acid and sour, while that containing meat became putrid (and fetid?) and changed reaction only slightly during seventy-two hours. The failure of material reaction change in the latter may be attributed to the buffer action of protein. The usual macroscopic and microscopic changes were observed in the saliva containing no food. Both of those containing food developed considerable gas. In the cracker at twenty-four hours, the starch cells and squamous epithelium

Table 2.—*Reaction Changes in Saliva Incubated with Food*

	Initial	24 Hrs.	48 Hrs.	72 Hrs.
Sample A, no food	p_H 6.6 Odorless	8.4 Fetid	8.6 Fetid	8.6 Fetid
Sample B, cracker	p_H 7.0 Odorless	4.6 Sour	4.6 Sour	4.6 Sour
Sample C, meat	p_H 6.4 Odorless	6.6 Putrid	6.8 Putrid	6.8 Putrid (and Fetid?)

could still be made out; in the meat, only the muscle fibers could be recognized. There were no marked differences in bacterial flora in stained slides, streptococci, gram-negative and gram-positive diplococci and rods being noted in all. Both starch cells and muscle fibers were still recognizable at the end of the experiment; the squamous epithelial cells could be found only in Sample B after the first twenty-four hours.

I tried the effect of saliva whose secretion was stimulated by chewing paraffin. Ten cubic centimeters was first collected as usual, under mental stimulus only, requiring five minutes (Sample A). Ten cubic centimeters was then collected by chewing paraffin, requiring three minutes (Sample B). Both were turbid, and

Table 3.—*Reaction Changes in Activated Saliva*

	Initial	24 Hrs.	48 Hrs.	72 Hrs.
Sample A	p_H 6.8 Odorless	6.6 Sour	8.2 Fetid	8.4 Fetid
Sample B	p_H 8.2 Odorless	7.2 Sour	9.0 Fetid	9.2 Fetid

microscopic examination of cover slip preparations and of gram-stained slides showed the usual squamous epithelial cells and rich microbic flora in both. The only demonstrable difference was in the reaction; the activated sample was more alkaline, not only at once, but at each stage of incubation (37 C.), as shown in Table 3. It will be observed that the reaction changes and the development of odor were similar in direction.

It then occurred to me to see whether saliva freed from cells by centrifugalization putrefies and develops the characteristic fetor of untreated saliva. I found that it becomes alkaline more rapidly even than the latter, but does not become fetid.

Fifty cubic centimeters of saliva was collected as usual, centrifugalized and divided into two equal parts. Sample A contained the cells; Sample B contained the supernatant fluid, which was water clear. Microscopic examination showed bacteria in both fractions, but the larger forms were absent from Sample B. The results of incubation (37 C.) are shown in Table 4.

Practically identical results were secured in a comparison of saliva filtered through fine, soft paper with

Table 4.—*Reaction Changes in Centrifugalized Saliva*

	Initial	16 Hrs.	24 Hrs.	52 Hrs.
Sample A, residue	p_H 6.8	7.0 Very fetid; hydrogen sulphid odor also	7.6 Very fetid; hydrogen sulphid odor	8.2 Very fetid
Sample B (supernatant fluid)	p_H 6.8	8.2 Odorless	8.2 Odorless	8.2 Odorless

saliva from which the cells had been centrifugalized as above.

These instructive experiments showed that the squamous epithelial cells retard the reaction changes, presumably by their buffer action; but the terminal reactions were the same. They also indicate that these cells or micro-organisms, large enough to be thrown out by the centrifuge, or removed by filter paper, and perhaps both, are necessary for the development of the characteristic fetor.

It was suggested that there should be a difference in samples of saliva collected fractionally. Several experiments in which five 10 c.c. lots were collected one after another in separate sterile test tubes have, however, shown no essential differences in time required for collection by a given person, in initial reaction, in reaction changes during incubation, or in odor. When samples were collected from unwashed mouths following a meal, there was appreciable reduction in food particles visible microscopically during the periods of collection

(from thirty to fifty minutes); there was only a slight reduction in squamous epithelium and bacterial flora.

COMMENT

It is well known that the calcium salts are held in solution by acids and precipitated by alkalis; and whether acid or alkali production occurs in the mouth depends on the kind of débris available. A carbohydrate residue favors fermentation with acid formation; a protein residue favors putrefaction with alkali formation. Theoretically, calculus should be deposited only under the latter condition. One should scarcely go so far as to say that pyorrhea can occur only in mouths habitually alkaline; the extent to which stagnation of proteins, including desquamated epithelium, occurs under the gingival margin may be the determining factor. The constancy of these findings should be tested on saliva samples from a variety of mouth conditions.

Microbial changes in the mouth depend primarily on the kind of pabulum, as well as on the kinds of organisms present. But the former probably determines the latter. It will be important to investigate what functions are performed by particular species in this connection. Already it may be said that (1) halituous fetor may, but does not necessarily, accompany salivary putrefaction; (2) it is due to organisms destroyed by boiling, while putrefaction may be due in part to organisms not destroyed by boiling, and (3) it never occurs while fermentative changes are in progress. Numerous experiments have shown the difficulty of cultivating the fetor-producing organisms in artificial mediums, although a characteristic fetid odor sometimes occurs in primary cultures in brain medium from cases of advanced pyorrhea, but never in subcultures. The fetor can be reproduced in sterilized saliva by inoculation from fresh saliva but not by any of the easily cultivatable bacteria of the mouth. Whether micro-organisms other than Noguchi's [19] *Treponema mucosum* may be responsible, and what particular micro-organisms, if any, may be made in pure culture to reproduce artificial calculus similar to that demonstrated by Burchard,[20] Kirk,[20] and Bunting and Rickert [20] in raw saliva and by Prinz [7] in artificial saliva, remains for the future.

19. Noguchi: J. Exper. Med. **16:** 194, 1912.
20. Quoted by Prinz (Footnote 7).

Child Labor in Maryland.—The U. S. Department of Labor, through the Children's Bureau, has issued the second of a series of reports on rural child labor. Four Maryland counties are included in the study, Anne Arundel (near Baltimore), Wicomico, Somerset, and Worcester on the eastern shore. Eight hundred and eight white and negro children in Anne Arundel County who had done farm work in the year preceding the study and 838 children on the eastern shore were interviewed. The chief findings were: Over 90 per cent. of the children in the schools in the truck farming areas of the eastern shore had worked on the truck farms within the year preceding the inquiry. A large proportion of these children in Anne Arundel County work on the farms. In the eastern shore localities, the workers are chiefly farmers' children. In the Anne Arundel area there are also large numbers of hired workers, some of them white children who migrate from Baltimore for seasonal farm work. Most children under 10 years of age work a short day at simple kinds of work for a few days or weeks during the year. Most white girls do little more work than the young children, but some of the older negro girls and many white and negro boys 12 years of age or over work nine or ten hours a day. The majority of these children lose from four to six weeks at the end of the school term in order to go out to the truck farms.

THE AGE OF GRADUATION OF MEDICAL STUDENTS

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The annual report of the Council on Medical Education and Hospitals to the House of Delegates [1] gives on page 1930 a valuable statistical table of the age of graduation from American medical colleges for the session 1921-1922.

This table gives the age distribution of 2,403 out of the total of 2,529 graduates of this year, and shows that the average or mean age of graduation is 26.8 years. The Council's report also calls attention to the significant fact that all but one of the fifteen colleges having the lowest age average are Class A institutions, while four of the fifteen medical schools having the highest age averages are rated in Class B or Class C; from which is drawn the conclusion that the average age does not depend so much on the amount of premedical education as on the acceptance of older students who have previously been engaged in other occupations.

Another important cause of high age of graduation is the acceptance of students in advanced standing from other medical schools in which they have failed to progress with their classes; some schools take more of these students than other schools. Even when these students do not transfer to other schools but repeat the year in the school in which they have failed, their medical course is correspondingly lengthened by one or two years. A certain number of students also take five or more years to the course because of interruptions through illness or equivalent cause; and a small number prolong the course to five or six years in order to spend part of their time as student assistants, in research, or in profitable simultaneous study in other departments of the university.

These are the real causes why many men do not graduate as soon as theoretically possible after completing the high school course; the influence of higher standards of premedical and medical education is really negligible. This statement is supported by the fact, brought out in the same report of the Council (p. 1929), that the average age in 1916 was 26.5 years, as compared with 26.8 years in 1922; for it will be recalled that the class of 1916 entered in 1912, two years before the requirement of one year of premedical college work went into effect in all Class A schools.

In order to enforce the truth of this view, it seems worth while to group the medical colleges in the Council's report serially according to the average age of graduation of the class of 1922. In this table those schools which in 1918 required more than two years of premedical college work are indicated by italics, the number of premedical years required being indicated by the accompanying numeral. The reader will note the strikingly even distribution of these schools throughout the series. Especially noteworthy is the position of Western Reserve and Cornell, and even Johns Hopkins, in this list.

It seems more logical to subtract from the average age of graduation one year in the case of those schools which in 1922 required the fifth or intern year for the diploma. Most graduates of the better four-year

1. J. A. M. A. **80:** 1926-1937 (June 30) 1923.

schools actually take the intern year, and whether the diploma is awarded at the end of the fourth or fifth year of the student's course is immaterial. Consequently, in Table 1, the average ages for Illinois, Loyola, Minnesota, Marquette, Northwestern, Rush, California and Stanford are given as one year less than in the table of the Council on Medical Education and Hospitals.

Furthermore, to make the different schools comparable and also to make statistics of 1922 comparable with those of 1916 and other years, it seems preferable to take as the significant age, not the age of graduation, but the age at which the student completes the standard four year curriculum. The accompanying chart shows that when the graduates of schools requiring the intern year in 1922 are transferred to the preceding age group and the totals of each age group are recalculated on this basis, the curve of distribution is materially changed.

There is, of course, one error left after this recalculation, namely, the students of these so-called five year schools are still counted as graduates of the class of

TABLE 1.—*American Medical Colleges Seriated According to the Average Age of Graduation of the Class of 1922**

24.5	Bellevue	26.1	Ohio State (H)		California
24.8	Columbia		Buffalo		Vanderbilt
25.2	Jefferson		Indiana	27.4	Oklahoma
25.3	Texas		Iowa	27.8	Colorado
25.5	Georgia	26.2	Med. Coll. of Va.	27.9	Boston Univ.
	Tufts	26.3	Virginia	28	Hahnemann (Chicago)
	Creighton		Yale		McHarry
	Long Island	26.4	Minnesota	28.1	Baylor
	West Tennessee		Tulane	28.3	Woman's Med. of Pa.
25.6	Pennsylvania		Marquette		Detroit
	Syracuse	26.5	Cincinnati	28.7	*Stanford* (3)
	Emory	26.6	Washington		Eclectic
	Georgetown		Michigan (R)		Howard
25.7	*Western Reserve* (3)		*Johns Hopkins* (4)	29.1	Med. Evangelists
	Albany	26.7	Hahnemann (Phila.)	29.2	N. Y. Homeo.
	Nebraska		Ohio State (R)	29.4	Kansas
25.8	Illinois	26.8	*Harvard* (2 or 4)	29.5	Michigan (H)
	Loyola		Northwestern	29.7	Temple
	Pittsburgh		St. Louis	30.3	Tennessee
25.9	*Cornell* (3)		Louisville	30.8	Oregon
26	Vermont	26.9	Med. Coll. of S.C.	34.4	Kansas City P. and S.
	Maryland	27	Rush		
	Geo. Washington				

* Colleges which required the fifth (or intern year) for graduation are classed as having an average age of graduation one year less than given in the Council's table, to make them comparable with other colleges requiring only four years for graduation. Colleges which in 1918 required more than two premedical college years for admission are given in italics, with the number of premedical years required.

1922; whereas, for the purposes of this discussion, they rightly belong in the class of 1921. Those students of the class of 1923 in these five year schools who in 1922 had completed the regular four year curriculum and were then entering on their intern year would give the correct figures for these schools, if they are to be accurately compared with other schools. It is doubtful, however, whether this would make any great change in the totals for the entire country.

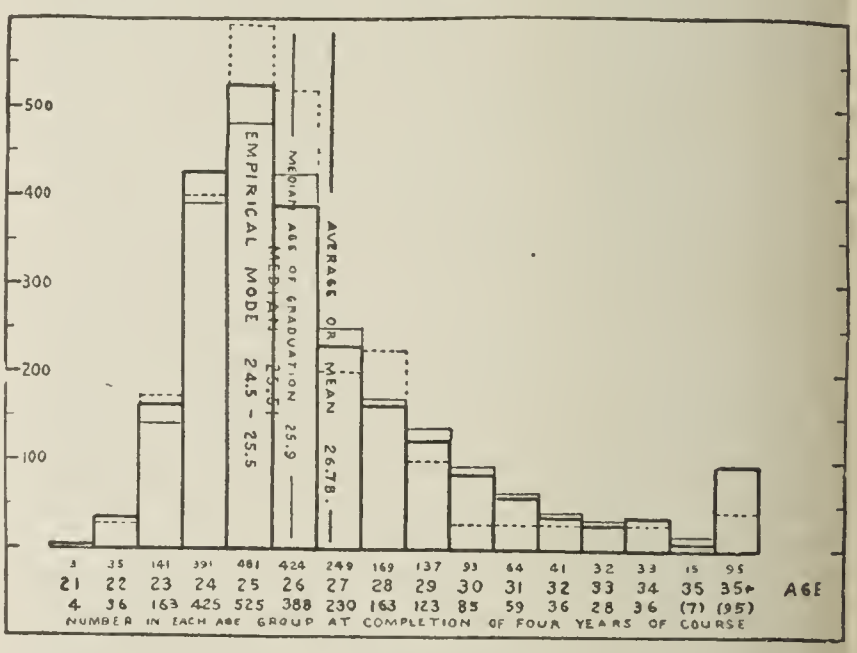
In the remaining portions of this paper I have therefore used the recalculated totals as more nearly representing the actual facts bearing on this discussion of the age of graduation, than those shown in the Council's report (explained in legend to chart).

FALLACIOUS CONCLUSIONS USUALLY DRAWN FROM THE AVERAGE AGE OF GRADUATION

The publication of the statistical table referred to [2] is especially welcome because it gives me the facts on which to base a protest against an all but universal fallacy in current thought about the age of graduation from the standard four year medical course.

2. J. A. M. A. 80: 1930 (June 30) 1923.

This fallacy consists in the failure of those using previously published statistics to make the fundamental distinction, familiar to statisticians, between the *average* or *mean*, the *median*, and the *mode* of curves of distribution. It would be difficult to find a more striking example of the false conclusions to which one may be led by the failure to make the distinction especially between the mode and the mean than the almost universally accepted opinion as to the age of graduation from medical schools. The fact that the average age of graduation is 26.8 years means to most people that the majority of students of medicine do not enter on their year of intern service until they are almost 27 years of age, do not begin active practice until they are 28 or 29 years of age, and consequently are not self-supporting until well above 30 years of age. The current literature of this subject simply teems with this wholly erroneous conclusion.



Heavy lines, frequency polygon showing the age distribution of graduates of American medical colleges, session 1921-1922, at time of completion of the standard four year medical course. Calculated from statistical table in THE JOURNAL, June 30, 1923, p. 1930, by subtracting one year from the age given in that table for graduates of colleges requiring the fifth or intern year. Abscissas, ages; ordinates, number of graduates. Total graduates represented, 2,403, out of 2,529 for the session. The number in each age group is given in the line below the ages. *Light continuous line*, same at time of graduation, i. e., some after a five year course and the rest after a four year course. The number in each age group is given in the line above the ages. These are the totals given in the table as published by the Council. Median of this curve—25.9—shown in the light vertical line. *Broken lines*, frequency polygon of all graduates of the University of Virginia (a four year school), 1918-1924, inclusive, who presented two or more years of premedical college work for admission. The distribution curve of these 169 individuals is made comparable with that of the entire country for 1922 by multiplying the number in each age group by 14.22 (2,403 ÷ 169).

Constants of the Three Distribution Polygons

	Recalculated (Heavy Lines)	Graduates of 1922 (Light Lines)	Virginia (Broken Lines)
Average or mean	26.78	26.8	26.05
Median	25.51	25.9	25.65
Empiric mode	24.5-25.5	24.5-25.5	24.5-25.5
Theoretical mode	23	24.1	24.85

The accompanying chart gives in plotted form the facts taken from the Council's report using the recalculated totals for each age group. It shows that, so far from the majority of medical students being almost 27 years of age at graduation,

1.6 per cent. graduated before 22.5 years (1.6)[3]
8.4 per cent. graduated before 23.5 years (7.4)
26.1 per cent. graduated before 24.5 years (23.3)
48.0 per cent. graduated before 25.5 years (43.7)
64.1 per cent. graduated before 26.5 years (61.4)

The determination of the median of the frequency polygon given in the chart actually shows that one half

3. To show the effect of our recalculation of the totals for each age group, the corresponding percentages that would be obtained from the Council's totals are given in parentheses.

of the graduates are less than 25.5 years of age at the time of graduation; i. e., at least one year and three months younger than the mean age of all graduates.

THE MEAN OR AVERAGE, THE MEDIAN AND THE MODE

Full information as to the meaning of the terms mean or average, median, and mode, when applied to a curve of distribution of a seriated group of observations, and also the method of calculating these constants for such curves, are given clearly by Davenport.[4] For our purpose the following definitions and explanations will suffice.

The *average* or *mean* in this case would, of course, be the quotient of the total number of graduates into the sum of the products of each age by the number of individuals in that age group. This is the only constant usually employed in current thought on this question. For the graduates of 1922, it is 26.78 years. It is instructive to note how little the mean age is changed by our recalculation, while the other constants of the curve of distribution are markedly changed.

The *median* is that age above and below which one half of the individuals or variants occur. In the case in point, it is 25.51 years. Avoiding mathematical language, this means that one half of the graduates of 1922 were less than 25.51 years of age, and one half were more than this age.

The *mode* is the class in which the largest number of individuals fall. Here we must distinguish between the empiric and the theoretical mode. The age range of each class of the series is, of course, chosen arbitrarily; in the case in point, each graduate is classed according to age at the nearest birthday, so that the age of those classed, for example, as 24 years will range roughly from 23.5 to 24.5 years; the Council's table does not, however, inform us how the 425 individuals in this 24 year group are distributed between the twelve monthly periods or the fifty-two weekly periods, included in the group range; we may be sure that fewer graduates are 23 years, 7 months of age than 24 years, 5 months; but the published record does not show the exact form of the curve of distribution between the limiting ages of the group.

On the data given we have, therefore, the "empiric mode" or the actually observed mode group of ages at graduation, which is 25 years, or, more exactly, 24.5-25.5 years. Approximately 22.4 per cent. of all graduates are in this mode group. In this connection the percentages of the following groups are significant:

1.50 per cent. graduate between 21.5 and 22.5 years (1.4)
6.78 per cent. graduate between 22.5 and 23.5 years (5.8)
17.69 per cent. graduate between 23.5 and 24.5 years (16.3)
22.36 per cent. graduate between 24.5 and 25.5 years (20.0)
16.24 per cent. graduate between 25.5 and 26.5 years (17.6)
64.+ per cent. graduate between 21.5 and 26 5 year of age, i. e., below the mean or average age of all graduates.

Suppose, now, the 2,403 individuals had been arranged by ages in a series of monthly or weekly groups, which of these groups would be the largest? In other words, where would the mode fall? The data at hand do not answer this question, and we must be content with the calculation of the probable or "theoretical" mode of the curve of distribution. Using Pearson's formula for the approximation of this constant of the curve—that the theoretical mode is on the opposite side of the median from the mean and twice as far from the median as the mean—the theoretical mode is found to be 22.47 years. The same constant for the actual graduates of 1922 (Council's totals) is 24.1 years.

This means simply that in all probability more will be graduated at 23 years than at any other decimal age fraction. The "theoretical mode," however, is not a specially significant quantity for the purposes of this discussion; the empiric mode, the median, and the percentages of different age groups given heretofore are the important points.[5]

THE MODE AND NOT THE MEAN AGE OF GRADUATION IS THE SIGNIFICANT FEATURE

A moment's thought will show that virtually all factors influencing the curve of distribution of the ages of graduation tend to postpone graduation beyond the theoretically probable minimum age. Few students enter college before their seventeenth year, and it is possibly not desirable for nine tenths of them to enter college as early as this. Six years are then required for the degree in medicine (excluding the intern year). Exceptional intellectual ability and exceptional educational advantages are the sole factors tending to reduce the age of graduation in medicine below 23 years. The frequency polygon in the chart shows this clearly.

On the other hand, numerous factors, in no way connected with the premedical or the medical curriculum, tend to increase the age of graduation, namely:

1. Interruption of the continuity of premedical and medical study for financial reasons. This is certainly one of the most important and possibly the most important factor.

2. Spending the three or four years needed for a cultural academic degree before beginning the study of medicine. My experience is that, in general, this is time well spent, and the practice should be encouraged. It is robbing a human being of his birthright to encourage him to go into the study and *especially the practice* of medicine without the cultural background of a complete college course. In the case of some students this time may, of course, be wasted; in the case of others it is financially impossible to give the needed time; but the medical profession and society in general will be the gainers by increasing the number of physicians capable, because of the cultural background of a complete college course, of taking a broad view of the duties, the responsibilities and the privileges of their profession.

3. Illness or equivalent cause. This is to some extent reducible by more efficient supervision of the hygienic and sanitary conditions of student life.

4. Late choice of profession. A considerable proportion of medical students chose the profession of medicine after one year in college; some not until, or even after, the time of graduation; and then another year in college is frequently required to complete the premedical requirement. This always will be the case. Colleges may find some way to expedite the choice of life work.

5. The fact that the medical course proves too heavy for many men, who have to take five or even six years for its mastery, but who ultimately graduate and become reliable and useful members of the profession. Often one year is added to the medical course because

4. Davenport, C. B.: Statistical Methods, Ed. 2, New York, John Wiley & Sons, 1904, Chapter II.

5. It is, however, desirable, in case the Council on Medical Education and Hospitals publishes similar studies of the graduates of other years, that at least the 24, 25, 26 and 27 year groups be seriated by months instead of by years alone, so that we may have the actual facts instead of the calculated probable or "theoretical" mode.

the relatively easy-going habits of intellectual application acquired in the standard college course of thirty semester-hours a session has not prepared for the standard session work of forty or more hours in the medical school. Here, again, these students will be better physicians for the extra year or years added to their period of study and the corresponding delay in entering on their life work. The work of the medical school is no harder than the really successful work of life, and it is a function of the medical course to establish this standard of work in its students as a part of their preparation for life. A great teacher, William T. Sedgwick, often used to say (or quote, I am not sure which), "The world consists of two classes of people—the overemployed and the unemployed. There is no third class."

6. Prolonging of the course by a few students, as pointed out heretofore, to serve as student assistants, to engage in research, or to take additional university courses in related lines. The medical profession and society is in the end benefited by the accession of this more thoroughly trained group of men to the ranks of the profession.

These are the real factors that tend to increase the average age of graduation, and the Council's figures show that, out of a total of 2,403 students, these factors are operative to a greater or less degree in the case of 1,250 (those above the empiric mode of 24.5-25.5 years); i. e., in the case of 52 per cent. of students.

It would be an interesting study to determine in a large group the relative contribution of each of the foregoing six factors to this result; for some of these factors call for remedial measures while others do not. Those calling for such remedial measures are 1, 3, 4 and (to a lesser degree) 5, and the possible remedies are obvious: for example, the establishment, through scholarships and loan funds on a far larger scale than exists anywhere at present, of the means of relieving financial stress in the case of needy students of proved merit; effective organization of hygienic supervision throughout the entire period of elementary, secondary, premedical and medical education; the more effective organization of academic training so as to assist college students to acquire effective habits of study and to "find themselves" earlier; and, finally, in the medical school, the judicious use of competent tutors, especially in the fundamental sciences, for students who have difficulty with the medical course. I have no sympathy with the policy of ruthless elimination by mechanical rule of every student who fails to pass in "one major and one minor subject, no extenuating circumstances allowed." This country needs safe, reliable, even though not brilliant, practitioners of medicine and public health too badly to justify this policy on the part of any medical school supported from public funds; and the same thing is true of most privately endowed institutions, since a large part of their endowment and perhaps a larger part of their capitalized income was paid for this purpose. Nor does any medical school seem justified in ruthlessly "passing this buck" to its neighbors.

Measures of this kind (and not panicky, revolutionary tinkering with the curriculum) are what is needed to reduce the mean age of graduation, so far as it is desirable to reduce this constant of the curve of distribution.

After all, however, it should be clear that the significant constant of the curve of age distribution is not the mean but the mode, i. e., the age at which the largest number of men graduate. It will be conducive to clearer thinking on the part of both the medical profession and the public if, in the future, the age mode receives the same emphasis in the statistics of the Council on Medical Education and others studying the subject as the mean or average age has received in the past; and, above all, if the chief fact emphasized is that, despite all factors tending to increase the age of graduation, 48 per cent. graduate before they are 25.5, and 64 per cent.—almost two thirds—graduate before they are 26.5 years of age. This paper is a plea to give these pertinent facts in future statistical studies and to present these facts so that the public will not be misled in its thought on this subject.

SUMMARY

1. The use of the average or mean instead of the mode of the distribution curve of the age of graduation from medical schools has led to entirely erroneous impressions, not only as to the age at which the majority of medical students enter on the active practice of their profession, but also as to the effect of modern standards of medical education on this age.

2. It is not the rule for medical students to graduate at 26.8 years of age; notwithstanding the many factors that interrupt or prolong the period of study, 26 per cent. graduate before the minimum probable age (24.5 years) and 64 per cent. graduate before 26.5 years. It is also shown that half the graduates are less than 25.5 years, and that 22.3 per cent. graduate between 24.5 and 25.5, the empiric mode age.

3. Present standards of medical education cannot justly be held responsible for late graduation from medical schools. The true factors are enumerated in this paper. Some of these are remediable; others are not. The postponement of graduation in a considerable proportion of cases is desirable and results in a more thorough training for the practice of medicine and the elevation of standards of professional life; it also contributes to the efficient training of that great army of safe, though not "leading," practitioners of medicine and public health who constitute the first line of defense against disease.

AGE DISTRIBUTION OF GRADUATES IN MEDICINE FROM THE UNIVERSITY OF VIRGINIA, 1918-1924, INCLUSIVE

Previous to the appearance of the foregoing 1922 statistics for the whole country, I had made an attempt to get an idea of the empiric and theoretical modes, the median, and the mean for those graduates of my own school whose ages I had in convenient reference form in my office and who entered with more than one year of premedical college preparation. This includes most of the graduates from 1918 to 1924 inclusive, and all graduates after 1920. Although the total number of this group (169) is too small to give an even curve of age distribution, I have thought it worth while to give the results in the form explained in the legend to the chart, since the University of Virginia—although long suffering with its own weaker students—admits virtually no students in advanced standing unless a strong record is presented from the school previously attended. The group includes a fair number of men who spent five years in our school, and three or four who spent six. The other factors delaying the age of graduation enumerated in the body of this paper are probably as strongly operative as elsewhere, and the percentage of those with three or more years of premedical college work probably runs higher with us than in most schools requiring only two premedical college years.

The Virginia curve (in the chart) follows the curve for the entire country quite closely for the first four years, as would be expected, since these years include the minimum possible

and probable years of graduation, and it would seem that Virginia gets its fair share of these exceptional students; we then get proportionately more students of the next two age-years—the region of the mode (24.5-26.5); and a smaller proportion of those of more advanced years. The subnormal size of higher age classes is explained by the care in admission with advanced standing, but chiefly by the small number of men admitted who have passed their twenty-second birthday.

Noteworthy is the fact that 38 per cent. of our graduates had baccalaureate degrees, and 53 per cent. had three or more years of premedical college work; nevertheless, we have fewer of the greater age groups and proportionately more of the ages at which students would be expected to graduate. This is additional evidence of the slight effect of more extensive premedical preparation in raising the average age of graduation to its present figure.

It is to be hoped that other medical schools will collate and publish similar statistics.

USE OF MICROPHONIC STETHOSCOPE IN DEMONSTRATION OF FETAL HEART TONES

A PRELIMINARY REPORT *

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The hearing and counting of the fetal heart beat is the most important criterion of the condition of the baby in utero. This has been accomplished by various means as the science of obstetrics has developed. The tones were first heard by Mayor [1] in 1818 with the unaided ear. With the development of the stethoscope, various forms of these instruments have been used. The ordinary forms of the stethoscope have the disadvantage that they are not easily used by an operator when scrubbed up for a delivery. This disadvantage has been overcome by the head stethoscope, which can be used by the operator without manipulation by the hands. The disadvantage of this instrument, however, is that it is tiresome to the head and ears when worn for some time, and it interferes somewhat with the hearing of the operator for other sounds in the room.

Furthermore, considerable practice is necessary for students and nurses to acquire the ability to hear and count the fetal heart tones. In certain patients even the experienced obstetrician may find difficulty in locating the heart tones, especially in obese subjects or in patients having an unusually large amount of amniotic fluid. It would therefore seem desirable if some mechanism could be devised to magnify the tones so that they could be easily heard by an inexperienced person with ordinarily good hearing. This would be still more valuable if it could be accomplished without the necessity of wearing a stethoscope.

With the advent of the loud speaker in connection with the amplification of radiotelephony, it occurred to one of us (F. H. F.), that the principles involved might well be employed in the amplification of the sound of the fetal heart tones, so that it would be possible to hear these tones throughout the delivery room even by an inexperienced person, or in patients in whom the fetal heart tones were difficult to hear. The obvious advantage of this would be that, during labor, accurate information might be obtained and transmitted to the obstetrician by even an inexperienced nurse or intern. During operations, the operator could hear at all times the fetal heart beat and note its rate, rhythm and quality, and would therefore have constantly before him, throughout the delivery, the best and almost the only available data concerning the condition of the baby.

It was with the hope of being able to accomplish this that the investigation was undertaken. In these experiments, as in the use of the ordinary stethoscope, the reproduction of the rate and volume of the fetal heart tones was aimed at rather than fine details of the tones themselves.

Preliminary investigations in the use of the telephone transmitter were made in October and November, 1922. In these tests, an ordinary commercial telephone transmitter was used in connection with a de Forest amplifier designed for telephone work, and a Magnavox loud speaker. Similar tests were also made with a supersensitive carbon-ball type of microphone, such as is used for detective work or in radio broadcasting from a large room. It was at once evident that the basic problem to be met here was the elimination of extraneous noises from the transmitter and its circuits, since footsteps or other jarring noises in the room drowned out the heart tones. Trouble was also experienced with sound waves from the loud-speaking device acting on the transmitter a second time and setting up howling in the system. It was difficult to exclude these sounds from the transmitter. Experiments were also begun on the use of an ordinary Baldwin telephone receiver as a magnetic transmitter, but this was not followed up because of the small response given to the adult heart tones.

These experiments were abandoned on the reports of the success of Abbott [2] with the microphonic transmitter of the carbon type in which all sounds of frequencies above that of the heart were damped out. This transmitter had been used successfully in amplifying the adult heart tones for audiences up to several hundred. Through the courtesy of Professor Abbott, one of these transmitters was secured and experiments were again resumed.[3]

Experiments in using the transmitter with the Western Electric type 7-A speech amplifier were unsuccessful because the energy level of the transmitter was too high for the amplifier. Experiments were then conducted with General Electric U V 201-A and C 301-A amplifying vacuum tubes in makeshift amplifiers, using several types of commercial audiofrequency amplifying transformers.

It was found that a two stage amplifier of this type gave sufficient response to adult heart beats for detection in a head set or Western Electric loud speaker, but was unable to register the fetal heart tones. The maternal pulse could be distinctly counted with the transmitter over the abdomen. A three stage amplifier revealed both heart beats, and, by experimentation in the selection of the position, it was possible to detect the fetal pulse beats intermittently, but so faintly that it would have been impossible to count them to determine the rate of the fetal heart. A five stage amplifier gave a distinct response in considerable volume to the fetal

* From the Department of Obstetrics and Gynecology, State University of Iowa College of Medicine.

1. Mayor, quoted in Bibliotheque universelle de Genève, November, 1818.

2. Description of Special Transmitter by Prof. R. B. Abbott in Physical Review, February, 1923.

3. In the Correspondence Department of THE JOURNAL (August 25, p. 679) we were credited with having used this apparatus for some time. Owing to an unfortunate delay in receiving the transmitter, it is only recently that we have been able to complete our experiments.

pulse, and it could be readily counted several feet from the loud speaker. As a result of the tube noises, inherent in this type of tube, maximum amplification could not be employed.

At present, therefore, we are able to report that we have been able to hear and count the fetal heart tones in sufficient volume for clinical use by means of this apparatus. Equipment has been ordered for a permanent installation in our delivery room. This equipment has been designed to eliminate much of the tube noises, and to give a greater volume than previously. In addition, noncritical vacuum tubes will be employed, which eliminate all current controls.

OPHTHALMIA MYIASIS EXTERNA, DUE TO LARVAE OF OESTRUS OVIS*

H. H. STARK, M.D.
EL PASO, TEXAS

During the day's work of ophthalmology, one becomes so accustomed to common diseases of the eye that diagnosis of any of the usual cases is a simple procedure and it is only the rare cases that are difficult. Therefore, anything adding to our knowledge of rare cases should be of value, especially when it widens the geographic field in which they are found.

I would hesitate to report a single case did it not seem to have an exclusive place in American literature, evidenced by the fact that I have found none like it so far recorded.

REPORT OF CASE

F. D., a girl, aged 16, reported to her local physician, L. H. Dunham of Las Cruces, N. M., in July, 1921, that for two days she had had a burning itching of the right eye and lid, with something passing in front of her sight, and that several small white objects, which she thought were worms, had been taken from her eye at home.



Fig. 1.—Sheep-bot-fly, slightly larger than natural size.

Inspection of the eye showed a marked degree of conjunctivitis, and excessive lacrimation, with a number of small white organisms, swimming with rapid movement across the conjunctiva. When an attempt was made to remove these organisms, they would apparently bury themselves in the conjunctiva, making their removal very difficult. However, they were successfully removed by the physician, and the use of liquid petrolatum was ordered.

Examination on the following morning showed that the congestion had increased markedly; the patient complained of disturbance of sight, having headache, vertigo and edema of both lids. At this time she was brought to me, and Dr. Dunham presented me with a bottle of physiologic sodium chlorid solution containing four small white objects which he had removed from the eye, and which under the microscope proved to be larvae of some character.

In going over the history, I found that about two days previous to the attack, she had felt something hit her right eye, which was thought to have been a gnat. The blow wa very slight and caused her no immediate discomfort.

Examination now showed marked edema of both lids, peculiar fiery red conjunctiva, and excessive lacrimatio with but slight interference or disturbance of vision; but n larvae could be found. A mild antiseptic was ordered, an she returned home. During that night she slept very badl and about 1 a. m. had a convulsion lasting nearly twent minutes. This subsided with a hypodermic injection of mor phin, but she went without sleep practically the entire nigh The temperature and pulse were normal. The next nigh she slept fairly well and there was some improvement i the eye condition, which continued until, on the seventh da following the attack, the eye was practically normal, an has so remained.

The convulsion was possibly due to nervousness, rathe than any result of the eye condition.

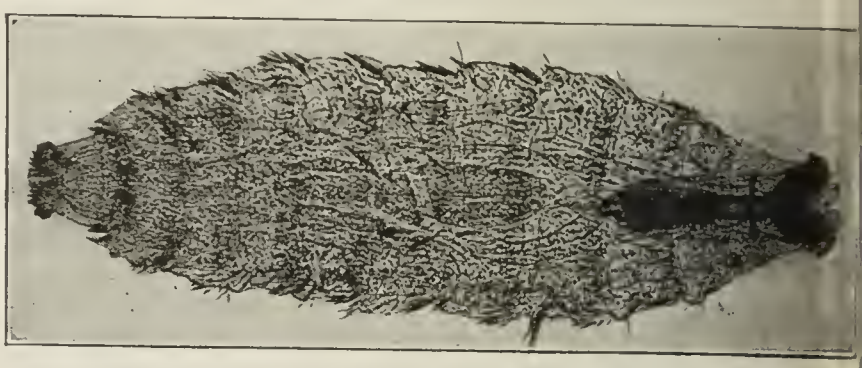


Fig. 2.—Larva of sheep-bot-fly, enlarged about 80 diameters.

THE SHEEP-BOT

The larvae were sent to the Bureau of Entomology, United States Department of Agriculture, for classification, and were of sufficient interest to attract the attention of Dr. L. O. Howard. There was some doubt as to the classification, and they were forwarded to Mr. F. C. Bishop, Entomologist, Insects Affecting Health of Animals, Dallas, Texas, who classified them as the first stage larvae of *Oestrus ovis,* or larvae of the common sheep-bot.

The history of the life cycle of the larva is that it is deposited by the fly, while in motion, in the nostrils of the sheep. It passes into the nasal sinuses, where it slowly changes into the second stage of life, remaining almost dormant through the winter months. In the spring, development starts, the size increases, and it passes into the third stage, when it becomes quite active, causing symptoms of staggering, loss of weight, and, frequently, the death of the host. On reaching maturity it is expelled and reproduces the fly, which is more prevalent during the warm months and whose movements take place only during the warm part of the day.

A female fly may contain several hundred larvae, but when these larvae are deposited voluntarily, there may be only from eight to a dozen. The flies are widely distributed over the country used for sheep raising, and are causing a severe loss to sheep owners.

The subject is now under special investigation by the Department of Agriculture.

Hoping to be able to carry on some animal experiments, through the courtesy of Mr. O. G. Babcock, Sonora, Texas (special field agent), I received twenty flies; but, owing to the distance from which they were sent, most of them were dead, and the living ones had no larvae.

The most comprehensive article on this subject is by I. A. Portchansky, a Russian, a translated abstract of which was furnished me by the department. He describes the larva as resembling the horse-bot in size and shape. It reaches to 1 mm. in length, has an

* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

longated, oval body, broad in front and gradually ttenuated in the rear. The mouth hooks are black, rown or generally dark colored, and well developed, esemble horns, and serve for attachment to the mucous nembrane, which attachment takes place quickly and fficiently. He quotes several cases from the literature, nost of which may be found in the American Encyclo-edia of Ophthalmology.

Myiasis of the conjunctiva due to this larva seems o be uncommon in any country, and takes place more often where there are large numbers of human beings n comparison with the number of sheep. The reports ndicate that it occurs oftener in the warm countries of northern Africa and southern Europe. It is doubtful whether the larvae cause any permanent damage to the eye. In a rather wide inquiry among sheep-raisers, I have found no history indicating trouble which might have been caused by the larvae.

FILARIA LOA

REPORT OF CASE OF REMOVAL FROM THE SUBCONJUNCTIVAL TISSUES *

J. W. KIMBERLIN, M.D.
KANSAS CITY, MO.

The literature, especially tropical, is quite full of articles on various kinds of *Filaria*. The two varieties that are better known and classified are *Filaria bancrofti* (also called *F. nocturna*) and *Filaria loa* (also called *F. oculi, Loa loa, F. diurna* and other terms). Others are *Filaria inermis, Filaria oculi-humani,* Elliott (*F. equina*), and *Filaria palpebralis. F. inermis* is not well known or described, but at times invades the subconjunctival tissues. It is more than 100 mm. long. *Filaria oculi-hummani* is described by Elliott,[1] who states that the term is indefinite, meaning that the filariae occur in man within the globe, in the aqueous and vitreous humor, and beneath the retina. They are from 60 to 80 mm. long. They also are found within the globe of the horse and the ox, and in camels and turkeys. They are quite common in India, Burmah and Ceylon, infrequent in China, and quite rare in southeastern Europe and the United States.

CLASSIFICATION AND DESCRIPTION

Filaria bancrofti is the most common of all, and produces symptoms and findings quite different from *Filiari loa.* It is endemic and quite common in the Pacific Islands, Fiji, Samoa and the Philippine Islands (in some of these islands 80 per cent. of the inhabitants show evidence of harboring the parasite). It is endemic in the United States only in Charleston, S. C.[2] The intermediate host is the mosquito. The microfilariae fill the blood stream, but are found in the peripheral vessels only at night.

Filaria loa, the one we are here most interested in, is endemic only in the west coast of Africa from Sierra Leone to Benguela, and never spreads away from its African habitat. If a host is found in another part of the world he has always hailed from West Africa. The intermediate host is the diurnal blood-sucking mangrove fly (*Chrysops dimidiati*), and the development of the worm has been traced by Leiper in the fly's salivary glands. The fly usually attacks the legs, and the bite is painless. The best protection is the wearing of long, heavy stockings or high leather boots. It takes several years for the filaria to develop after entering the human host. The adult worm is from 30 to 40 mm. long, though some have been reported from 60 to 70 mm. long. The female is readily recognized by the uterus filled with ova, and is longer than the male. The human body may be infested with one or more of the worms. The microfilariae fill the blood stream, but are found in the peripheral vessels in quantities only in the daytime, just opposite to *Filaria bancrofti.* The microfilariae of *F. bancrofti* and *F. loa* have been given about the same description, but in the textbook of Castellani and Chalmers a differentiation is given in the size of the two, in the character of the curves, and in the periodicity when habits of sleeping and waking are reversed.

Swellings on different parts of the body are usually the first signs of the infection. They are called Calabar swellings, and may come on any part of the body, but are most common on the arms and legs. They appear quite suddenly, and disappear gradually. They are about half the size of an egg, are often hot to the touch, are painless when confined to the soft parts, and never suppurate. They were formerly supposed to be due to the emission of embryos by the female, but Ward [3] has shown that they are more probably caused by the periodic discharge of the waste products of metabolism. The worm can often be felt moving about in some parts of the body; it is quite painful while in the tighter tissues about the ear, and produces an irritation while traveling under the conjunctiva. This pain and irritation stop suddenly when the worm dives into the deeper tissues. The worms appear to travel through established paths, and their speed has been estimated at an inch in two minutes. Heat seems to attract them to the surface tissues, their visits to the surface being at widely indefinite periods. They often are felt traveling from one eye to the other across the bridge of the nose. One surgeon reports that the worms infesting the negro are much more sluggish than those with a European host.

The first symptoms are usually experienced two years or more after exposure to the infection. The filariae, once developed in the human body, are long lived. They have been reported as living up to fifteen years in the body.

Low and O'Driscoll [4] state that eosinophilia, varying from 12 to 20 per cent. in persons from endemic areas, is said to be a very constant symptom.

Various general modes of treatment have been used with no positive results. According to Elliott, the treatment should be:

> The removal of the parasite when a favorable opportunity offers. The principal difficulty in so doing arises from the irregularity with which the worm visits the skin surface, and the rapidity with which it leaves it when alarmed or disturbed. A patient may feel the animal in the neighborhood of the eye and may hurry off to his surgeon, only to find that in the interval it has disappeared. Again, he may arrive with the worm under the conjunctiva or in the lids, and yet his haste may be fruitless, owing to the worm diving into the deep tissues as soon as the surgeon attempts to examine the parts.

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In the literature of the United States, the removal in this country of *Filaria loa* from about the eye has been

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reported by Wilson,[5] 1889, at Bridgeport, Conn.; Loveland, 1898, at Clifton Springs, N. Y.; Milroy,[6] 1902, at Omaha; Vail,[7] 1905, at Cincinnati; Friend, at Chicago, and Begle,[8] 1918, at Detroit.

The Encyclopedia of Ophthalmology devotes twenty-nine pages to *Filaria*. Under the subject "Parasites Ocular" quoting Ward, it states that the first case of *Filaria loa* infestation reported in the United States was in 1890 by Dr. F. M. Wilson of Bridgeport, Conn. Ward, in his complete bibliography up to 1906, says that there are ninety-seven genuine cases of *Filaria loa* infestation reported in the literature of the world, from the first in 1770 up to 1905. These ninety-seven include many cases in which the worm was not removed. He reports a case of Dr. C. F. Friend of Chicago, who had removed a *Filaria loa* worm from a patient's eye. Vail of Cincinnati reported in 1905 the removal of a *Filaria loa* worm from under the skin of the upper eyelid in 1903. The patient was the wife of a medical missionary. The husband had previously removed four from her body, three from the upper eyelid and one from the breast. Twice he was able to remove only half of a severed worm; the remaining half seemed to give little trouble, the part left in the eyelid producing a small nodule. Vail claims his as the second removal reported in the United States, and gives Ward's complete world bibliography of 127 references. They concern various kinds of filariae, and are nearly all foreign references, mostly French. Vail does not mention the presence in the blood stream of the microfilaria.

McMurray's [9] bibliography quotes only Vail's article on the removal in the United States. He does not report any cases of removal of his own.

Gamble,[10] at the March, 1920, meeting of the Chicago Ophthalmological Society, exhibited a specimen of *Filaria loa* and gave an abstract of the literature on the subject. The specimen had been sent to him by a friend in the tropics. A search of the Ophthalmic Year Book from 1906 to 1922 fails to reveal any reports in the medical literature of the United States on the removal of *Filaria loa* in this country except one reported by Begle of Detroit in 1918. Begle's article states that there is no definite record of persons in the United States infected with *Filaria loa*, but that there are probably nine or ten in all. He reports a case in which he had removed a worm from the subconjunctival space in 1918. The patient gave a history of residing in West Africa twelve years previously, of Calabar swellings, and of diurnal microfilariae in the blood. The latter condition continued for the three years Begle had the patient under observation after the removal of the worm. The worm was 61 mm. long.

REPORT OF CASE

D. M., a Scotchman, first came to my attention when Dr. M. J. Owens presented him at a meeting of the Kansas City Academy of Medicine in January, 1922, with a diagnosis of *Filaria* infestation. The history given then showed a good physical condition up to 1910. He went to the West coast of Africa in that year, and 1918 was again a resident there. In 1911 he had two attacks of swelling of the scrotum, and in 1917 had trench nephritis. In the past several years he had had a number of swellings, mostly on the arms and legs, at one time the leg swelling to twice the normal size. The usual swelling had been about half the size of an egg, lasted from a half hour to forty-eight hours, and was often hot and tender. He had been under the care of several physicians abroad for the filariasis, microfilariae being present in the peripheral blood stream at each examination in the daytime. He was under the care of Dr. Osler in 1917, and was given three injections of arsphenamin and three of neo-arsphenamin.

The patient was next seen, June 22, 1922, when Dr. Owens requested my presence in his office; the patient was there complaining of a filaria in his eye and Dr. Owens had seen it under the patient's conjunctiva. Within two or three minutes we were back in Dr. Owen's office, which is just across the hall from ours. Examination showed no filaria in sight under the conjunctiva, and the patient told us that he had felt it leave, traveling upward. He then gave us the following eye history:

Several years before he had felt the filaria under the conjunctiva while in London, and took a taxi to his surgeon's office; but when he arrived it had disappeared. Later while on board ship he felt it again around the eye and reported to the ship's surgeon, who saw it under the conjunctiva and instilled cocain, but it again left before the cocain became effective. He had felt it travel across the nose from one eye to the other. He was very anxious to have it removed, for he had heard of several cases in Africa in which there had been no return of the Calabar swellings after removal of a parent filaria. We told him to return immediately if he again felt it in the eye. That afternoon he returned saying it was in the right eye, and we immediately examined and easily saw the filaria under the conjunctiva, weaving about and extending from a point 8 or 10 mm. above the upper corneal margin down to the lower fornix, lying just beyond the temporal side of the cornea. It had the appearance of a piece of white thread or catgut. Without waiting to instil cocain we used forceps and grasped it and the conjunctiva overlying at its middle. The consistency in the forceps was about that of a damp piece of catgut. While it was firmly held in the forceps, cocain was instilled, and when this became effective a snip was made through the conjunctiva and the filaria, cutting the latter in half. The lower end of the upper half was easily seized with forceps and removed, sliding out smoothly. The lower half was weaving around, and after fishing about for it for a minute we easily removed it. The wound was dressed and gave us no more trouble, the small conjunctival wound healing nicely without suture. The filaria could undoubtedly have been removed without being cut, but we were quite anxious to get it, and it seemed more expedient at that instant to cut it in two. Removed, it had the appearance of a piece of clean, smooth, white catgut, and was 37 mm. long. It was mounted on a slide, but we did not determine the sex. Up to date the patient has had no more of the Calabar swelling, nor has he felt any manifestations of movements of other filariae. The microfilariae are still in the blood stream, but it is our understanding that the regular filariae never develop in the body from these.

900 Rialto Building.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. STARK AND KIMBERLIN

Dr. Edward F. Glaser, San Francisco: Dr. Kimberlin's case is unique. As he states, there have been very few cases in the United States—probably less than twenty. About nine cases have been reported. His case is most interesting because of its rarity, and also because, disregarding the subjective symptoms that the patient must suffer, it is somewhat spectacular to be able to see a living nematode under the conjunctival tissue. On the Pacific Coast we have never reported a case of *Filaria loa*, but we have had cases of *Filaria bancrofti* among the Japanese, the Chinese, and the Filipinos. After the great fire, a large colony of Porto Ricans were brought here to help the labor problem, and they were quartered on Telegraph Hill. Their social and medical problem was solved by the Associated Charities, and solved chiefly through the Fruit and Flower Mission clinic. On the staff of the Fruit

and Flower Mission was an authority on tropical diseases, Herbert Gunn. He found about 10 per cent. of the Porto Ricans infested with *Filaria bancrofti*, although many of them showed no special symptoms. Some had enlarged lymphatics, hematuria, and a high degree of eosinophilia. He did not report any cases, nor did he see any cases of *Filaria loa*, nor did he report any eye symptoms in these cases of *Filaria bancrofti*. As far as treatment is concerned, he tried arsphenamin, quinin and various other drugs, and found that nothing seemed to have any effect on the patients. A man in Paris is working on an antiloa serum, and it is to be hoped that something along that line may be worked out that will help in the treatment and prevention of *Filaria loa*.

DR. J. S. LICHTENBERG, Kansas City, Mo.: I saw this patient. There was no evidence of any ocular affection. The patient felt as if at times the parasites went into the globe. I am quite confident he was wrong. There is no report in the literature of any parasite of this kind being within the globe. The point I want to emphasize is that when the parasite is found under the conjunctiva, we must not wait for local anesthesia. The parasite must be seized and anesthesia produced afterward. Otherwise, by its rapid movements it will disappear.

DR. ADOLPH BARKAN, San Francisco: I removed a *Filaria* thirty or thirty-five years ago. The case was reported in the early volumes of Knapp's *Archives of Ophthalmology*. If my recollection is correct, it was *Filaria medinensis*, which occurred in the pupil of the eye of a man from Australia. There were no particular symptoms of any kind. I cannot remember why he came to me. There was no pain or irritation, but there was a pretty little white thread floating about in the anterior chamber. The man was in a hurry. We applied a few drops of physostigmin so as to shut off the filaria in the anterior chamber of the eye, made a simple incision, and floated the filaria out. That, in my opinion, was the very first case of filaria observed in the United States and extracted.

DR. HERBERT MOULTON, Fort Smith, Ark.: Is this sheep-bot distinctly different from the bot-fly that lays its eggs on the legs of a horse?

DR. H. H. STARK, El Paso, Texas: The horse-fly and the sheep-bot are distinctly different. The sheep-bot does not lay eggs, but deposits larvae in the nose of the sheep.

DR. J. W. KIMBERLIN, Kansas City, Mo.: I think that Prof. Henry B. Ward mentioned Dr. Barkan's case.

POSTINFANTILE TETANY

REPORT OF THREE CASES

E. T. GIBSON, M.D.
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In the last few months, I have encountered three cases of tetany. One was recognized at once, one had been called hysteria before I saw it, and the third I considered a case of acroparesthesia for two weeks before making the correct diagnosis.

It is apparent that tetany of adolescents and adults is fairly common, but is frequently overlooked, in spite of the fact that the diagnosis is easy if one but thinks of it. For this reason, the three cases seem worth reporting.

REPORT OF CASES

CASE 1.—W. R., a boy, aged 13, for the last four years in late winter and spring had had frequent tonic spasms of the extremities. The attacks came day or night, sometimes in the bath, at stool, after violent exercise and sometimes without any apparent cause. The attacks began with tingling and numbness of the fingers and toes; gradually the muscles stiffened, pain increased and in two or three minutes the attack reached its maximum. It passed off after a variable period of from fifteen minutes to several hours. When the attack was fully developed, the toes were rigidly pointed downward, and the hands assumed the typical obstetric position. There were frequent attacks of dyspnea, with whistling noises in the chest which were loud enough to wake the family. During the months of January, February and March of each year, his hair fell out. With warm weather, the tonic spasms and attacks of dyspnea disappeared and his hair grew again. For the last four years the patient had had a grayish pallor, but without anemia, and three or four watery bowel movements daily, immediately after eating. In the last four years he had had five nocturnal convulsive attacks with unconsciousness. In March, 1923, when I first saw him, Chvostek's Trousseau's, Pool's, Erb's and Hoffman's signs were positive. In July, his hair was entirely restored and he had no symptoms of tetany. All signs, including the typical Chvostek, disappeared, but even yet his facial muscles twitched when tapped. He was treated with calcium lactate.

CASE 2.—B. B., a woman, aged 32, admitted to the hospital, June 11, 1923, complained of numbness and tingling in the hands, with frequent painful cramps in which her arms and legs became stiff, and her feet and hands assumed the typical position. She was restless, anxious and depressed, and slept very little. During her paroxysms she became disoriented and saw imaginary persons about her. Her husband, in reporting her illness at the outpatient department, gave a description of typical tetany spasms, and stated that the patient was "out of her head" part of the time. Examination showed two healed operative incisions in the neck, one over the upper pole of the right lobe of the thyroid gland, the other a low collar incision.

The patient had not felt well since a miscarriage in January, 1921. Since the autumn of 1922, she suffered from a slowly increasing nervousness, with palpitation of the heart, rapid pulse, tremor of the fingers and slight enlargement of the thyroid gland. In January, 1923, she had an attack of palpitation of the heart; she became cyanotic, her hands became numb and stiff, and she felt excessively faint. The hospital record showed that, May 3, a preliminary ligation of blood vessels at the right upper lobe was performed, and ten days later both lobes of the thyroid gland were resected, leaving a small portion of the gland at the upper poles. Operative recovery was good. The third day after operation, the patient complained of numbness and stiffness of both hands, pain in the right forearm, and inability to use the right hand. From this time until her discharge, June 4, she was restless, slept poorly, and complained of numbness and stiffness in the extremities. She was at home from June 4 to June 13, and in this time she developed the typical tetany spasms and psychosis described heretofore. She improved rapidly under the administration of calcium lactate intravenously and by mouth, and has had no more spasms. She is still nervous and has a positive Chvostek sign. Examination of the material removed at operation made by Dr. Wahl of the University of Kansas failed to show any parathyroid tissue.

In my opinion, this patient was suffering from parathyroid deficiency before her operation, in addition to hyperthyroidism. The attack of January, 1923, seemed distinctly tetanic. Furthermore, the symptoms were not severe enough for a complete parathyroidectomy.

CASE 3.—S. K., a woman, aged 20, unmarried, referred by Dr. J. A. Fulton, complained of numbness of the hands and feet and attacks of general weakness. She had had no illness whatever. In March, 1923, she noticed that her hands and feet frequently became numb. This condition gradually increased in severity and annoyed her, particularly because it interfered with sewing. With the numbness she felt weak all over, and became dizzy on arising suddenly. She was an exceptionally strong and vigorous girl, and had never felt weak before. She had a high color, dilated pupils, dermographia, and moist hands and feet. The blood pressure was 124 systolic and 74 diastolic. The basal metabolic rate was +4. Neurologic examination, including sensations, proved her to be entirely normal.

I considered this case an angioneurosis similar to Putnam's acroparesthesia, until a review of the history, talked over with the patient, brought out the fact that to her "numbness" meant

a prickling sensation, and also stiffness. This at once suggested tetany, and a reexamination showed very distinct Chvostek's, Hoffman's, Erb's and Trousseau's signs.

COMMENT

Paresthesias of the extremities without organic neurologic signs are often difficult to evaluate. Some are due to tetany.

While the peculiar spasm of the muscles of the extremities is the best known manifestation of tetany, Case 1 shows that effects due to involuntary and sensory nerves (dyspnea, diarrhea and atrophy of hair) may be just as prominent.

In all three cases, twitching of the facial muscles produced by tapping was more intense, though, of course, of less extent, as one followed the nerves toward the muscles, the greatest contraction being obtained over the muscle itself. In one case, a twitch could be obtained by percussing the muscle after mechanical irritability of the nerve had disappeared. This observation lends some clinical support to the conclusion from experiments in guanidin tetany by Paton [1] and his fellow workers that the irritable point is at the neuromuscular junction.

The Chvostek sign is not pathognomonic but is strongly suggestive if bilateral and combined with electrical overirritability of motor and sensory areas. I recently saw a Chvostek sign involving all the facial muscles of the left side in an old man who had suffered from herpes zoster of the ophthalmic division of the left fifth nerve three months before, and in whom neuralgic pains still persisted.

There are a few cases in the literature interpreted as essential hypoparathyroidism,[2] though the syndrome can hardly be considered as more than speculative. Possibly Case 2 was of this kind, since there was a typical tetany attack four months before thyroidectomy.

Treatment with calcium was satisfactory, so far as symptoms were concerned. From none have the signs of latent tetany yet disappeared. The proximate cause of the manifestations of tetany seems to be calcium deficiency. Study of the literature does not indicate involvement of the parathyroid bodies as a necessary ulterior cause, unless an unsuspected hypoparathyroidism preexisted in the cases following forced breathing, whether voluntary [3] or postencephalitic.[4]

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1. Paton: Quart. J. Exper. Physiol. **10**: 203-377, 1917.
2. Hurst, A. F.: New York M. J. **115**: 403-404 (April 5) 1922.
3. Goldman, Alfred: Clinical Tetany by Forced Respiration, J. A. M. A. **78**: 1193 (April 22) 1922.
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The Campaign Against Yellow Fever.—Twenty-five years ago yellow fever menaced the Western Hemisphere from Santos, Brazil, to Washington, D. C., and Cairo, Ill.; on the west coast it ranged from southern Peru to northern Mexico. Gorgas exterminated the infection from Cuba and Panama; Oswaldo Cruz and his colleagues brought it under control in Santos and Rio; Wolferstan Thomas, Converse, and the Brazilian authorities drove it out of the Amazon Valley; Connor freed Guayaquil. During the past year Henson has completed the conquest of the infection in Peru, while Lyster, White, and their colleagues, working with government authorities, have seemingly exterminated the disease in Central America and have the situation well in hand in Mexico. At the end of 1922, the only infected areas remaining in the Western Hemisphere appeared to be eastern Mexico and a narrow costal zone in eastern Brazil from Ceará to Bahia.—Report of International Health Board of the Rockefeller Foundation, 1922.

Special Article

EPIDEMIC (LETHARGIC) ENCEPHALITIS AND ALLIED CONDITIONS *

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The reappearance of cases of epidemic encephalitis in Europe and America in the last few months has served to emphasize the sinister character, as well as our imperfect knowledge, of the disease. Moreover, it has served to remind us of the notable fact that within a period of about twenty years, several epidemic diseases having their chief seat of injury in the central nervous organs have prevailed widely in America and in other parts of the world.

Indeed, the two decades of the new century have witnessed destructive outbreaks of epidemic meningitis, epidemic poliomyelitis, and latterly epidemic encephalitis. This list does not include an epidemic disease presenting peculiar features which arose in 1917 and 1918 in New South Wales, Queensland and Victoria. According to different reporters, this malady was regarded merely as an unusual form of poliomyelitis or as a mysterious disease to which the name Australian X disease has been affixed.

Of these four epidemic diseases, we speak confidently of the microbic etiologic or inciting agent in two instances—epidemic meningitis induced by the meningococcus, and poliomyelitis induced by a filter-passing organism or virus, possibly but not certainly cultivated outside the body and thus rendered microscopically visible. Of the exciting agents of epidemic encephalitis and of Australian X disease, assuming the lattter to be an independent disease, we have no certain knowledge.

POLIOMYELITIS AND AUSTRALIAN X DISEASE

As regards these last two diseases, certain questions present themselves bearing on their independence or their connection etiologically with other more accurately defined affections.

Thus, Australian X disease may be said to have certain obvious affinities with poliomyelitis. Aside from its prevalence in the season corresponding to our late summer and autumn, the character perhaps, as indeed the distribution, of the lesions of the nervous system agrees with those of poliomyelitis. I have had the privilege, through the courtesy of Dr. Cleland, to examine several specimens of the brain and spinal cord of fatal human cases, and I have found that the essential lesions conform quite accurately with those occurring in fatal cases of epidemic poliomyelitis in the United States. I should not be able to say that in these fatal instances the involvement of the brain structures as distinguished from spinal cord structures preponderated exceptionally. The infiltrative character of the lesions about the blood vessels, the foci within the tissues and the degeneration and phagocytosis, neuronophagia of the nerve cells, in the spinal cord and basal ganglions, hardly differ in kind from those found in

* From the Laboratories of the Rockefeller Institute for Medical Research, New York.

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* Owing to the lack of space, this article is abbreviated in THE JOURNAL by omission of the bibliography. The complete article appears in the author's reprints.

ese structures in poliomyelitis. Moreover, the rela-
ve escape of the cortical structures is similar in the
o instances.

In my opinion, the pathologic histology of X disease, the extent that it shows close resemblances to frank oliomyelitis, distinguishes it from epidemic encephalitis. his is particularly noticeable in respect to the extensive volvement of the spinal cord, which scarcely occurs xcept as a minor process confined to the cervical gion in fatal cases of encephalitis, but it is noticeable so in the way the lesions are distributed in the basal nglions and in their intensity.

The high mortality of Australian X disease (70 per ent.) and the small number of recoveries in which here is residual paralysis (two in thirty-five recoveries, ith two more presenting signs of mental disorder) are nlike ordinary poliomyelitis. The disparity may, how-ver, be related to the exceptionally high mortality. he age distribution shows some degree of variation rom the usual epidemics of poliomyelitis: Among 134 ases, 50 per cent. of the patients were below 5 years; 6 per cent. from 5 to 10 years; 7 per cent. from 10 to 5 years, and 30 per cent. over 15 years of age. Males ere attacked twice as often as females. As has been bserved in poliomyelitis, infants and young children, hen affected, had a better chance of survival than lder children and adults.

Therefore, according to this comparison, it is quite ossible that Australian X disease is merely an exalted orm of epidemic poliomyelitis. The present difficulty n harmonizing the two affections arises, as I view it, ot so much from variation in clinical and histologic henomena, as from the results of inoculation tests on nimals.

Breinl made two sets of inoculations. In one he used he cerebrospinal fluid withdrawn from a severely ill atient for intracerebral injection into a species of *Cer-opithecus,* which developed symptoms and died on the ixteenth day after the inoculation. The microscopic esions in the basal ganglions and spinal cord are said o have been typical of experimental poliomyelitis. Reinoculation of a second monkey failed to produce esults, possibly because this animal succumbed too oon to an attack of gastro-enteritis. The second xperimental inoculation was made with the spinal ord of a fatal human case. Nervous symptoms ppeared on the twelfth day, and the monkey was hloroformed on the nineteenth day. The histologic esions were characteristic. No further passage seems to have been made with this material.

The discrepancy in these tests consists in the successful inoculation with cerebrospinal fluid of human cases of Australian X disease. Although many attempts have been made, no one either in the United States or elsewhere has succeeded in conveying experimental poliomyelitis to monkeys with the cerebrospinal fluid of cases of epidemic poliomyelitis.

But this exception is small as compared with the experimental successes attained by Cleland and Campbell. They first conveyed the experimental disease to the monkey, then from monkey to monkey in series, from monkey to sheep, from sheep to sheep, back from sheep to monkey, and lastly from monkey to one horse and one calf. Rabbits resisted inoculation. The virus of poliomyelitis, as known to American and European investigators, is practically limited to monkeys in its power to excite an experimental infection. No success has ever been recorded in the sheep, calf or horse.

Can this great discrepancy in the extent of the pathogenic propensities of the two viruses be accounted for? In my opinion, it cannot be explained at the present time. Dr. Cleland has kindly sent me histologic specimens taken from the brain and spinal cord of the successfully inoculated monkeys, sheep, calf and horse, and all show perivascular infiltration and some show neuronophagocytosis. Assuming no accidental, secondary, complicating bacterial infection to have intervened in the course of the transfers of the virus through many animals, the disparity cannot at present be resolved so as to bring the two experimental diseases, Australian X disease and poliomyelitis, into harmonic relationship.

EPIDEMIC ENCEPHALITIS AND EPIDEMIC INFLUENZA

Epidemic, or lethargic, encephalitis has in turn certain, if merely chronological, relationships with epidemic influenza. The question is still being actively discussed, whether after all the encephalitis is not a form of influenza, in which the stress of the pathologic effects falls on the central nervous organs. We are at present not able, through lack of accurate knowledge, either to affirm or deny this proposition. We do, however, possess a mass of circumstantial and experimental evidence tending to uphold the independent nature of epidemic encephalitis.

In using the term independent, I have in mind the notion of a direct etiologic separation of influenza and epidemic encephalitis: whether an attack of the first acts to predispose to an attack of the second in the manner of the predisposing effect of influenza on bacterial affections of the respiratory tract, is another question awaiting close study.

Economo, in his original publication, in which he described the first cases seen in Vienna and to which he applied the now commonly employed name of lethargic encephalitis, specifically states that they preceded in time the outbreak of influenza. This observation may not be conclusive, in view of the fact that epidemic influenza was already spreading over Europe in 1916. On the other hand, it has evidential value as bearing on the numerical relationship of cases of influenza and cases of encephalitis recognized at this period.

It is commonly held that the first cases of lethargic encephalitis arising in France and in England followed the first ones observed by Economo, and that the disease evaded the military blockade existing at the time and penetrated from Austria into the two other countries. This view has been contested by Cruchet, who holds that he encountered a considerable number of such cases in the Bar-le-Duc district in 1916-1917. However this may be, one thing is quite certain; namely, that because of war conditions the disease was discovered in France and England before Economo's writing on the subject became known there. This coincidence in time between the appearance of influenza and the encephalitis is more evident in these two countries than in Vienna; and the same circumstance is true of the United States, where cases of encephalitis were hardly noted before the beginning of 1919.

It looks, therefore, as if a good case, epidemiologically speaking, can be made out for a westward trend or movement of the encephalitis from possibly Austria by way of France and England to the United States

between 1916 and 1919. But it cannot in the same way be determined so easily what relation, if any, exists between the influenza, which also moved westward from Europe to America, and the encephalitis. More clarity may perhaps be brought into this search by a study of earlier as well as of recent records of influenza with which clinical states or maladies supposed to be encephalitis are in some way connected.

In employing this method of examination, I think it well to disregard the highly indefinite instances of a peculiar form of lethargy or coma, called by the name of nona, said to have prevailed in 1890 in northern Italy and countries farther east, of which much has been written. The medical writers of the period could make little that was clear and convincing out of the popular reports of the malady. Likewise the so-called outbreak of "sleeping sickness" in Tübingen in 1712, said to have accompanied an influenza epidemic, rests on a slender and not very substantial historical footing.

Of far greater value are the reports of the cerebral complications of epidemic influenza which have come down to us with the voluminous literature of the pandemic of 1889-1892. In completeness, the records of the clinical features, pathologic effects and bacteriologic findings of those years rival the reports of the present pandemic period. And yet, as will appear, what may be rightly considered as the encephalitic complications of the influenza were on the whole so infrequent as to be regarded as exceptional.

For our purposes it will not be necessary to review the extensive literature of the time on influenza in order to secure the needed information. Two or three names stand out boldly from the 1890 period as providing the facts we are in search of. We need, perhaps, concern ourselves only with the writings of Leichtenstern and Strümpell. Both published their experiences at the time, and in addition Leichtenstern assembled the important knowledge for his monographic article in Nothnagel's Handbook, which appeared in 1896. It should suffice, therefore, to examine what these observant clinicians and pathologists have to say on the encephalitis attending influenza.

I shall deal first with the papers of Strümpell, and for a reason that will appear immediately. He published two papers in 1889 and 1891 describing two cases of encephalitis, probably the same in the two papers, one in a man of 25 and the other of 64. Neither was related to influenza, and, indeed, they had been observed prior to the influenza epidemic of 1889-1892, in the midst of which the second paper was published. The remarkable thing is that in the 1891 paper no new cases are cited and no reference to an unusual prevalence of encephalitis as part of the influenza epidemic is mentioned.

But even more significant is the fact that Strümpell returned to the subject in 1920 and published a paper under the title "Concerning Encephalitis Epidemica," in which he expresses himself unreservedly in favor of the independent etiologic origin of the disease. He discusses the chronological relationship between the encephalitis and influenza, and remarks that the high point of the former was reached in Leipzig in 1920, at a time when the influenza was as good as over. Strümpell then emphasized two further details: first, that it is exceptional for the attack of encephalitis to set in with symptoms characteristic of influenza, and, second and more important, that in the cases of encephalitis following influenza, the anatomic brain lesions are visible to the naked eye and consist of hemorrhagic foci, while in epidemic encephalitis such focal lesions are infrequent, and aside from hyperemia and swelling of the organ as a whole, the brain shows no gross change.

Leichtenstern has described his experiences with encephalitis in three papers, the first being included in his lectures to the physicians of Cologne on epidemic influenza, which appeared in 1890. He extended this part of the subject in the papers of 1892 and 1895.

To Leichtenstern and to Strümpell belong the credit of isolating the symptom complex of an independent encephalitic affection corresponding to the already well known myelitic affection, and to Leichtenstern we owe the inclusion of epidemic influenza as one of the general diseases with which such an encephalitis may be associated. Indeed, he limits the three general diseases leading to encephalitis to epidemic cerebrospinal meningitis, ulcerative endocarditis, and epidemic influenza.

His description of the naked eye appearance of the brain is admirable: "The focal lesions consist of numerous, closely packed, pointlike hemorrhagic areas between which the tissue is softened and of grayish pink. The seat of the lesions is chiefly in the central ganglions and sometimes the cerebral cortex. Emboli are not demonstrable." The microscopic findings consisted of hyperemia, extravasation of red corpuscles, and round cell infiltration of the vascular sheaths.

In the monographic article of 1896, Leichtenstern deals extensively with the many nervous complications of influenza, and remarks that with an epidemic disease which attacks 50 per cent. of the population, it follows easily that many cases of nervous and other affections are attributed to it, although without the influenza they would have arisen either then or at a later time. He adds further that the recent influenza pandemic with its sequels has brought something new into the neurologic field of knowledge; namely, it has shown us that, compared with all other infections, it is distinguished by its neurotoxic propensities. The conclusion he draws is that "the influenza toxins are severe nerve poisons."

These statements refer, however, not to numerous instances of severe and even fatal nervous complications of influenza, but to a wide variety of functional and organic effects which ultimately, although with notable exceptions, subside.

It is significant that the involvements of the cerebral motor nuclei leading to certain paralyses of the eye muscles and palatal and swallowing muscles, muscle groups innervated from a common nuclear region, are spoken of as taking invariably a benign course, owing to which circumstance the observational material was entirely clinical. "One thing is certain: No gross anatomic change exists, as the assumption of a gross lesion contradicts the lack of all severe cerebrobulbar and spinal symptoms of disease."

The failure to discern cases of lethargic and kinetic forms of encephalitis, such as constitute the mass of cases of epidemic encephalitis of our era, cannot be ascribed to want of observational perspicacity. Indeed, Leichtenstern describes a comatose form of influenza and is thereby led to mention similar occurrences as recorded in the history of epidemics of the disease from 1580 up to and including the Tübingen instance of "sleeping sickness" of 1712 and the "nona" of 1890. But he deals summarily with the old stories, and looks on them as depicting various complicating conditions,

and remarks that "it would not occur to any observer of the recent epidemic to apply such names."

The purpose of the preceding presentation has been to define our theme as narrowly as may be. The conclusion we have reached seems clearly to be this: that the pandemic of lethargic encephalitis of the second decade of the twentieth century is quite unprecedented in recorded medical history, and is probably not merely an unusual nervous manifestation of epidemic influenza, but is rather an independent affection, etiologically considered, to be compared in its specific nature with other defined pathologic entities, such as typhoid fever, tuberculosis, poliomyelitis and epidemic meningitis.

ETIOLOGY OF EPIDEMIC INFLUENZA

We are about to pass now to the consideration of another topic; namely, the evidence for the experimental induction of epidemic encephalitis and the deductions based on the experimental results achieved. Before, however, entering on this main topic, a word should be said of present views on the etiology of epidemic influenza, since the meaning of the bacteriologic findings of 1892 has come to be seriously questioned.

In 1918, Pfeiffer's bacillus was generally regarded as the probable microscopic incitant of epidemic influenza, although evidence was accumulating with which to assail its commanding position. Since its discovery in 1892, the number of hemoglobinophilic bacilli isolated had been increasing; it no longer held the field alone. Moreover, the wide application of immunologic tests to the hemoglobinophilic bacilli cultivated from the upper respiratory mucous membrane served to show that in the interepidemic period, influenza bacilli, as Pfeiffer's organism came to be termed, were present there quite frequently. And yet symptomatic influenza was notably absent.

With the influenza explosions of 1917 and 1918, the search for Pfeiffer's bacillus was renewed and extended. The remarkable thing was the inconstancy with which it was found in the respiratory tract. A part of the failure to cultivate it may be attributed to disorganization due to war conditions. But the inconstancy lasted beyond that period, and has been emphasized many times since.

In the meantime, the direction of the bacteriologic investigation of influenza had changed; new methods had opened the field of the minute, filter passing micro-organisms to exploration. The outstanding studies of this period have been made by Olitsky and Gates. They have enriched bacteriology with a series of minute, filter passing, anaerobic bacilli, cultivated from the respiratory mucous membrane, unsuspected in 1892, among which seems to be the microbe of epidemic influenza. At least one species, called *Bacterium pneumosintes,* has been consistently obtained in pure culture from early cases of epidemic influenza, distinguishable by immunologic and other reactions from all the others. This bacillus, when inoculated into rabbits, induces slight lesions of the lungs, predisposing to ordinary bacterial pneumonic infections, and at the same time affects the number of circulating mononuclear leukocytes, in a manner corresponding with the leukopenia of epidemic influenza in man. It is agglutinated also by the blood serum of patients that have recovered from influenza.

But what for our present purposes is more important is the noteworthy fact that the micro-organism exhibits no special affinity for the brain of the rabbit and tends not to incite a fatal encephalitis in that animal when inoculated into the lung or even subdurally.

EVIDENCE FOR EXPERIMENTAL INDUCTION OF EPIDEMIC ENCEPHALITIS

The epidemic encephalitis of 1916-1917 and later presented an opportunity, embraced by many bacteriologists, to study by current methods the nature of the disease. It was supposed that, fortune favoring, the problem of etiology might be solved in this manner.

Although Wiesner isolated a gram-positive, coccus from one of Economo's first cases and with it induced an encephalitis in a monkey through intracerebral inoculation, his finding has since been generally discredited. The coccus can be viewed as a secondary invading or merely contaminating bacterial organism; its power to incite inflammation of the brain on inoculation into animals is common to the class. This lack of specific action is noticeable also in the coccus isolated by Rosenow and by other observers.

The experimental studies which most influenced the bacteriologic investigation of the encephalitis were those of epidemic poliomyelitis. In view of the nature and location of the lesions in the former malady, this fact is quite natural. Hence, very early, emulsions of brain tissue from fatal cases of encephalitis were inoculated by several investigators into the brain of monkeys, and, a little later, into the brain of rabbits. For the most part, nothing consistent came of the experiments with monkeys, although, as will appear presently, a very few positive experiments were reported. Even with rabbits, many otherwise competent and experienced investigators failed to achieve successful transmission of definite disease. The exceptions to this result are somewhat more numerous, and, in the light of subsequent events, significant.

It will be recalled that the study of filtered washings and extracts of the nasopharynx in poliomyelitis led to conclusive results in determining the mode of infection in that disease. A group of workers at Mount Sinai Hospital in New York turned at once to this source of material for the investigation of cases of encephalitis. As early as May 3, 1919, they reported successful infection of monkeys with human brain tissue taken from a fatal case and with washings from the nasopharynx, and they further reported obtaining a filterable "virus" from a fatal human case, which, injected into the monkey, induced hemorrhagic encephalitis. From the last animal a second monkey was stated to have been successfully inoculated. By November, these statements were expanded to include the rabbit as subject to the inoculation, the virus having been passed through four generations in these animals and having been returned successfully to a monkey and then reinoculated into rabbits. It was further stated, in conformity with previous observations in poliomyelitis, that after an intracranial injection, the virus may be recovered from the nasopharynx, and that about 50 per cent. of the rabbits employed for inoculation proved resistant. Finally, in a note to this paper it is added that the cerebrospinal fluid of a fatal human case induced the disease in rabbits and that the experimental disease had been communicated by means of filtrates of the rabbit brain through a series of four animals.

The analogy with poliomyelitis was carried a step further at Mount Sinai Hospital when the cultivation by the Noguchi method of a minute, filtrable organism was announced. The cultures were obtained from the brain of inoculated rabbits, monkeys, from human cere-

brospinal fluid (ten out of twenty specimens tested), and from filtrates of the nasopharyngeal mucosa and its secretion of encephalitis cases. With these cultures, rabbits and monkeys were said to have been inoculated successfully. These cultivation experiments stand alone; they have never in any degree been confirmed except by Thalhimer, previously of the Mount Sinai Hospital staff.[1]

Finally, the Mount Sinai workers have suggested the employment of the rabbit for purposes of diagnosis in dubious cases of epidemic encephalitis. They base the recommendation on success achieved with eleven of fourteen nasopharyngeal washings (78 per cent. positive) and twelve of sixteen cerebrospinal fluids (75 per cent. positive).

I have permitted myself to go into the details of the Mount Sinai results because they are by far the most varied and successful reported, and also because they may be said to have opened the subject of epidemic encephalitis to experimental exploration. However, in the three or four intervening years, new points of view have been secured, which may come to modify fundamentally the concept based on these early studies.

At this juncture it is more enlightening to deal with the confirmations than with the failures to confirm the Mount Sinai experiments. The fact is interesting, and may prove to be significant, that while a few investigators have been able in some degree to repeat these experiments, others have failed to do so. In no instance has the Mount Sinai work in its entirety been confirmed.

The first unmistakably positive result following the successes just referred to came from Levaditi and Harvier, who record that in February, 1920, after several failures, they injected intracerebrally one monkey and two rabbits with an emulsion of brain tissue taken from a fatal case of encephalitis. The monkey remained well, but one rabbit died on the eighth day following the inoculation. With the active brain material, spoken of as virus, taken from this animal, certain characteristics were determined; namely, that it can be maintained by regular rabbit passages, becomes of "fixed" virulence (killing in four, five or six days), and after several (seven?) passages is pathogenic for monkeys and guinea-pigs. Other features, such as filtrability, glycerol resistance, and noncultivation by usual methods, previously noted by Loewe and Strauss, were described. Moreover, inoculability in rabbits by sciatic nerve injection was reported. The symptoms of the infected rabbits are said to be torpor, myoclonia, and meningeal irritation producing rigidity and fleeting convulsions. The brain lesions are stated to consist of mononuclear cell meningitis, and perivascular infiltration and leukocytic invasion of the cerebral cortex.

This initial success was repeated once by Levaditi and his co-workers. Besides this one, among about thirty tests with various materials taken from cases of epidemic encephalitis, one other, namely, an inoculation of rabbits with the nasal secretion derived from a case of epidemic encephalitis, resulted positively. These two successful inoculations have provided the materials for a long series of reports which have been collected into a monograph, to which further reference will be made later.

Another reputed successful transmission, directly to the monkey, is reported by McIntosh and Turnbull. This example can be dealt with briefly, since the brain of a fatal human case was placed entire in 33 per cent. glycerol, where it remained for fourteen days before portions of the much softened organ were removed for the making a Berkefeld filtrate, which was used for intracerebral injection. The inoculated animal had a convulsion six days later, and died nearly two months after the injection. Perivascular lesions were present in the optic thalamus, but their nature must appear problematical. Transmission in series to other monkeys seems not to have been achieved.

A more important series of confirmatory results is supplied by Doerr and his associates. As will appear a little later, Doerr very naturally, because of his earlier studies on experimental herpes, entered on the study of experimental epidemic encephalitis. After many failures to infect rabbits with various materials, Doerr finally, in 1921, recorded a successful inoculation with the cerebrospinal fluid of a fatal human case of encephalitis. In 1922, he reported a second and third successful transmission, both times with central nervous tissues. We will consider very briefly the circumstances surrounding the two last. In the second instance, the cerebrospinal fluid drawn twenty-four hours before the death of the patient did not infect either by subdural or by corneal inoculation. A portion of the medulla, removed at the necropsy without special precautions apparently, was washed through fifteen changes of sterile salt solution, and then inoculated intracerebrally and corneally each into three rabbits. Moreover, a portion of the brain tissue was conserved in glycerol and used for the intracerebral inoculation of four rabbits three weeks later. Of these ten rabbits, one receiving an intracerebral injection of the fresh brain, developed symptoms of encephalitis and succumbed. In the third instance the brain at necropsy showed confluent punctiform hemorrhages and areas of softening of the cortex. Four rabbits were unsuccessfully inoculated with the cerebrospinal fluid; and of six injected intracerebrally with the brain tissue, one succumbed. In this one animal there was a complicating staphylococcus infection extending from the trephine opening. A portion of the brain of the rabbit was kept in glycerol for two weeks and was then employed successfully for further inoculation.

Up to this time, no successful transmission had been reported from a German laboratory. Schnabel, an associate of Doerr's, had in the meantime become attached to the Robert Koch Institute in Berlin, in which he resumed the study of experimental encephalitis, reporting a single successful transmission with cerebrospinal fluid in 1922. Schnabel tested materials—cerebrospinal fluid, saliva, pharyngeal secretion—taken from four clinical cases of epidemic encephalitis in subacute or chronic stages. The cerebrospinal fluids were injected into the brain of rabbits; the other materials were inoculated into the eye. All failed except in the instance of one specimen of saliva, which induced an herpetic keratitis. Schnabel does not, however, regard this as indication of the presence of the virus of encephalitis; he inclines to view it rather as the effect of the herpetic virus. In discarding this doubtful result, Schnabel has shown a commendable critical faculty, too little perhaps

1. Efforts have been made repeatedly at the Rockefeller Institute with human and rabbit materials to confirm these results, but always without success. Recently, at my request, Dr. McCartney restudied the question. Several samples of encephalitis virus, so called, and of herpes virus were available. The interesting fact emerged that under the anaerobic conditions of the Smith-Noguchi cultivation method activity is quickly lost by the virus; it persists longer in a simple medium such as ordinary dextrose broth incubated either aerobically or anaerobically. No evidence of increased activity was ever secured, and the microscope never disclosed bodies of micro-organismal nature.

in evidence in interpreting the results of the experimental study of epidemic encephalitis.

The reputed success recorded by Schnabel was secured with the cerebrospinal fluid of a case diagnosed as acute epidemic encephalitis. The centrifugated sediment was inoculated into six rabbits, two by the corneal and four by the subdural route. Only one of the latter gave a positive result. Seven days after the injection, opisthotonos, restlessness and turnings were noted. Aside from a lesion at the site of inoculation, the midbrain and medulla showed perivascular infiltration and ganglion cell degeneration. This sample of the virus was readily carried forward both by corneal and by cerebral inoculation. In the animals infected by way of the cornea, general or encephalitic symptoms leading to death sometimes occurred. When, however, the rabbits had passed successfully through a corneal infection six or eight weeks before, they proved refractory to inoculation with the herpes virus, just as rabbits surviving corneal inoculation with the virus of herpes proved resistant to the encephalitis virus.

RESULTS OBTAINED

We have now reviewed all the consistent experimental results obtained by those investigators who look either with favor or with conviction on the problem of epidemic encephalitis as in essence solved. I have excepted intentionally another group of investigators who also regard the problem as solved, but whose experimental results are not in full harmony with those we have been considering. To these discordant findings we are to return presently. At this point it will be profitable to restate numerically just what has been attained by the three sets of investigators; namely, those of Mount Sinai Hospital, Levaditi and his co-workers, and Doerr and his associates, on the basis of whose reports present belief in the nature of the inciting agent in epidemic encephalitis mainly rests.

At the outset, we encounter two diametrically opposed attitudes toward the experimental induction of the disease in the most susceptible animal—the rabbit. According to the Mount Sinai workers, with whom Thalhimer is in accord, the experimental disease is so readily provoked that doubtful clinical cases can be resolved by resorting to rabbit inoculation. In respect to this essential point these workers stand alone. To the extent, therefore, that their findings cannot be repeated and confirmed, they cannot be accepted as decisive and final.

All the other investigators take the position that initial infection of the rabbit is very difficult and highly uncertain. Hence several animals—four, five, six—should be inoculated with a given material. Usually, if any one of the number develops symptoms. It is agreed that once the "virus" is implanted successfully on the rabbit, subsequent transmission readily takes place.

It is so probable as virtually to be quite certain that the monkey is refractory to infection, either with original human material or with material derived from the infected rabbit. The very few apparently successful inoculations of the monkey are best explained as accidents—that is, obscure intercurrent effects due to trauma, bacterial infection, or the like. This probability disposes of the reputed transmission to the monkey by McIntosh and Turnbull, even on other grounds unconvincing.[2] However, other laboratory rodents—the guinea-pig, rat and mouse—can be infected from the rabbit. But no other class of laboratory animal—dog, cat, pigeon—has proved susceptible to inoculation.

Critical examination of Levaditi's reports indicates that from among inoculations made with thirty separate sets of specimens derived from cases of epidemic encephalitis, he succeeded in establishing in rabbits one active virus. The second virus which he describes was obtained from nasal secretion, which in the light of present knowledge of the herpes virus must be regarded as suspect. Schnabel under similar circumstances did so regard a positive experimental result. And yet Levaditi has published a large series of papers containing, it is true, often very interesting and important experimental observations, but leading him to wide, fundamental conclusions on and conceptions concerning the nature of epidemic encephalitis, based really on a single unequivocal experimental result.

The results secured by Doerr are somewhat more impressive. Moreover, this investigator has not taken a final position, but has left himself an opening through which to withdraw in the event that the so-called virus of encephalitis should, as knowledge grows, lose its present important standing. As will be recalled, he and his associates isolated three active strains of virus—one from the cerebrospinal fluid, one from brain tissue directly, and one from brain tissue indirectly through a rabbit which had succumbed to an intercurrent staphylococcus infection. Doerr's former associate, Schnabel, also isolated a strain from cerebrospinal fluid.

Aside, therefore, from such unequivocal strains, not now determinable with certainty, as may have been secured by the Mount Sinai Hospital workers, belief in the solution of the etiology of epidemic encephalitis rests on the successful inoculation of a transmissible disease to rabbits with material taken from five cases of clinical epidemic encephalitis—one in France, three in Switzerland, and one in Germany.

(To be continued)

2. This view of the accidental nature of the perivascular and infiltrative lesions in the monkey is upheld by the recent observation of Lucke (Arch. Neurol. & Psychiat. **10**: 212 [Aug.] 1923) of their spontaneous occurrence in monkeys in captivity.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

DIPHTHERIA ANTITOXIN, CONCENTRATED (See New and Nonofficial Remedies, 1923, p. 283).

Cutter Laboratory, Berkeley, Calif.

Diphtheria Antitoxin Globulin.—Also marketed in syringes containing 20,000 units.

VACCINE VIRUS (See New and Nonofficial Remedies, 1923, p. 293).

Cutter Laboratory, Berkeley, Calif.

Glycerinated Vaccine Virus.—Also marketed in packages containing one capillary tube.

GONOCOCCUS VACCINE (See New and Nonofficial Remedies, 1923, p. 304).

Cutter Laboratory, Berkeley, Calif.

Gonococcus Vaccine.—Marketed in vials of 5 Cc. and 20 Cc., each cubic centimeter containing 500 million cocci suspended in physiological solution of sodium chloride with 0.4 per cent. of cresol.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 17, 1923

MEDICAL PUBLICITY

If there is any subject especially prominent in medical discussions today, it is the relationship of the medical profession to the press and to the securing of publicity for scientific medicine. In addresses before medical societies and in the deliberations of national organizations, this matter has had a prominent place. Practically every important medical organization today arranges for publicity as a routine part of its annual session. As a result, it is safe to say that the public is becoming better and better acquainted with medical progress and with the ideals of the medical profession. Nevertheless, there are so many factors involved in the securing of satisfactory publicity that there is chance of a serious recoil as the inevitable result of uncontrolled and unwise publicity. It must be borne in mind that it cannot be said of medicine or of the acts of physicians, as has been said of commercial articles, that any mention is a boost.

Several state medical societies, including particularly Massachusetts and Illinois, have initiated campaigns for undertaking publicity on a large scale. The methods for using these funds have not been, as yet, definitely outlined, and it will be interesting to watch the experiment as undertaken by these two societies. It is presumably the plan in Illinois to establish a central office from which publicity matter will be sent to the newspapers of the state, probably in the form of the usual mimeographed press sheet, such as is sent out by state and city health departments and other sources of health information.

At a recent meeting of the Chicago Medical Society, the managing editor of the Chicago *Journal*, Richard J. Finnegan, spoke on the doctor and the press. He said that within a period of three days twelve hundred pieces of publicity had reached the office of his paper, and this excluded such matter as commercial, theatrical, movies, and welfare propositions. From this vast mass of publicity matter, the editor naturally has to make a choice. It may be taken for granted, therefore, that much of what is distributed represents a complete loss, for it is clear that it is impossible to use all, and that editors must select on the basis of general interest, human interest, news value, or similar considerations. Mr. Finnegan pointed out that there exists an absolute frenzy for publicity, and that editors "are crying for relief against a [this] flood of publicity." It was not his wish to increase the flood, but he did feel that there were many matters in which the medical profession and the newspaper were equally interested, and which should be properly exploited.

In his address, after listing the various organizations which sent forth publicity, he said:

> You will notice that there were no organizations of physicians there. The medical profession was silent. It had tonsillitis or throat paralysis that stilled its voice. Standing on its ancient plane of high ethics, it waited for the reporter to come to it. In twenty-two years in the newspaper field, I do not remember ever having seen any statement or other offering that could be regarded as publicity coming from the American Medical Association. Nor do I recall any from the Chicago Medical Society. Although your profession may be under fire, you do not even resort to self-defense, the first law of nature.

Now, if this is true, the fault lies, not with the medical organizations, but with Mr. Finnegan or with the newspaper which he serves. For many years the Council on Health and Public Instruction issued each week to some 2,500 newspapers a clip sheet of material published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, and any other news of importance which, for the benefit of the public, should be disseminated through the press. When *Hygeia* was established by the American Medical Association, a letter was addressed to every newspaper of any importance in the United States asking its editor whether or not he cared to receive regularly abstract material from this publication, and a copy of the periodical was sent to him so that he might be informed as to its character and contents. Hundreds of newspapers are availing themselves already of the *Hygeia* clip sheet service. The headquarters office of the American Medical Association is maintaining a close contact with such press services as the Associated Press, North American Newspaper Alliance and Science Service, which reach thousands of newspapers. Material on the annual session and on the progress of medicine has been regularly issued through such services, and the press clippings returned to the headquarters office have been the actual proof that the material was being used. Finally, newspapers have been informed that a telegram addressed to the headquarters office concerning any medical news items for publication would receive an immediate reply as to the facts, and whether or not publication was warranted. Many newspapers have availed themselves of this service, to the advantage of scientific medicine.

In this connection, we may quote perhaps from an article by Mr. M. W. Bingay, managing editor

of the Detroit *News,* who recently addressed the Wayne County Medical Society on the same subject:

> In this connection the North American Newspaper Alliance, comprising seventy or more of the leading newspapers of the United States, and of which the Detroit *News* is a member, has made arrangements through THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, not only to secure articles for our public, but to act in an advisory capacity for us.

The faults of medical publicity were also clearly outlined by Mr. Bingay:

> I think there has been in very recent years a great and steady change for the better on the part of the medical profession in taking the public into its confidence; a greater willingness to confide in the individual newspaper man and to work with him. I feel that this attitude on the part of the doctor is due in part to the rapidly improving standards of ethics among the better class newspapers of America. I frankly do not blame doctors—or anybody else for that matter—for refusing to risk their reputations and standing by talking to irresponsible newspaper reporters for yellow newspapers who will garble and twist whatever may be told them to make a sensational story with a complete disregard of the evil effects of this misinformation on the public mind. I freely admit the derelictions in this task of educating the public have not been all on the side of the doctor.
>
> Unfortunately, the average doctor does not have an understanding of newspapers and newspaper practice. He either fears all newspapers and refuses to consider the constructive possibilities, or he loves all newspapers whether they be sensational or sane, just so long as they play his name in big type. I think the honest newspaper man and the honest doctor agree on one thing, and that is in their holy hatred of these "publicity hounds." When you find one of these notoriety seeking doctors and get him into contact with an irresponsible and sensational newspaper man you have a combination that will do more than any other one thing to wreck all this effort to educate the public on the larger social values.

Medical organizations, before entering into campaigns for publicity, will require, not only the best advice and service of professional newspaper men, but controlled, experienced good judgment of well-informed and broad-minded physicians.

THE ETIOLOGY OF PEMPHIGUS

Until recently the word pemphigus has referred to a conglomerate of diseases between which the only common bond of relationship seemed to be the occurrence of bullae. In fact, it is not long since every dermatosis displaying blebs or bullous lesions was likely to be classified as a form of pemphigus. Pusey states that Martius, for example, with scholastic zeal, enumerated ninety-seven varieties. At present the term is limited in its application to a few more clearly defined types of acute and chronic affections of the skin characterized "by the formation of one or several well defined, oval, rounded blebs, elevated or not above the level of the general surface, the lesions developing in successive cycles of eruption, and which may or may not be associated with general symptoms." Such, at least, is Ormsby's characterization of the malady.

Admittedly, little has been definitely ascertained about the etiology of pemphigus. There is no evidence of heredity as a causative factor. A few years ago it was more likely to be described as the outcome of vasomotor disturbance, a trophoneurosis, than in any other category, and a contagious character was denied to it. Organisms have been searched for, and as a rule the attempts to secure cultures have failed. Now and then some micro-organism has been isolated from cases of pemphigus only to meet the charge of being an accidental invader. The bacteriologic findings reported by Eberson [1] for a group of cases studied at the Mayo Clinic afford some justification for the belief that greater progress is in sight. Thus far, seven strains of an organism have been obtained from the blood of as many different patients. In one instance, the organism was isolated from the fluid of bullous lesions as well as from the blood. Positive blood cultures were found repeatedly in all of the cases investigated, and the organisms were morphologically and culturally the same. On further immunologic study they proved to be serologically identical, or related in their agglutination properties when tested with homologous and heterologous serums for cross-agglutinins. Serums from three patients, similarly tested, showed agglutinating power for several of the strains employed. A group of fourteen "controls" was composed of patients with dermatitis herpetiformis, psoriasis, oral and genital lesions, oral aphthous lesions and similar manifestations, but clinically free from pemphigus. Blood cultures were uniformly negative in all. A group of normal controls also proved negative.

The organism discovered and isolated by Eberson, which appears to be morphologically, culturally and immunologically the same in every case, has been named provisionally *Bacterium pemphigi.* It is gram-positive, anaerobic, nonmotile, ovoid or coccoid, resembling a streptobacillus in cetrain respects, is pathogenic for guinea-pigs and rabbits, and possesses definite toxic properties. Lesions have been produced experimentally with it in some instances; but Eberson frankly admits that the most desired link in the chain of Koch's postulates, that of experimental production of typical lesions, has not been observed regularly enough and in a manner sufficiently convincing to him. It is realized, however, that animals, especially of lower species, may not be adapted to the growth of a newly isolated organism; that certain phases, such as fixed virulence, cultural requirements and mode of inoculation, have yet to be worked out; and, finally, that there are a number of definite bacterial diseases of man which cannot be reproduced experimentally in animals. It must be admitted that a study of the literature of the subject discloses the description of alleged etiologic micro-organisms as numerous as the different observers.

1. Eberson, Frederick: Studies on the Etiology of Pemphigus, I. Bacteriologic Findings in a Group of Cases of Pemphigus, Arch. Dermat. & Syph. **8**: 204 (Aug.) 1923.

Cocci have been prominent in these efforts, but of course they are common on the skin. Secondary invasion by unconcerned bacteria is always a possibility to be reckoned with under such circumstances. It is premature to claim a final solution of a puzzling problem. Eberson seems, however, to have made a promising beginning on the desired course.

THE PINEAL BODY

Even the most enthusiastic endocrinologist must still admit that the secrets of the physiologic functions of the pineal body, or epiphysis cerebri, have not yet been clearly revealed. The earlier studies on the effects of extracts of the pineal substance were frankly disappointing. There was nothing essentially significant in the fact that a fall of blood pressure could be produced by intravenous injections; for depressor substances seem to be widely distributed, and the fact that a tissue yields potent substances to the chemist's manipulation by no means proves that normally they have a physiologic function or pathologic significance. The pineal body seems to reach its greatest development in man at about the seventh year. After this, and particularly after puberty, it undergoes a process of involution during which the glandular structure gradually disappears and its place is taken by fibrous tissue. This fact suggests, even if in an indirect way, that the pineal may have some relation to the developmental changes that end in the sexual maturity of the individual.

Pinealectomy has been practiced in an experimental way by several surgical investigators, notably by Dandy [1] and Horrax [2] in this country. The former, as did Biedl before him, secured no decisive effects on dogs; the latter has stated that extirpation of the pineal body in guinea-pigs causes an accelerated development of the generative organs of the male. It is said to be manifested before maturity by a relative increase in size and weight both of testes and of seminal vesicles over control animals.

Poultry lends itself particularly well to such studies, because the secondary sexual characters are exhibited strikingly in differences of form and plumage in the male. A recent study of pinealectomy by Izawa [3] on cocks at the Okayama Medical School in Japan has confirmed earlier similar work in demonstrating that pinealectomized young males of this species grow more rapidly than the controls, begin to crow prematurely, and show an earlier development of the comb and testes. Pinealectomized young hens also reveal an earlier development of the ovary and the fallopian tube. The other endocrine organs have not revealed any noteworthy changes incident to the operative intervention.

1. Dandy, W. E.: Extirpation of the Pineal Body, J. Exper. Med. **22**: 132, 1915.
2. Horrax, Gilbert: Studies on the Pineal Gland, Arch. Int. Med. **17**: 607 (May) 1916.
3. Izawa, Y.: A Contribution to the Physiology of the Pineal Body, Am. J. M. Sc. **166**: 185 (Aug.) 1923.

There are corroboratory evidences, though few in number, from human clinical experience which are somewhat in harmony with the assumption that the pineal body may exercise its function in repressing premature development of the organs of generation in the female as well as in the male. The subject deserves careful consideration at the hands of those who may have opportunities to make more extensive necropsy observations. Incidentally, the exhibition of retarding influences, if they prove to be such, in connection with important biologic activities, affords a further illustration of the little appreciated rôle of inhibition in physiology—a phenomenon to which Meltzer directed attention in a forceful way. Though it is rarely suspected, the organism has more than one brake to curb the speed of its physiologic machinery.

ERYTHREMIA

Although less than a quarter of a century has elapsed since the malady known as erythremia, polycythemia rubra vera or Vasquez-Osler disease attained prominence as a medical entity, it can no longer be regarded as an extremely rare condition. The larger clinics of this country can now furnish the case histories of a considerable number of patients for whom the diagnosis has been clearly established. The unfavorable prognosis and course of the disease place a premium on accurate information that may become the basis of progress in the understanding of this baffling condition. Very early, the assumption of splenic tuberculosis as the foremost etiologic factor was negated, and grounds were uncovered for believing that erythremia is due to a primary hyperplasia of the erythroblastic bone marrow.

The increased activity of bone marrow is reflected in the peripheral blood, as Minot and Buckman [1] of Harvard have pointed out in an elaborate study of numerous cases, by increases of all three formed elements originating in it—erythrocytes, leukocytes and platelets. It is evidenced likewise by the appearance of abnormal and immature forms of all three elements, which may occur in greatly augmented numbers. The blood picture may then resemble that of myelogenous leukemia; in fact, the Harvard clinicians believe that the two diseases are intimately related and that both may be of neoplastic nature. They have ascertained at the Massachusetts General Hospital that the basal metabolism is often increased in erythremia, a result which, they believe, is affiliated with the augmented activity of blood formation, as it is in myelogenous leukemia.

Another series of contributions by Brown and Griffin [2] from the Mayo Clinic throws new light on

1. Minot, G. R., and Buckman, T. E.: Erythremia (Polycythemia Rubra Vera), Am. J. M. Sc. **166**: 469 (Oct.) 1923.
2. Brown, G. E., and Griffin, H. Z.: Studies of Capillaries and Blood Volume in Polycythemia Vera, Am. J. M. Sc. **166**: 489 (Oct.) 1923.

some of the vascular conditions in erythremia. They have observed a definite increase in the cell volume and the total blood volume—a fact that renders the nail-fold capillaries more readily visible by the applications of Lombard's method of study. According to Brown and Griffin, the accommodation of the blood vessels to the increased blood volume of polycythemia probably occurs first in the large veins and in the more vascular organs, especially the spleen. As the condition progresses, the smaller veins participate in the engorgement. This can be observed in the peripheral and the retinal veins. As the condition becomes more advanced, the capillaries of the skin and of the mucous membranes share in the engorgement, which is macroscopically more apparent in the latter tissue. Probably, as Brown and Griffin assert, many of the symptoms of polycythemia are not produced until the engorgement has progressed to the smallest vessels. The more serious vascular accidents occurring in the disease are late manifestations.

Current Comment

SOME EFFECTS OF THERAPEUTIC APPLICATION OF EXTERNAL HEAT

The scientific study of therapy at present is turning away, to some extent, from the rather exclusive consideration that drugs have received in the last few decades. Physical therapy and the application of various environment factors, such as sunlight and fresh air may involve, are receiving attention from new points of view. Their reputation as remedial agencies is being subjected to careful and critical scrutiny. Serious attempts are being made to disentangle fact from fancy in the allegations of climatotherapy in its varied aspects. It is time that this should be so. Long empiric experience indicates an undoubted modicum of truth in many of the reputed claims. It should be established on a firm basis that permits of rational application rather than guesswork and hit-or-miss schemes applied to humankind. Furthermore, not until the possibilities and limitations of physical therapy are clearly recognized can the faker be attacked with propriety and success. These comments have been elicited by contemplation of the recent researches at the Presbyterian Hospital in Philadelphia on the effects of external application of heat, a therapeutic measure that has long found favor in the management of certain types of diseases. The work of Pemberton [1] and his associates there has demonstrated that, as a result of external heat such as is represented by "electric bakes," the blood becomes more alkaline; there is a fall in its total content of carbon dioxid, and a slight rise in alkali reserve. These changes in the acid-base equilibrium of the blood cause compensatory changes in the urine and sweat. The loss of carbon dioxid by the body during the heat experiments is undoubtedly of prime importance as a factor that leads to a greater alkalinity of the blood. The increased blood flow during a bake presumably favors a more ready gas exchange between tissues and blood. The Philadelphia clinicians regard it as rather surprising that changes in the acid-base equilibrium of the blood of the magnitude here reported should follow what is considered mild exposure to heat. It suggests that indiscriminate and extreme employment of heat in therapy may lead to serious disturbances. Perhaps, as they add, there is here afforded some explanation for the baneful effects not infrequently experienced by patients at uncritical hands. Arthritic patients, in particular, have been the subjects of all sorts of thermal therapy. So far as the latest observations go, there is no indication that the response to heat by the arthritic patient is different from that of other persons, at least so far as it concerns acid-base equilibrium of the blood.

1. Cajori, F. A.: Crouter, C. Y., and Pemberton, Ralph: The Effect of Therapeutic Application of External Heat on the Acid-Base Equilibrium of the Body, J. Biol Chem. **57**: 217 (Aug.) 1923.

THE COMMON COLD

The etiologic agent in the production of the common cold has been singularly elusive. The disease—if it deserves this imposing designation—is a mild one in man. There are few, if any, significant constitutional reactions from it, and consequently it is not easy to ascertain whether the malady has been transmitted in animal experimentation. For this reason, attempts to infect animals with the common cold of man have borne little fruit of the nature of positive achievement. Efforts to transmit the possible incitant directly to human subjects, though few, have been somewhat more promising. The latest of such trials, conducted by Olitsky and McCartney [1] at the Rockefeller Institute for Medical Research, indicate that the incitant is a filtrable agent obtainable from the nasopharyngeal washings of patients during the very early hours of the onset of the symptoms. At least, with such filtrates the symptoms of common cold have been transmitted to a number of healthy persons. Transmission failed in cases in which the "colds" were caused by exposure to the elements, or chilling of the body, and not by definite contact with other cases of common colds. Evidently there are colds and colds; but it will be an unmixed blessing when the cause of any brand of these commonest sources of malaise can be captured, properly indicted, and then promptly executed.

RHYTHMIC MOVEMENTS AND TONUS IN THE INTESTINE

The intestine is the seat of a variety of muscular manifestations profoundly involved in our well-being and comfort, yet so complex that it has not been easy to relegate each to its determining agency. The peristaltic activities of the bowel are perhaps the most familiar. In addition to this type of movement, in the genesis of which the presence of food masses within the intestine plays a prominent part, there are rhythmic or pendular contractions that do not definitely drive the contents onward. A third feature is the varying state

1. Olitsky, P. K., and McCartney, J. E.: Studies on the Nasopharyngeal Secretions from Patients with Common Colds, J. Exper. Med. **38**: 427 (Oct.) 1923.

of tonus of the enteric musculature. Proper intestinal function often depends on a harmonious interrelation of these different contractile activities. Hyperfunction or inhibition alike may result in a diversity of results: malaise, intense pain or other symptoms of distress. Efforts at rational therapy must be based on a precise knowledge of the innervation and irritability of the structures involved. Gross and Clark [1] of University College, London, have recently demonstrated that, although lack of oxygen does not affect the pendulum movements of the intestine for a long time, it does cause an immediate loss of tonus in the isolated intestine. The effect produced appears to be somewhat peculiar to this tissue. According to these English pharmacologists, there are in the isolated intestine two independent mechanisms, one regulating the pendulum movements and the other regulating the tonus. The latter mechanism is intensely sensitive to the action of epinephrin and pilocarpin, for these drugs alter tonus in concentrations far lower than those required to alter pendulum movements. Lack of oxygen paralyzes the tonus regulation mechanism rapidly, and hence renders the intestine insensitive to low concentrations of these drugs. It remains responsive to direct muscle stimulants, however. Gross and Clark explain the effects on the assumption that the tonus of the intestine is maintained by the nerve cells in Auerbach's plexus; for nerve cells are known to be very sensitive to oxygen lack. The rhythmic movements, on the other hand, appear to be myogenic in origin.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Society News.—At a meeting of the Jefferson County Medical Society, Birmingham, October 22, Dr. Frederick C. Banting, Toronto, Canada, the guest of honor, spoke on his work on insulin. Dr. Seale Harris, Birmingham, presided, and Dr. William W. Harper, Selma, president of the Medical Society of the State of Alabama, gave an address.

ARKANSAS

Survey of Physicians' Credentials.—Governor McRae, October 29, gave his approval to a movement initiated by the Pulaski County Medical Society to have surveyed all credentials and medical licenses issued in Arkansas within the last ten years, as a result of the recent expose of fake diplomas by the St. Louis *Star*.

CALIFORNIA

Osteopathic Board Declared Valid.—In a decision recently handed down by the Supreme Court it was ruled that the initiative act creating the board of osteopathic examiners was valid and that the board has full control over its own special funds.

Permits Refused to Chiropractors.—On October 16, the state board of medical examiners refused to permit three graduates of the Western College of Chiropractors to take the state examination for a drugless healer license on the ground that they did not present a diploma from a school approved by the board. The board announced that until the Western College of Chiropractic changes its name, issues drugless therapy diplomas and is approved by the board, its graduates cannot be examined by the medical board. The school, to remedy the situation, has amended its by-laws so as to permit granting degrees in drugless therapy. Attorney General Webb rendered an opinion to the board of medical examiners holding that drugless healer licenses could be granted by the board to graduates of the chiropractic schools if such schools graduated the students as drugless practitioners rather than as chiropractors.

1. Gross, L., and Clark, A. J.: The Influence of Oxygen Supply on the Response of the Isolated Intestine to Drugs, J. Physiol. 57: 457 (Aug. 16) 1923.

COLORADO

Western Surgical Association.—The annual meeting of the Western Surgical Association will be held at Colorado Springs, December 6-8, with headquarters at the Antlers Hotel.

CONNECTICUT

Society News.—Dr. William A. Pusey, Chicago, President-Elect of the American Medical Association, was the principal speaker at a meeting of the New Haven Medical Society, October 27. Following his address, Dr. Pusey urged that the society do all in its power to aid in exposing impostors practicing in Connecticut as a result of the Missouri "diploma mill."

State Fires on Quacks.—Governor Templeton, October 30, instructed state prosecuting officials to institute legal proceedings against 142 physicians licensed to practice medicine in Connecticut who claim to be graduates of the Kansas City College of Medicine and Surgery and the College of Physicians and Surgeons, St. Louis. The governor called to his assistance the attorney general, the county prosecuting attorney, the state board of health and the state constabulary. The "graduates" will be accused of obtaining licenses to practice medicine through fraud, and will be ordered to show cause why their licenses should not be revoked. The governor will ask the Connecticut Eclectic Medical Examining Board, which examined the 142 candidates and recommended that the state board of health issue licenses to them, to explain why it approved institutions as "eclectic" when the schools in question teach "regular" medicine (The Journal, November 10, pages 1614 and 1631). George E. Sutcliffe, Unionville, confessed to State's Attorney Alcorn that he bought credentials from the Missouri "diploma mill" through which he obtained a license to practice medicine in Connecticut.

GEORGIA

Clinic News.—The Savannah Valley Clinic, Augusta, has assumed full control of the Margaret Wright Hospital. The clinic is now located in the hospital.——A new clinic for underdeveloped white children has been opened at Albany under the auspices of the Kiwanis Club, which rented the quarters and furnished the equipment. Albany physicians and dentists have agreed to give their services free to children whose parents cannot afford to pay.——Dr. Benjamin B. Steedly, Union, S. C., has been appointed director of the Steiner Memorial Cancer Clinic in Atlanta. This clinic is under construction on the Grady Hospital grounds. Mr. Steiner left $500,000 for this purpose.——Drs. Maury M. Stapler and Henry T. Harriss, Macon, have opened a home and school for the deaf in that city.

ILLINOIS

Personal.—Dr. Harry C. Worthington, medical director of the Hillcrest Sanatorium, Quincy, since its establishment, has resigned.——Drs. Lyston D. Howe and Eley E. Perisho, both of Streator, were elected president and secretary-treasurer, respectively, of the La Salle County Medical Society at the annual meeting in Streator, October 30.

State Tuberculosis Association.—At the fourteenth annual meeting of the Illinois Tuberculosis Association at Springfield, October 30-31, Dr. James W. Pettit, Ottawa, was elected president to succeed Dr. George T. Palmer, Springfield, president of the association for the last ten years. Vice presidents elected were: Drs. Lewis C. Taylor, Springfield, Cecil M. Jack, Decatur, and Eva M. Wilson, Manhattan. Dr. Palmer was presented with a loving cup.

Chicago

Society News.—A symposium on brain injuries was given by the Chicago Medical Society, November 14. Dr. William Sharpe, New York, spoke on brain injuries of the new-born. A dinner was given in honor of Dr. Sharpe at the Hamilton Club, preceding the meeting.

New Hospital for Crippled Children.—A drive for the purse of collecting $500,000 for the erection of a new hospital destitute and crippled children at Washington Boulevard d Paulina Street has been launched by the board of directs of the Home for Destitute Crippled Children. Three s have been purchased for this purpose and several donans have already been received.

Chicago Tuberculosis Institute.—The institute is conducta series of public health lectures, designed primarily for rses in training, but of interest to physicians and the public. e lectures are repeated at three different places—north le, at the Grant Hospital; south side, at the Mercy Hosal; the west side at Congress Hall of the Illinois aining School. Some of the speakers are, Drs. Rachelle Yarros, Josephine E. Young, Orville W. McMichael and han Allen Gray. Mr. T. B. Kidner, sanatorium expert for National Tuberculosis Association, New York, addressed institute, November 3.

LOUISIANA

Insulin Course at Touro.—Touro Infirmary, New Orleans, nounces a series of three-day courses for physicians on the e of insulin, with the aid of the John D. Rockefeller, Jr., sulin Fund. The number to be admitted to each course will limited only by the facilities. The first course, held vember 5-7, was especially for physicians of the city; three ner courses to be given this year will be open to members the profession throughout the southern states, and will be e.

The Carville Leprosarium.—The $650,000 fund recently propriated by Congress for the construction of additional ildings at Carville Leprosarium is sufficient only to erect venteen cottages housing twelve lepers each, a dining room d kitchen building, and additional power plants, water pply and sewage disposal units. The infirmary needed for eatment of the blind and crippled must await further appropiations. There are 174 lepers at Carville, every bed being led. The patients are from nearly every state in the Union. he new buildings authorized will add 204 beds which will occupied at once. There is a waiting list of more than 0 patients. There are also other lepers in the United States om it is desired to segregate as soon as facilities can be ovided. One-fourth of the inmates at Carville are totally ind.

MARYLAND

Prosecution of Child Labor Law Violators.—Warrants for e arrest of employers charged with violating the state ild labor laws and the law limiting the working day of omen to eight hours have been asked of police magistrates the state department of labor and statistics, Dr. J. Knox sley, commissioner. This department has been searching t violators of the labor laws for six months. The inspeers have discovered widespread disregard of the laws. The olations include employing children under the legal age of years and between the ages of 14 and 16 years without rmits; and having children and women work more than ght hours a day.

Dean of Johns Hopkins Medical School.—Dr. Lewis Hill eed has been named by the trustees of the university dean of the medical school. Dr. Weed succeeds Dr. J. hitridge Williams, who resigned to devote his time to the omen's Clinic. Dr. Weed joined the faculty of the Johns opkins Medical School in 1914 as instructor in anatomy. e was appointed associate professor in anatomy in 1915 and as named professor of anatomy in 1919. During the war, r. Weed was a captain in the medical corps assigned to ity as military director of the Army Neuro-Surgical Laborary at the medical school. Dr. Weed graduated from Yale niversity in 1908 and received his degree of doctor of medine at the Johns Hopkins Hospital in 1912. He was then llow-in-charge of the Laboratory of Surgical Research, arvard Medical School in 1912-1913, and an Arthur Tracy abot fellow of the same school in 1913-1914. He will be e fourth dean of the Johns Hopkins Medical School since opening thirty years ago, his predecessors being Drs. J. hitney Williams, William H. Howell and William H. elch.

Personal.—Dr. Charles V. Akin, Jr., has been appointed ad of the child hygiene department, Hagerstown, to succeed r. Richard B. Norment, Jr., U. S. Public Health Service, ho has been ordered to report for duty at the Marine Hostal, Stapleton, N. Y., of which he will assume charge.—Dr. Guy L. Hunner, associate professor of clinical gynecology, Johns Hopkins University Medical School, addressed the Will (Ill.) County Medical Society at Joliet, October 24.——Drs. Alvin P. Stauffer and William A. Gordon, both of Hagerstown, were elected president and secretary, respectively, of the Washington County Medical Society, October 4.——Dr. J. T. Geraghty, associate professor of clinical urology, Johns Hopkins University Medical School, Baltimore, will give an illustrated lecture on "The Value of Radium and Deep Roentgen Ray in the Treatment of Malignant Disease of the Bladder and Prostate" before the Summit County Medical Society, Akron, Ohio, November 20.——Dr. William H. Welch, dean of the School of Hygiene and Public Health of the Johns Hopkins University, was elected president of the National Committee for Mental Hygiene at the annual meeting held on November 8 in New York.

MASSACHUSETTS

Caduceus for Physicians Only.—At the last annual meeting of the Massachusetts Medical Society it was voted that the committee on state and national legislation be directed to draft a bill and present it to the next legislature, which shall provide that no person other than a registered physician shall display the caduceus on an automobile in Massachusetts. Dr. James S. Stone moved, and it was voted, that the fellows of the state society adopt as the official emblem for use on their automobiles the caduceus, as supplied by the American Medical Association.

The Thorndike Memorial.—The Thorndike Memorial Laboratory of the Boston City Hospital was opened, November 15. Drs. Henry S. Rowen, Boston, William J. Mayo, Rochester, Minn., and Townsend W. Thorndike, Boston, and the mayor, gave addresses. The building was made possible by the bequest of the late Mr. George L. Thorndike, Boston. Selected groups of patients from the city hospital will be taken to the Thorndike laboratory for special investigation. The members of the staff at present are: Drs. Francis W. Peabody, director; Joseph T. Wearn, Thomas E. Buckman, Robert N. Nye, Henry Jackson, Jr., G. O. Brown, Percy B. Davidson, Elmer H. Heath, Donald S. King and Gulli Lindh Muller.

MINNESOTA

Hospital News.—The Allen Memorial Hospital of Carlton College, Northfield, was formally opened in October.——The Maternity Hospital, Minneapolis, is offering to women a home-maker's course in hygiene.——The Danes of St. Paul and Minneapolis have organized for the purpose of building a home for the aged which will cost $28,000. A state-wide drive has been started and about $13,000 has already been contributed.

MISSOURI

Society News.—Dr. Ray Lyman Wilbur, dean of Leland Stanford University Medical School, San Francisco, and President of the American Medical Association, was the guest of honor at the fall banquet of the Jackson County Medical Society, Kansas City, November 13.

Funds Available to Chase Quacks.—In an opinion handed down, October 19, by the attorney general it was stated that the state board of health may use its $36,000 contingent fund to employ experts to survey medical colleges and physicians' licenses to ascertain if unqualified persons are practicing medicine in Missouri, following the recent "diploma mill" exposure. Dr. North, president of the state board of health, stated that it is planned to investigate the status of each of the 5,827 physicians in the state.

NEVADA

County Hospital Bill Passed.—The state legislature has passed a bill to enable counties to establish and maintain public hospitals, levy a tax and issue bonds therefor, elect hospital trustees, maintain a training school for nurses, and provide suitable means for the care of disabled persons (Ch. 172, Laws 1923).

NEW HAMPSHIRE

Claremont Hospital.—With the bequest of George N. Stowell of $90,000 and $77,000 raised by subscription, a hospital was built in Claremont. It was opened to the public, October 31. A feature is the Veterans' Memorial Wing dedicated to the memory of Claremont's citizens who fought in the World War.

NEW JERSEY

Hospital Opened.—The new building of the Hackensack Hospital, which will accommodate 160 patients, was opened for public inspection, September 15. It is six stories high and cost $900,000. This gives the hospital a total capacity of 285 beds.

County Society Notes.—Prof. Edward J. G. Beardsley, Jefferson Medical College of Philadelphia, delivered the principal address at the annual meeting of the Gloucester County Medical Society, recently.——At the one hundred and eighth annual meeting of the Essex County Medical Society, October 2, at Newark, Dr. Mefford Runyon was elected president. ——Drs. Charles B. P. Kelley and William L. Yeaton, Jr., were elected president and secretary, respectively, of the Hudson County Medical Society at the annual session, October 2, at Jersey City.——The annual meeting of the Passaic County Medical Society was held in Paterson, October 11. Dr. John N. Ryan, Passaic, was elected president and Dr. Louis G. Shapiro, Paterson, secretary.

NEW YORK

Poliomyelitis Serum for Distribution.—The state health department announces that a limited quantity of human immune serum has been prepared by the department for distribution to physicians making request by telephone to the Division of Laboratories and Research, Albany. It should be used only in cases in which it has been possible to make a reasonably certain diagnosis of poliomyelitis in the preparalytic stage. Instructions for its use are sent with the serum.

Society Entertains Foreign Delegates.—The Albany County Medical Society gave a dinner, October 29, in honor of the state health commissioner, Dr. Matthias Nicoll, Jr., and of seven members of the Third Interchange of Health Officers arranged by the public health division of the League of Nations. Dr. Nelson K. Fromm, president of the local society, presided. The party included, Dr. Hushoff Pol, The Hague; Dr. Batka, Poland; Dr. Stoneski, Russia; Dr. Orvananes, Mexico; Dr. Marzeeff, Ukraine; Dr. Cora Mayers, Chile, and Dr. Sannemann, Germany.

Syracuse Health Surveys.—An industrial health survey under the direction of the Milbank Fund, was considered November 5, at Syracuse by the chamber of commerce and the manufacturers' association. Dr. Wade Wright of the department of industrial hygiene at the Medical School of Harvard University, Boston, will direct the survey which will cover all branches of industry. Dr. Haven Emerson of Columbia University, New York City, November 8, outlined a proposed survey of the city concerned solely with social hygiene. Dr. Walter H. Brown, National Child Health Association, will later confer with local representatives concerning a child hygiene survey.

Journal May Be Weekly During Legislative Session.—It has been officially announced that the *New York State Medical Journal*, the official organ of the Medical Society of the State of New York, will appear as a weekly or bimonthly publication, as events may dictate, during the months of January, February and March, and possibly April. By this course it will be possible to keep physicians informed on legislative matters of interest to the profession during the period when the legislature is in session. The plans do not, however, call for weekly issues of the journal during the late spring and summer months. Dr. Nathan B. Van Etten will continue to serve as editor.

New York City

Anniversary Lecture.—The anniversary discourse of the New York Academy of Medicine was given, November 1, by Dr. William S. Thayer, Johns Hopkins University Medical School, Baltimore, his subject being "Studies on Acute Bacterial Endocarditis." The program was arranged in cooperation with the Association for the Prevention and Relief of Heart Disease.

Quacks and the Press.—The committee on civic policy of the Medical Society of the County of New York announces that it will welcome and appreciate any information from members of the medical profession regarding definite and specific cases of exploitation on the part of medical quacks advertising in the lay press. All information will be treated as strictly confidential.

National Committee for Mental Hygiene.—The annual meeting of the National Committee for Mental Hygiene was held at the Hotel Pennsylvania, November 7. Plans for the first international congress of mental hygiene were discussed. Dr. Walter B. James, New York, president for the last fi years, presided. The following officers were elected: pres dent, Dr. William H. Welch, Baltimore; vice presidents, D Charles W. Eliot, Cambridge, Mass., and Dr. Bernard Sach New York; secretary, Clifford W. Beers; treasurer, Otto Bannard.

Hospital News.—The Williamsburg Hospital, Brooklyn, h closed its doors and will no longer operate as a hospital.— The staff conferences at the Memorial Hospital, resume September 27, are held Thursday mornings at 10 o'clock.— Alterations will be made to St. Mary's Free Hospital for Chi dren, at a cost of $75,000.——The board of directors of t Wyckhoff Heights Hospital Society announces that the can paign for $350,000 for an additional wing to the present build ing has been renewed. The addition will be a five story win erected on the vacant plot on St. Nicholas Avenue and Stock holm Street.——The property at 371 Central Park Wes northwest corner of Ninety-Seventh Street, built for an occupied by the Pasteur Institute, has been sold. On expira tion of the present lease, the building will be remodeled fo use as a private sanatorium for surgical patients.——Plan have been completed for the new $90,000 hospital at Brookly to be known as the Bensonhurst Maternity Hospital.——A ne seventy-bed hospital, to be known as Hunt's Point Hospita will be erected in New York City at an estimated cost o $250,000.——The Jamaica Hospital campaign committee, whic is conducting the drive for $250,000 for the new Jamaica Hos pital, announces that the Jamaica Lodge of Masons has pur chased a six bed ward in the new hospital for $11,500.—— department, where a 300,000 volt roentgen-ray apparatus wil be installed, exclusively for the study and treatment of cance will be opened at St. Mary's Hospital, Brooklyn, it has bee announced.

NORTH CAROLINA

Tuberculosis Conference.—The third annual meeting of th North Carolina Conference on Tuberculosis was held i Durham, October 30-31. Dr. J. Vance McGougan, Fayette ville, president of the state medical society, presided at th opening session, October 30. Dr. Linsley R. Williams, New York City, managing director of the National Tuberculosis Association, gave an address.

OHIO

Health Commissioners' Meeting.—The fourth annual con ference of county and city health commissioners of the Ohi Health Department will be held in Columbus, November 19 Surg. Gen. Hugh S. Cumming, Washington, D. C., Dr. Alle W. Freeman, Johns Hopkins University, Baltimore; Dr. Joseph S. Rardin, president of the Ohio State Medical Asso ciation, and Dr. Millard F. Hussey, Sidney, will speak.

Personal.—Dr. Frank M. Sayre was elected health commissioner of Canton to succeed Dr. William K. Murray, resigned, October 5.——Dr. Arthur C. Bauer, Cincinnati, former coroner of Hamilton County, has been appointed medical director of the Miwogee Springs Hotel, Milan, Ind.——Dr. James G. Blower, Akron, won the cup presented by President C. T. Hill at the annual golf tournament of the Summit County Medical Society, at Akron, October 31.——Dr. Charles Armstrong, U. S. Public Health Service, formerly of Alliance, has been appointed one of a group of American physicians to study conditions abroad under the reciprocal exchange recently approved at the health conference of the League of Nations. Dr. Armstrong, who sailed in September, will maintain headquarters at Brussels and Copenhagen.——Dr. George W. Crile, Cleveland, has been decorated with the cross of the Legion of Honor by the French government for services with the Lakeside Hospital Unit during the World War. The ceremony took place at Lakeside Hospital, October 8.——James Sprigg Wilson, colonel, U. S. Army, retired, has been appointed professor in the department of public health and sanitation, Ohio State University College of Medicine, Columbus.——Dr. George W. Rhonehouse, Maumee, has been elected president of the Lucas County Board of Health to succeed Dr. Fred F. Devore, Whitehouse, who has been appointed county health commissioner.

OREGON

Hospital Opened.—The new Salem Hospital at Salem was formally opened to the public November 1. Several rooms have been equipped as memorials. A nurses' training school will operate in connection with the institution.

Personal.—Dr. Dick R. Ross, until recently connected with the state hospital, Salem, has been appointed school physician to succeed Dr. James O. Matthis, resigned.——Dr. Otto L.

her of the Northern State Hospital, Sedro-Woolley, Wash., s been added to the staff of the Eastern Oregon State Hos- al, Pendleton.——Dr. John A. Burkett, Coquille, has been pointed health officer for Coos County.——Dr. Earl Smith, roner of Multnomah County, has been reelected president the state coroners' association.

PENNSYLVANIA

Cambria County Society Banquet.—The annual banquet of e Cambria County Medical Society was held at Johnstown, ovember 8. Dr. Charles H. Miner, state secretary of health, as the principal speaker and guest of honor.

Tuberculosis Day.—The governor, Gifford Pinchot, has signated December 2 as Tuberculosis Day to be observed the churches, and December 7 as Tuberculosis Day to observed in the schools, and has approved the sale Christmas Seals for the period of November 30 to ecember 25.

Conferences on Pneumonia.—The health director of Pitts- rgh has arranged for conferences with scientists and med- al authorities in regard to pneumonia in Pittsburgh. These nferences will be preliminary to an investigation to deter- ine if there is anything peculiar in local conditions to which e high pneumonia rate can be attributed.

Personal.—Dr. William S. Bertolet, Reading, has been pointed medical director of the Reading Hospital.——Dr. ewis H. Taylor, Wilkesbarre, was recently appointed a ember of the State Health Advisory Board.——Drs. Morris Van Horn, Charles W. Tressler and Peter H. Jamison ave been made deputy health officers of Luzerne County.—— r. John A. Fell has resigned from the Doylestown Board Health following twenty-nine years of service.

License Bureau News.—A notice from the department of blic instruction of the Bureau of Medical Education and licensure, states that the licenses of Drs. Albert C. Speer, ittsburgh, and Simeon C. Truby, Uniontown, which had en suspended, were restored at a meeting of the board, ctober 18.——The licenses to practice medicine of Drs. Valter C. Brady, Allentown, and James B. Graff, Portage, ave been suspended by the board for violation of the arrison Narcotic Law.——The next state board examination Pennsylvania will be held in Philadelphia, Jan. 29 to eb. 2, 1924.

Philadelphia

Reception to Visiting Health Officers.—The mayor, Hamp- n Moore, and the director of the health department, Dr. lair Spencer, were hosts at a reception at the Ritz-Carlton otel, November 16, in honor of the foreign health officers ho comprise the Third Interchange of Health Officers rranged by the League of Nations.

Health Information Bureau Opened.—The Philadelphia ealth Council and Tuberculosis Committee has established n information bureau on South Eighteenth Street for the enefit of those who face problems of sickness. This new ervice directs inquirers to the proper place or organization hich will attend to their needs and makes the necessary ontacts.

Jewish Fellowship for Woman's College.—Following the unding of an Italian fellowship (THE JOURNAL, November , p. 1531), the Jewish women's organizations of the city have laced at the disposal of the Woman's Medical College of ennsylvania, Philadelphia, $5,000 for a scholarship, which ill be known as the Esther Baum Medical Scholarship, in emory of the late Miss Baum. It will be awarded annually a Jewish woman student.

Loving Cup for Retiring Chief.—Dr. Edward E. Mont- omery, who has just retired from the staff of St. Joseph's ospital, where he served thirty-two years as a member and wenty-four years as president of the staff, was the guest of onor at an entertainment at the hospital, November 8, prior his departure for South America the following day. A ilver loving cup was presented to him by the members of ne staff. Dr. George Morley Marshall has been made presi- ent of the staff to succeed Dr. Montgomery.

PHILIPPINE ISLANDS

Vaccination.—According to reports, ten vaccinating parties re now working under the direction of the Philippine slands Health Service, to complete a systematic campaign to accinate all of the inhabitants. These parties are working n the provinces of Oriental Negros, Batangas, Illocos Sur, Bataan, Samar, Albany, Zamboanga, Surigao, Capiz and Zambales. In Manila seven persons are vaccinating children from 1 month to 1 year of age, and seven others are making a house to house revaccination campaign. It is said that among 419,210 vaccinations made, 153,503 were positive.

SOUTH CAROLINA

Chiropractor Jailed.—According to reports, Frank Coon, a chiropractor of Greenville, was recently sentenced to ninety days in jail for practicing medicine without a license. A petition for his pardon was refused by the governor.

TENNESSEE

Public Health News.—Plans for the improvement of public health in the state were considered at a meeting of the health and sanitation committee of the Nashville Chamber of Commerce recently. It was agreed that an effort would be made to have legislation enacted providing for the establishment of more county health units, and rural sanitation agencies and the eradication of epidemic and venereal disease on a state-wide scale. Tennessee, during the fiscal year will receive about $60,000 from the government and other sources for public health work.

VIRGINIA

Society Library.—Members of the Medical Society of Virginia have subscribed $10,000 to establish a medical library at the headquarters of the society on West Grace Street, Richmond.

WYOMING

Full-Time Health Department.—A full-time health department will be established in Natrona County to be operated under the supervision of the Rockefeller Foundation, in cooperation with the city, county and school authorities. A laboratory will be installed in the city hall, Casper, where offices of the department will be maintained. Dr. Ralph J. Malott, Williamson, W. Va., will be in charge of the work.

CANADA

Society News.—The Western Ontario Academy of Medicine held a joint session with the London and Elgin Dental societies, October 31, for a discussion of "Focal Infections." Weston A. Price, D.D.S., of the National Bureau of Dental Research, Cleveland, stated that "there is no general clear conviction in the minds of the members of the medical or dental profession as to what constitutes a potentially dangerous dental infection." Dr. Frederick G. Banting spoke on the subject as affected by certain problems in diabetes.

GENERAL

Professor Kammerer Coming to the United States.—Prof. Paul Kammerer, docent in the Biologic Research Institute of Vienna, is expected in this country very shortly. He has been lecturing before the Linnean Society of London, and expects to give a similar course of lectures in different parts of this country.

World War Pensioners.—The International Labor Bureau announced that approximately 10,000,000 persons are drawing pensions because of casualties in the World War. Germany has 1,537,000 pensioned men, France 1,500,000, Great Britain 1,170,000, Italy 800,000, Russia 775,000, Poland 320,000, Czechoslovakia 236,000, Austria 164,000, Jugoslavia 164,000, United States 157,000, Roumania 100,000, Australia 76,000, Belgium 50,000, Canada 45,000, New Zealand 20,000. Statistics are lacking for Turkey, Bulgaria, Portugal, Hungary, Japan and the Baltic States.

Medical Literature for German and Austrian Physicians.—The lack of modern medical literature, particularly periodicals, has been an especial difficulty in the progress of medical science in the German speaking countries. The great depreciation of German currency has made it impossible for German physicians and medical schools to purchase foreign material, sorely needed for pursuing research and investigation. Any physician wishing to contribute periodicals or books published within the last eight years may send them to A. Kroch, 22 North Michigan Avenue, Chicago, who will act as agent in forwarding the material to the Central Committee in Germany.

Iodin in Public Water Supply. — Rochester, N. Y., is attempting to solve its goiter problem by putting iodin in the public water supply. Water from Hemlock Lake, which flows into Rush reservoir about ten miles south of Rochester, has a normal iodin content of about 1 to 2 parts per billion. This is increased to about 50 parts per billion by the addi-

tion of sodium iodid. The amount of water entering the reservoir is determined at the Gate House by means of a "thin edged weir" or dam. The city was using when iodin was added about 25 million gallons of water a day, to which 16.6 pounds of sodium iodid was added daily for three weeks. The salt was simply placed in a cotton bag and held in the water above the dam until dissolved, which required about three or four minutes. The cost is estimated at about 1 cent per person per year, using the iodin salt six weeks in the year. A resurvey will be made next year to determine the results obtained.

American Aid for German Medical Science.—Dr. Ludvig Hektoen, Chicago, is chairman of a large committee which has made an appeal to American physicians to come to the aid of practitioners, research workers and medical students of Germany who face a winter of great distress and privation. As alumni of America's universities and professional schools, the committee says, we cannot afford to stand idly by while scientific and medical Germany disappears. We have shared in the benefit of antitoxins, of chemotherapy, of the roentgen ray. We shall not want the future to record that we were indifferent when the science of a Ludwig, a Virchow, a Helmholtz, a Koch or a Fischer was in dire need. Now is the time of greatest need. The old men of the profession in Germany are in most instances absolute paupers, their life's accumulation not sufficing to buy a slice of bread. Every effort will be made to safeguard the transmission of contributions to this fund, which if expedient, will be made through American government channels. Make your check payable to "American Aid for German Medical Science," and mail to Dr. Hektoen at 637 South Wood Street, Chicago.

Tri-State Association Meeting.—At the annual meeting of the Tri-State District Medical Association, Des Moines, Iowa, November 1, Dr. Addison C. Page, Des Moines, was chosen president-elect; Dr. Clifford U. Collins, Peoria, Ill., president, to succeed Dr. Horace M. Brown, Milwaukee, and Drs. William B. Peck and J. Sheldon Clark, both of Freeport, Ill., managing director and assistant managing director, respectively. Indiana and Missouri were added to the present official territory. The following representatives were present: University of Toronto, Canada, Sir Robert Falconer, president; Royal College of Surgeons, Dublin, Ireland; Sir William I. De Courey Wheeler, president; McGill University, Montreal, Canada, Dr. Charles F. Martin, dean of the medical school. The medical schools of Harvard, Yale, Columbia, Pennsylvania, Western Reserve, Ohio; Kentucky, Washington University, St. Louis; Michigan, Wisconsin, Illinois, Iowa, Minnesota, Colorado and California were represented. Dr. Ray Lyman Wilbur, San Francisco, President of the American Medical Association, gave an address. Dr. Charles Mayo, Rochester, Minn., acted as president of clinics. It was announced that plans had been completed to establish a $100,000 foundation to conduct clinics and lectures for the benefit of physicians in rural districts. This fund will be secured by contributions from members of the tri-state association.

Hot Springs Investigation.—At a conference of the division of medical sciences of the National Research Council in Washington, D. C., Oct. 27, 1923, at which the following were present: Drs. Thomas S. Bratton (Hot Springs), William Duane (Boston), David L. Edsall (Boston), Frederick P. Gay (New York), Henry H. Hazen (Washington), James B. Herrick (Chicago), Arthur D. Hirschfelder (Minneapolis), William H. Howell (Baltimore), Reid Hunt (Boston), Samuel C. Lind (Washington), George W. McCoy (Washington), Joseph H. Pratt (Boston), William S. Thayer (Baltimore), Victor C. Vaughan (Old Mission, Mich.), Oliver C. Wenger (St. Louis), William T. Wootton (Hot Springs), Mr. B. L. Vipond (Washington), and Dr. C. M. Jackson (chairman, division of medical sciences, National Research Council), the following resolution was adopted:

Whereas, The Secretary of the Interior has requested the division of medical sciences of the National Research Council to consider the desirability and feasibility of an investigation to determine the therapeutic value of the waters of Hot Springs, Ark.; and

Whereas, The National Research Council has called a conference to advise upon this question; be it

Resolved, That, after due deliberation, it is the opinion of the conference:

1. That a thorough investigation, both experimental and clinical, of the physiological action and therapeutic value of the Hot Springs waters is highly desirable for the guidance of the Government, for the information of the medical profession and for the protection of the public in the use of these and similar mineral waters.

2. That such an investigation, although requiring much time, skill and forethought, should be quite feasible with the clinical and laboratory facilities already available or procurable by the Government, in cooperation with the National Research Council and other agencies interested.

3. That it be further recommended as the sense of the conference that a small committee, not to exceed five, appointed by the chair, be authorized to outline the details of any proposed investigation in consultation with representatives of the Department of the Interior.

In accordance with this resolution, Drs. David L. Edsall, William H. Howell, Reid Hunt, Victor C. Vaughan and C. M. Jackson (chairman, division of medical sciences, National Research Council, as member ex officio) were appointed on the committee.

LATIN AMERICA

Spanish Urologic Society.—The sixth congress of the Asociación Española de Urología was recently held at Madrid, with Dr. Barragan in the chair. The society has 120 members and nineteen foreign associates. The election at the close of the meeting resulted in the choice of Drs. L. de la Peña for president; P. Cifuentes, vice president; I. Covisa, secretary; F. Miraved, treasurer; recording secretary, Luque, and S. Pascual and Picatoste, directors. The founder of the society, Dr. Luis González Bravo was elected perpetual honorary president.

Conference on Leprosy.—Physicians and sanitarians recently met to discuss the alarming spread of leprosy in South America. It was decided to ask the United States for help and a cablegram was sent to request the immediate shipment of medicine to treat this disease. The establishment of a leper colony on an island in the Parana River was recommended. The only Argentine leprosarium is at Buenos Aires where there are about 200 cases. It was stated that there are at least 5,000 lepers in Buenos Aires. Medical authorities believe that a comprehensive plan of isolation should be adopted in Argentina and Brazil, where whole villages are known to be leprous.

Personal.—Dr. José Ducci, professor and secretary of the faculty of medicine at the University of Chile, is visiting in New York. Dr. Ducci is director of the roentgen-ray laboratory of the Clinical Hospital, a member of the Chilean Social Hygiene League and, while in the United States, attaché of the Chilean embassy.——Dr. G. Bosch Arana, professor of operative medicine at the University of Buenos Aires, of the editorial staff of the *Prensa Médica Argentina* has left for Europe on an official mission to investigate methods of amputation and the construction of artificial limbs.——A party of three professors and twelve students from the University of Genoa recently arrived in Buenos Aires to study the educational institutions of Argentina.

FOREIGN

Plague in Morocco.—Forty deaths from plague were reported, November 10, from Larache, Morocco. No details were given.

Surgeons Elect.—At the annual meeting of the Royal College of Surgeons of Edinburgh, Sir Harold J. Stiles was elected president; Sir David Wallace, vice president, and Alexander Miles, secretary-treasurer, for the ensuing year.

Gift for Otology.—Geoffrey Duveen, of Duveen Bros. of London, Paris and New York, has donated $50,000 to the University of London, England, to found a chair of otology in memory of his father. The donor intends to allocate a further $75,000 to the University College Hospital to provide modern treatment for the deaf.

Memorials to Physicians.—A bust of Ribbert was recently installed in the Pathologic Institute at Bonn.——A subscription list has been opened for a memorial tablet with portrait of Professor Josué, to be placed in his service at the Pitié Hospital at Paris. A replica of the tablet will be given to every subscriber of at least 100 francs.

Arsphenamin and General Paralysis.—The topic for the competitive university prize offered by the University of Berlin for the current academic year is: "Is there any evidence that the number of cases of general paralysis is declining, and if so, is there evidence to connect this with arsphenamin treatment in early syphilis?"

The German Council on Chemistry and Pharmacy.—Our German exchanges bring the notice that the *Auskunftei*, the information service which the Council has maintained for several years—Professor Penzoldt of Erlangen and Professor Holste of Jena donating their services—will have to be discontinued, owing to lack of funds.

The Forlanini Foundation.—Funds have been collected by popular subscription and the Marelli legacy to endow a foundation in memory of Carlo Forlanini, to promote research on pulmonary tuberculosis and its treatment. The board in charge of the endowment consists of five members of the

edical faculty at Milan and at Pavia, where Forlanini augurated his artificial pneumothorax treatment of tuberulosis.

Far Eastern Association of Tropical Medicine.—The fifth ongress of the association was held in Malaya, Singapore, eptember 3-17. Hon. Dr. Albert L. Hoops, principal medical ficer of the Straits Settlements, was installed as president. ifteen countries were represented. There was a week of ientific meetings in Singapore and a week spent in touring e Federated Malay States and Penang. Surg. Howard F. mith, U. S. Public Health Service, Manila, P. I., and Dr. Vilbur A. Sawyer, an official from the International Health oard, represented the United States. The sixth congress will e held in Tokyo in October, 1925, under the presidency of Dr. hibasaburo Kitazato. A recommendation was made that ach of the governments interested, and the Rockefeller Foundation, be invited to name a member of a committee to report t the next congress on the control of beriberi. It was esolved to ask the health committee of the League of Nations arrange for the temporary interchange of sanitary personel in countries of the Far East and to provide for a course f instruction for health officers to be given in Tokyo ollowing the meeting of the sixth congress.

Personal.—Professor Strandberg of Copenhagen will deliver lecture at the Royal Society of Medicine, London, England, ecember 3, on the results of treatment of tuberculosis of e nose and throat in the Finsen Light Institute at openhagen.——Dr. William F. Shanks has been appointed rofessor of physiology at the University of Leeds, England. —Prof. Alexis Thomson has resigned after fifteen years' ervice from the chair of systematic surgery at the Univerity of Edinburgh, Scotland, on account of ill health.——Sir Villiam Leishman, director general of the medical services, elivered the inaugural address of the one hundred and ighty-seventh session of the Royal Medical Society of Edinurgh, October 19.——Dr. Fodor, assistant to Abderhalden, as been asked to go to Palestine to superintend the foundaion and take charge of an institute for physiologic chemistry. —Dr. Köppe, professor of ophthalmology at Halle, has een lecturing in Spain and Italy on the "Microscopy of the iving Eye."——A bronze bust of Prof. W. Körte was nveiled recently in the surgical ward of the Urban Hospital t Berlin, the occasion being his seventieth birthday.——On e recent eightieth birthday of Dr. F. Ahlfeld, professor meritus of gynecology and obstetrics at Marburg, greetings ere brought from far and near, recalling that he introduced mong other things the use of alcohol to disinfect the hands. —The French government has made Drs. Voncken and . Mathys of Brussels and Prof. H. Fredericq of the Univerity of Liége, chevaliers of the Legion of Honor.——Dr. A. ipschütz, professor of physiology at Dorpat, has been elected honorary membership in the Sociedad Mexicana de iología.——The Physikalisch-Medizinische Society of Würzurg has appointed Prof. I. Ochoterena, secretary of the ociedad Mexicana de Biología, foreign corresponding memer. It was to this society that Roentgen presented his rst report on roentgen rays.——A medal was presented o Prof. C. Walther at a gathering of his pupils and friends t the Pitié Hospital at Paris.——The Leonard prizes for istinguished work in colloid chemistry were recently awarded y the German Kolloidgesellschaft to R. Zsigmondy, professor of inorganic chemistry at Göttingen, for his discovery f the ultramicroscope, and to Dr. W. Pauli, professor of nternal medicine at Vienna, for research on protcins.

Deaths in Other Countries

Dr. **W. E. Ashley Cummins,** professor of medicine at Uniersity College, Cork; president of the Cork Medical and urgical Association.——Dr. **Schattenfroh,** professor of ygiene at the University of Vienna, director of the Hygienic nstitute.——Dr. **Delfino Pacheco,** Buenos Aires, president of he group of medicolegal experts, and member of the national ouse of deputies, aged 64.——Dr. **B. Moreau,** professor of harmacology at the University of Lyons.——Dr. **Manuel A. elásquez,** professor of biologic chemistry and secretary of he medical school at Lima, Peru, on the editorial staff of the *rónica Médica.*——Dr. **Valentin Carulla,** rector of the Uniersity of Barcelona, long professor of materia medica and hief of the Clinical Hospital.——Dr. **T. Muñoz Sedeño,** ormerly professor of anatomy at the University of Madrid, ged 85.——Dr. **L. M. Caty,** professor of social hygiene at he University of Brussels, member of the house of deputies. —Dr. **H. Swiecicki,** rector of the University of Posen, professor of obstetrics, aged 69.——Dr. **A. M. Bergman,** chief f the state veterinary bacteriologic institute at Stockholm.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Oct. 26, 1923.

Seventeenth French Congress of Medicine

The Seventeenth French Congress of Medicine was held at Bordeaux, September 27-29, under the chairmanship of Dr. Arnozan, formerly professor of clinical medicine at the Faculté de médecine of Bordeaux. Three subjects were on the program: (1) the remote results of malaria; (2) treatment of meningococcic infections, and (3) relations between the sympathetic nervous system and the endocrine glands.

THE REMOTE RESULTS OF MALARIA

Dr. Le Dantec, professor of tropical diseases at the Faculté de médecine of Bordeaux, dealt at length with the remote effects of malaria on the circulatory apparatus, and the influence of malaria on the mother and child. The existence of malarial aortitis should not be questioned. Potain long ago showed by percussion and auscultation that the aorta dilates during attacks of malarial fever, and retracts under the influence of quinin. Today, thanks to roentgenoscopy, this dilatation can be seen at the time of the onset of the malarial fever. The dilatation generally involves the portion of the aorta above the valves. As the result of successive attacks, the aorta finally undergoes definite changes, and becomes distended. The peripheral arteries may also be affected by malaria. Dry gangrene from obliteration of arteries is not rare in some parts of the body, especially in the extremities, the face or the genital organs. In a case of this kind observed by Le Dantec, the coagulum in the obliterated artery was found to contain hematozoa in large numbers.

In women, malaria exerts a harmful influence on fecundation, pregnancy and childbirth. In malarial districts there are more sterile women than in more healthful climates. Pregnancy may not only precipitate but also may modify an attack of malaria. Pregnancy, when associated with malaria, often ends in abortion or premature labor. The period following childbirth is always marked by the return of malaria. The fever usually appears about the third day after childbirth; malarial attacks can be distinguished from puerperal fever by the fact that the former come on more commonly in the morning. In case of doubt, quinin should be administered, as it has also a favorable influence on puerperal septicemia. Children, born at term, of a malarial mother, are poorly developed and have a tendency to rickets. When the mother is suffering from malarial cachexia, the mortality among the new-born is 75 per cent.

Sequelae of malaria with definite lesions that are not influenced by quinin, do not respond to any specific treatment. This is not true of lesions that are still active, such as are encountered in colonial officials, planters and in the native population. Here specific treatment is strongly indicated and comprises preventive and curative cinchonization. The former consists in the daily administration of from 0.2 to 0.3 gm. of quinin sulphate or hydrochlorid. This may be continued for many years without inconvenience to the digestive tract or to the renal passages. In recent malaria, purely schizogenous, a radical cure may be effected by intensive treatment extending over several weeks. On the other hand, in cases of longer duration, gametogenic malaria, the treatment should be continued for two months or longer. As long as the tongue remains coated, Le Dantec has recourse to intramuscular injections. When gastric disturbance has disappeared, quinin may be administered perorally, which is the only practical route for protracted treatment.

Dr. Hesnard, professor at the school of naval medicine of Bordeaux, discussed the remote effects of malaria from the neuropsychiatric point of view. Persistent nervous disturbances of malaria are encountered in subjects who have suffered rather severe attacks. However, the gravity of the disturbances is not always proportional to the severity of the infection that gave rise to them. For instance, a grave psychosis may follow a mild case of malaria, in which only parasites of a benign type are present. As remote sequels of a psychiatric character, one observes (1) tardy mental complications in subjects with frank predisposition; (2) mental sequels (arrest of mental development: malarial infantilism, mental debility, etc.); (3) chronic insanities, continuous or intermittent, precipitated by the malaria in subjects constitutionally predisposed; more particularly, attacks of manic-depressive insanity and certain types of catatonic dementia praecox.

These papers gave rise to an interesting discussion, during which Professor Sabrazès of Bordeaux reported four cases of encephalomeningeal sequels of malaria. He emphasized the importance of laboratory researches; more particularly, the cytologic and chemical examination of the cerebrospinal fluid, to determine the nature of nervous accidents of malarial origin. Dr. Porot of Algiers stated that in children, owing to the greater vulnerability of brain tissues, permanent sequels are more frequent when the malaria occurs during the first two years of life: (1) hemorrhages into the cortex or a focal lesion causing slight encephalopathic syndromes (mental backwardness or idiocy, with or without epilepsy and with or without diplegia); (2) dystrophic states of ordinary infantilism, with retarded physical development and (3) much less frequently, by an elective endocrine lesion, infantilism of the special myxedematous type. Dr. H. Claude, professor of clinical psychiatry in the Faculté de médecine of Paris, treated the question from the medicolegal point of view. Medicolegal experts frequently have occasion to examine delinquents who plead disturbances arising from malaria as the cause of irresponsibility. He raised the question whether subjects who have suffered severely from malaria can present intellectual disability, disorders of character and be handicapped to such an extent that one may say that malaria has transformed their organism. Claude is not inclined to admit that this is possible—at least, not in cases in which there have been no serial psychopathic disturbances since the attacks of malaria. Most of the subjects that he has examined were mentally defective before the attacks of malaria, their previous predisposition being usually aggravated by alcohol and syphilis.

RELATIONS BETWEEN THE SYMPATHETIC NERVOUS SYSTEM AND THE ENDOCRINE GLANDS

The relations between the sympathetic nervous system and the endocrine glands were treated, from the physiologic and experimental point of view, by Prof. V. Pachon of Bordeaux, and, from the pathologic standpoint, by Dr. Perrin of Nancy and A. Hanns of Strasbourg. Pachon maintained a conservative attitude and referred to the warnings that Vulpian gave to physicians who were inclined to regard all pathologic states as vasomotor disturbances. Time has proved the justice of his counsel. Vulpian would no doubt today utter similar words of warning with reference to endocrine disturbances and their relation to pathologic findings. Pachon holds that the conception of a close linking together of the sympathetic nervous system and the endocrine glands has many experimental facts against it. For instance, there is no justification for assuming the existence of functional relations between the glycosecretory nervous system and the suprarenals. Indeed, the contrary seems to be true: physiologically, the glycosecretory nervous system seems to be functionally autonomous. Experimental study of epinephri in vasomotor reactions of the sympathetic nervous syste and in maintaining arterial tonus does not entitle us t assume the existence of a direct relationship between th neurovegetative system and the suprarenals.

Perrin and Hanns considered the clinical relations of th sympathetic nervous system to the internal secretions: i syndromes of endocrine dysfunction; nervous, organic, func tional or trophic syndromes; dermatoses and cutaneou trophic disturbances; colloidoclastic syndromes; infectiou diseases and various pathologic states (obesity, diabetes etc.). They discussed, in turn, endocrine dysfunction wit symptoms involving the sympathetic nervous system; affec tions in which the sympathetic nervous system, influenced by the internal secretions, plays a part in the genesis o certain pathologic disturbances. In their general conclusions however, Perrin and Hanns were quite conservative, readil admitting that the problems under consideration involv numerous unknown factors and that assumptions and theorie do not always find the support they require in establishe physiologic facts.

Prof. F. Widal of Paris, who took part in the discussion stated that he recognized that the clinical facts do not permi one as yet to draw definite conclusions concerning th mechanism by which the neuroglandular connections ar accomplished; nevertheless he held that these connection exist beyond a doubt. For instance, during the course o Addison's disease, the destruction of the suprarenal capsules and arterial hypertension represent by their association a "law" of anatomoclinical coincidence as well established as any in medicine. The product of the normal activity of the suprarenal cells, epinephrin, is the best and most constant vasoconstrictor known. In Addison's disease and in exophthalmic goiter, certain disturbances of the sympathetic nervous system are specifically differentiated according to the underlying glandular lesion. Disorders of the sympathetic system may occur without association with any endocrine disturbance that can be determined; they may also appear in connection with the most widely different gland lesions. For example, Raynaud's disease, a definitely sympathetic syndrome, is encountered frequently in subjects suffering from hypothyroidism, and may be found also in association with other modifications of the endocrine functions. Widal recalled an interesting observation contained in the thesis of Maurice Raynaud: A woman had frequent attacks of local asphyxia in the extremities, which disappeared when she became pregnant. This occurred with such regularity that the patient came to regard a remission of the attacks of local asphyxia as a sure sign of a new pregnancy. The echo that certain manifestations in the ovaries may awaken in the region of the sympathetic nervous system may also be taken as a case in point that rests on established physiologic experience.

THERAPY OF MENINGOCOCCUS INFECTIONS

Dr. C. Dopter, professor at the Ecole d'application de médecine et de pharmacie militaire of Val-de-Grâce, presented to the congress the present status of serotherapy in meningitis. He stressed the importance of using the specific antiserum for the particular type of meningococcus involved in the infection, though, until bacteriologic examination has determined the type, it is necessary to inject a mixed serum. If the cultures fail to grow, the trivalent serum may be continued. The serum has no effect on meningeal lesions when it is administered by the subcutaneous, intramuscular or intravenous route. To be truly effective, it must be introduced intraspinally into the subarachnoid space. Since meningeal lesions, however, are frequently associated with septicemia, it is indispensable to give either intramuscular or

ravenous injections, according to the gravity of the general ndition, at the same time. The treatment should be given early as possible and in large doses, even in cases in ldren. In adults, 20 c.c. is the minimal dose; in severe ses, from 30 to 40, or even 45 c.c., may be injected. The re severe the attack, the larger should be the dose. Cures ve been accomplished in cases that seemed hopeless by ecting 100 c.c. in divided doses during a twenty-four hour riod. From 10 to 15, or even 30, c.c., if needed, may be ected without hesitation in children under 1 year of age. The serotherapy of cerebrospinal meningitis requires care; e affection varies greatly in the different cases, and even the same patient from one day to the next. At any moment w factors may arise; for instance, it may be found that the rum is not being absorbed, or symptoms may appear that dicate blocking in the meningeal space either in the arachid or the ventricles. The treatment requires literally "a ringe in the hand and an eye at the microscope." Competent bacteriologic assistance is essential for the proper nduct of serotherapy; the cure of the patient depends rgely on the interpretation of the facts observed by the cteriologist. Cerebrospinal meningitis is an affection that quires the closest collaboration of the clinic and the boratory.

Dr. Boidin of Paris discussed the adjuvants of serotherapy: ccinotherapy, pyotherapy, protein therapy, etc. Vaccines ay exert their action in two different ways: slow and ecific immunization or rapid and general immunization. ntil the facts are better established, it is advisable to try st a specific vaccine, preferably autogenous; but, if that is t available, a stock vaccine of the same type. If the microganism has not been identified, it is well to use a polylent stock vaccine. The advocates of vaccine therapy advise combination with serotherapy from the start; others wait see whether serotherapy alone will suffice. Though far om constant in its results, vaccinotherapy may, nevertheless, give favorable results in certain cases. Active pyoerapy, or the induction of a fixation abscess, may exert an questionably favorable and often decisive influence in a eningococcus infection, whether meningeal or septicemic, fter serotherapy has failed. It remains to be seen whether assive antiseptic pyotherapy (injection of pus produced by rpentine), which has already met with some success and uses no disagreeable local reaction, has the same value nd the same indications as the fixation abscess. Protein erapy, and, more particularly, intramuscular injections of ilk, which have given some good results, is indicated only meningococcus septicemia. It has little effect on the evotion of meningitis. Among other therapeutic aids, repeated mbar punctures are sometimes useful; they stimulate choroidal secretion and accelerate the flow of the ventricular uid into the subarachnoid space. Drainage and endospinal vage with physiologic sodium chlorid solution or a solution ontaining citrate to prevent coagulation, have been suggested.

Dr. A. Netter of Paris emphasized the value of polyvalent erum in the initial treatment of meningococcic meningitis, hich is of course to be laid aside as soon as the type of ne causative organism has been established. New types of arameningococcus are constantly being added to the list of ose already known; only recently, in Denmark, a widepread epidemic was occasioned by a hitherto unknown eningococcus. For some time, Netter has been using a olyvalent serum, the first samples of which were sent to im by Flexner of the Rockefeller Institute, prepared with ore than fifty strains of meningococcus or parameningoccus. The frequency with which the pneumococcus is assoiated with the meningococcus induced Netter to inject as a rophylactic 10 c.c. of antipneumococcus serum. Of the arious localizations of the meningococcus that are difficult to reach by the intraspinal route, Netter emphasizes particularly suppurations of the petrous portion of the temporal bone. These require combined intramuscular and intraspinal injections.

LONDON

(From Our Regular Correspondent)

Oct. 29, 1923.

The Panel Struggle

The panel struggle has reached a further stage. The minister of health, Sir William Joynson-Hicks, has written to Dr. Cox, medical secretary of the British Medical Association, stating that he regards the dispute, as concerns the position and payment of the panel physicians, undignified and unprofitable. As minister of health, he has to try to secure the best medical service he can, without putting undue strain on the taxpayer, the employer and the insured person, who are all partners in the matter. The physicians desire to obtain the utmost remuneration consistent with their views of fairness. The friendly societies desire to obtain as much advantage as possible for the millions of insured persons. The minister, naturally, has to take into account both standpoints, but the final test for him is what is best in the public interest. The profession claims that at least $2.25 capitation fee is the fair price. A considerable body of opinion among the approved societies claims that $1.75 is the fair price. The minister decided that $2 for three years, or 12 cents less than that for five years, is the fair price. In these days of unemployment and overtaxation, he simply cannot ask the government for a further subsidy, or put on extra contributions, unless the paramount public interest says that he must get more money one way or other. He repudiates the contention of the British Medical Association that there are millions of dollars in the reserves of the insurance fund available by which the physicians' claims could easily be met. These millions consist mainly of a reserve built up by payments of the younger insured, who are not often disabled by illness. The fund is actuarily essential to meet the heavy claims of later years at an age when sickness is almost certain. As to the request of the physicians for arbitration, one of their points is that, while agreeing that the minister can consult the approved (friendly) societies, they wish to be clear of them. If arbitration ensued, there would inevitably be three parties—the minister, the profession and the approved societies. The profession would then come into direct relation with the societies, whether they liked it or not. The minister gives a strong hint by saying that he is not enamored of the panel system. If the physicians desire a full inquiry into the best method of dealing with medical benefit, including, of course, their fees, he is willing to submit to the government a proposal for a royal commission on the whole subject, and to undertake that the fees now suggested should be reconsidered in either direction.

Dr. Cox has replied, stating that the main point at issue is not money, though he is convinced that the present offer is inadequate. The main object of the British Medical Association is to maintain a good medical service for the insured population, and to have it settled once for all what is the relation of the approved societies to the medical service. The minister has said that the question of the kind of medical service to be given and the payment for it is a matter not to be decided by the approved societies or under their financial pressure, but by himself after consultation with all parties concerned. But the fact remains that the approved societies are threatening him with all sorts of consequences if he takes more than $1.75 out of what they are pleased to call their funds. One responsible organ in the insurance world declares that if the $2.25 is paid, the insured person will be robbed of additional benefits for the advantage of

the physicians. These pretensions make the profession believe that, whatever the minister or the societies say, the latter are demanding to be made the arbiters of the price to be paid for the medical service. The medical profession will never consent to this. Dr. Cox does not admit that arbitration would necessitate the approved societies coming into the matter. It could be admitted only if the minister gave the profession's case away by agreeing that the money paid to the physicians for a national health service for a large section of the community be taken out of a fund belonging to the approved societies. The profession is prepared for full inquiry at any time which will take into consideration not only the physicians' fees, but also the administration of the act. It is not usual, however, to suggest that a party to a dispute should accept a reduction of remuneration pending the report of an inquiry. Dr. Cox suggests that the capitation fee be left as it stands until the report has been made. Thus, it will be seen that a position of some bitterness has developed between the profession and the approved societies. Delegates of the latter have passed a resolution protesting against the proposals of the minister which would involve taking from the contributions an increased sum for payment of a revised capitation fee, thereby depriving insured persons of money which would otherwise be available for essential benefits of a preventive and curative character, such as hospital, convalescent, home, dental and optical treatment, and nursing. Undoubtedly, the societies are bringing all the pressure they can to bear on the minister; but in a democratic country this cannot be prevented. They no doubt desire to control or exercise a good deal of control over the administration of the Insurance Act. The minister has steered a middle course between the two parties, and it does not seem that he is in any way controlled by the societies. In one matter, however, he has given cause for complaint. He had a conference with representatives of the societies, and subsequently one with the representatives of the British Medical Association. He told the latter that he had been immensely impressed by things that had been said to him at his conference with the representatives of the societies, but he declined to say what these things were. The approved societies have issued an official contradiction of the statement of the association that the issue is whether "they shall control a national service and enslave the profession." They point out that the Insurance Act is administered (i. e., controlled) by committees constituted of physicians, pharmacists and local authorities, as well as representatives of insured persons. Approved societies are not seeking to alter this. The only point in which they are interested is whether the amount that may be paid to the physicians in excess of that provided within the contribution paid by the employers and employed shall be taken from the funds of approved societies that have been subscribed by their members for other purposes. If this point is conceded in their favor, approved societies as such cease to be interested in the dispute. They have no desire to dominate the profession. In the meantime, panel physicians are sending in their resignations in great numbers—in many districts they are above 90 per cent. and in some they are unanimous. There is no doubt that the necessary two-third majority for standing out can be more than obtained.

The National Medical Union, a body of physicians who have declined to serve under the panel system, has issued a declaration stating that less than half the profession is concerned in the dispute about remuneration. The union has undeviatingly opposed the insurance acts from their inception, and, in an endeavor to uphold the honor and traditions of a liberal calling, has always set its face against any form of contract medical practice. For years it has pressed successive ministers of health for a full inquiry into the financial arrangements and general working of the Insurance Act. Recently, and almost by chance, it alleges, the British Medical Association discovered that a sum of $500,000,000 had been accumulated out of the compulsory contributions under the act, and the panel physicians used this as an argument against reducing the capitation fee. The union holds that in any distribution of the accumulated funds the claims of the voluntary hospitals should be recognized, as they do a large amount of the work for which panel physicians are paid. Many cases of gravity or complications in insured patients are at once delegated to the nearest voluntary hospital. This the union holds, is not equitable.

So far there is no indication that any of the parties to the three-sided dispute will recede from the position it has taken up. The opinion seems to be hardening that the outcome will be the scrapping of the present system in favor of one of direct negotiation between the physician and the patient, with payment for each attendance, to be collected in the long run from the approved society. Information collected by the ministry shows that, to a considerable extent, the panel patient declines to employ the panel physician. There is a widespread belief that his services are often given grudgingly and perfunctorily, and that he belongs to an inferior order of practitioner. This view is forcibly expressed in a question addressed to a patient: "Have you been to a proper doctor or to a panel doctor?" But the answer to this is that the great majority of general practitioners are on the panel, which therefore represents the average of the profession.

The Outbreak of Smallpox

It is now possible to describe completely the outbreak of smallpox in the London area. There were, in all, eighteen cases, of which two were fatal. Of these, eleven occurred in the administrative area and seven outside it. The outbreak was first discovered by a health officer of a south London borough, who found a chambermaid in a hotel, suffering from the disease. Her movements were traced, with the result that in twenty-four hours five more cases were discovered, which all appeared to have derived the infection from her. Ten further cases were soon reported. Vaccinations and revaccinations of those directly or indirectly connected with the original cases were performed. As a result of these energetic measures, the outbreak was localized. Of the eighteen cases, twelve occurred among people between the ages of 23 and 79, who had not been vaccinated since infancy, and of these, one died. Five cases were in persons between the ages of 12 and 50 who had never been vaccinated, and of these, one died. The remaining case occurred in a man who had been vaccinated in the army in 1914; his attack was mild. At a meeting of the Infectious Hospitals Committee of the Metropolis, the admission of these cases led to the passing of a resolution, with three dissentients, asking the minister of health to initiate legislation providing for the repeal of the Vaccination Act, under which parents can obtain exemption from the penalties for nonvaccination of children by means of a declaration that they have a conscientious objection to vaccination.

Venereal Diseases in Children

At the meeting of the National Council of Women, held at Edinburgh, venereal diseases in children was one of the subjects considered. Dr. Macnicol, of the National Council for Combating Venereal Diseases, moved the following resolution, which was carried: "That in view of the probability that there are children attending schools who are infected with venereal diseases, including hereditary syphilis, and in view of the lack of attention that has hitherto been given to the early diagnosis, or to any special facilities for treatment, the ministry of health and local authorities be urged to give

careful attention to this important aspect of the venereal disease problem." Dr. Macnicol declared that there are numbers of children of school age in this country infected with venereal diseases, many of them suffering from congenital syphilis. If they began to deal with this question at the school age, it would be shutting the stable door after the steed had gone. They must have closer cooperation between antenatal clinics, maternity hospitals, child welfare clinics and school medical officers.

BUCHAREST

(From Our Regular Correspondent)

Oct. 17, 1923.

Care and Treatment of Epilepties

Dr. P. Avramescu, neurologist, gave a short address before the Bucharest Medical Society on the care and treatment of epileptics. He remarked that society is responsible for the conditions that give rise to epilepsy, and it is the duty of society at large to care for the unfortunate victims. According to him, more than 85 per cent. of epilepsy is inherited, and alcoholism in the parents is responsible for many cases. It has been said that not less than one in every three children of alcoholic parents suffers from epilepsy. Colonization is the only way in which epileptics can be cared for properly. Heretofore, for the most part, they have been shut up with the insane in central Europe, a state of affairs that is unfair to both classes of patients. Most physicians admit that, with rare exceptions, purely medical or surgical treatment is of little or no value. More has been done by hygienic living, strict regulation of the habits of life, and, particularly, by suitable and interesting employment and surroundings.

Renal Diseases and Cryoseopy

At a recent meeting of the Cluj (Transylvania) Medical Union, Professor Jacobovici said that cryoscopic examination of the blood may have a great value in determining the question of operation. The method depends on the well known physical law that the freezing point varies with osmotic density rather than with specific gravity. Bechmann's apparatus, presented as simple and accurate, was exhibited, and its use was demonstrated. Normally, the freezing point of blood is —0.56 C., and of urine from —1.2 to —2.5 C. It was observed that even after an intravenous infusion of 2,000 c.c., the freezing point of the blood becomes normal in four hours. Jacobovici concluded that cryoscopy indicates the extent to which the kidneys are getting rid of the waste products of metabolism, and that in certain cases of unilateral renal disease it may be a valuable aid in differential diagnosis.

Taxes and Medieal Men

In the last few years, the state has changed its attitude toward medical men. Previously, the physician was accorded special privileges for the reason that he rendered a service to the community. He was exempt from the poll tax, and was absolved from attendance at the biennial military maneuvers; conductors of trains and public vehicles were required to accommodate physicians before others. Now it seems that the medical fraternity has lost the favor of the government. Taxes have been imposed amounting to 16 per cent. of the gross income instead of, as formerly, of the net income after deduction of all expenses, including rent, household, clothing, schooling of children, instruments, and subscriptions to medical journals. The income was formerly fixed by the statement of the physician; now it is determined by a committee consisting of state fiscal officers who know nothing of the conditions under which the income is earned, and make assessments on such grounds as that one official has seen the physician often at the theater (to which he may, by chance, be the appointed medical adviser), that he has recently purchased a new suit of clothes, that he dresses like a dandy, etc. The new practitioner who has not earned even the price of his cigarets may be taxed on a basal income of from 40,000 to 60,000 lei. This means that he must pay from 6,400 to 9,600 lei in taxes, corresponding to the value of from 105 to 156 medical visits. The medical associations have sent deputation after deputation to the ministry, but so far, in vain.

BELGIUM

(From Our Regular Correspondent)

Oct. 15, 1923.

Belgian Students in the United States

Owing to the generosity of the Conjoint Rockefeller Board Educational Foundation, Inc., the Fondation universitaire sends each year a number of deserving students to the United States to pursue their studies or researches in American universities. The fourth contigent of students thus rewarded has just embarked. It includes eleven engineers, nine physicians, two doctors of law, two doctors of philosophy and belles-lettres, two industrial engineers and a doctor of sciences.

The Jumet Publie Health Demonstration

I have referred several times to the public health experiment that is being undertaken at Jumet (Belgium) under the auspices of the Belgian Red Cross, at the request of the League of Nations. Dr. Depage, in his presidential address before the general assembly of the Red Cross Society, outlined the plan of organization of this vast practical demonstration of public health work, which is divided into three departments: medical visitation, the dispensaries, and popular education in hygiene.

MEDICAL VISITATION

The medical profession, as a whole, is charged with the visitation program. By means of lectures in all sections of the district, an endeavor is made to have all inhabitants examined by their regular physician. A record card giving the details of the results is prepared and sent to the central bureau, which is directed by a head nurse. At the central bureau, these record cards are studied, and visiting nurses, using careful discretion, then take steps to induce the inhabitants to utilize the various dispensaries and other services. After the examinations have been made and the record cards have been placed on file, the medical profession will be able to give more intelligent care to the population.

THE DISPENSARIES

After the general inquiry has been made, it is necessary to provide facilities for prophylaxis and curative treatment. For this purpose dispensaries have been established: (1) an antivenereal dispensary, inaugurated last February, the activities of which will be organized on new lines, with a fully developed social service; (2) a dispensary of mental hygiene and a medicopedagogic consultation service, which have been functioning satisfactorily since January last, and (3) an antituberculosis service, which, owing to difficulties in connection with the liquidation of subsidies by the minister of the interior, the Ligue nationale contre la tuberculose will not be able to open for several weeks yet. Under the influence of the newly organized propaganda, the child welfare societies have taken on new life. A prenatal consultation service will soon be added.

POPULAR EDUCATION IN HYGIENE

Numerous meetings are being held in various circles with a view to educating the public mind in hygiene, the nature of the propaganda depending to a great extent on the psychology of the different groups: teaching personnel, midwives, representatives of mutual aid societies, political and religious groups, and others.

Hereditary Deaf-Mutism

Before the congress of the Belgian Otorhinolaryngological Society, Dr. de Parrel presented recently an interesting communication based on his personal experience. Among the various factors causing deaf-mutism, hereditary syphilis takes first place. It is responsible for at least 50 per cent. of the cases of hereditary deaf-mutism. The causes next in order of importance are: consanguinity of parents; familial deafness; all causes of degeneracy, dystrophy or endocrine dysfunction, and physical or psychic traumatisms suffered by the mother during pregnancy, which have caused arrest or disorders of development in the peripheral or central organs of hearing.

The Medical Congress at Antwerp

The great activity displayed by the Flemish medical society, which has manifested its sectional tendencies for the past four years by the publication of the *Vlaamsch geneeskundig tijdschrift* (Flemish Medical Journal) and by the holding of an annual congress, has recently found expression in conferences held in Antwerp. A considerable number of Netherlandic collaborators, among whom were several university professors, joined forces with the Belgian representatives. These annual medical conferences form part of a general movement, which seeks to afford an opportunity for the exchange of ideas among various branches of science. For instance, during the recent medical conferences in Antwerp, simultaneous conferences were held on the natural sciences and on mathematics. This Flemish sectional movement is increasing in importance from day to day, and when one examines the agenda of the recent conference at Antwerp, it is evident that there has been considerable progress since the last congress at Bruges. The program at Antwerp consisted of two parts. A practical feature was the opportunity afforded guests to visit the principal hospital services of the capital. Theoretical discussions of present-day problems brought together a goodly number of hearers. Demonstrations of operations were given by Professors De Beule and Daels; roentgenoscopic methods were shown by Dr. Peremans, and a collection of anatomopathologic specimens (more than 400) was exhibited and commented on by Dr. De Groodt.

One of the best attended lectures was that of Professor Zwaardemaker of Utrecht, who presented the most recent findings on the physiology of the heart, and especially the results of his personal researches and those of his pupils, discussing more particularly the action of radioactive substances on the automatism of cardiac functioning. Dr. Koopman submitted an important communication on the use of insulin, and the results of his exhaustive researches on radiotherapy in exophthalmic goiter. De Backer of Ghent and Moeris of Antwerp are advocates of radiotherapy rather than surgical intervention. Moeris often employs successfully galvanization, after the first treatment, preliminary to radiotherapy.

Statistics of the Sequelae of Encephalitis

Dr. Van Boeckel, director of the public health services, presented some interesting statistics on the sequelae of epidemic (lethargic) encephalitis observed in Belgium since 1919. Together with Dr. Bessemans, he had the opportunity of observing 300 cases, 200 of which he was able to follow up in a thorough manner. Of 200 cases, sixty-two resulted fatally, a low percentage compared with the mortality observed in other countries, which has sometimes reached 50 per cent. The sequelae observed were: disturbances of sleep, two cases; dementia, two cases; mental trouble, twenty-five cases; strabismus, one case; chorea, one case; partial paralysis of the leg, one case; partial paralysis of both legs, one case; neuralgia, three cases, and paralysis agitans, twenty-nine cases. Most of these sequelae appeared in patients under 50 years of age. The mental disorders and the disturbances of sleep affected only infants and adolescents. When paralysis agitans appeared, it was associated in more than half the cases with merely a slight attack of encephalitis; the other sequelae, however, followed severe attacks.

BERLIN

(From Our Regular Correspondent)

Oct. 20, 1923.

Seventieth Birthday of Werner Körte

The Berlin surgeon Werner Körte will reach, October 21, his seventieth birthday. Through his father, the name Körte became known among the medical profession of Germany. The father was one of the most prominent physicians of the capital, and reached the advanced age of 90. The son, Werner Körte, was for many years a general physician with a large practice, until he decided to devote himself to his special field. He secured an excellent foundation while a pupil under Lück in Strasbourg and Wilms in Berlin. In 1889 he was appointed director of the newly built municipal hospital "am Urban," where Albert Fränkel was associated with him in the department of internal diseases. Körte is popular both as consultant and operator. His publications deal mainly with abdominal surgery, especially the surgery of the biliary tracts, and the diseases and injuries of the pancreas, on which he has written monographs. In his contribution to the reference work edited by Schwalbe, which appeared last year, he treats on "Diagnostic and Therapeutic Errors and How to Avoid Them." His treatise on surgery of the lungs was prepared in collaboration with A. Fränkel. In spite of a somewhat acrimonious exterior, Körte is held in high esteem on account of his reliability.

Death of Prof. Carl Flügge

Prof. Carl Flügge, who was for many years director of the Berlin Hygienic Institute, has died suddenly of heart disease. Five years ago he was compelled, in accordance with the old age pension law, to resign his position. Although he suffered several paralytic strokes, he enjoyed, up to the time of his death, unusual mental vigor and comparatively good physical health. In spite of his advanced age, his death was, therefore, unexpected. He decided in his early years in favor of his special branch of science. From 1875 to 1878 he was an assistant of Franz Hofmann, professor of hygiene in Leipzig. He later removed to Berlin, and became an instructor in hygiene at the university of that city. In 1881 he accepted a call to Göttingen, where a department was opened for him by the director of the Physiologic Institute. In 1883 he became director of the newly founded institute for medical chemistry and hygiene, and two years afterward he was given a chair in hygiene. In 1887 he obtained an appointment in the University of Breslau, and in 1909 he secured a post as successor to Rubner in the University of Berlin. His position in Berlin was from the beginning not the most pleasant. Rubner, who had earned his reputation as a physiologist, had changed the former Physiologic Institute of du Bois-Reymond into the Institute for Hygiene when he became the successor of Robert Koch. During the last years of his activity, there was built, under his instructions, a new Physiologic Institute, in the Invalidenstrasse, which was fully abreast of the times in its equipment. But when Rubner returned to his first love, physiology, he caused this new hygienic institute to be transformed into a physiologic institute, and Flügge was obliged to make the best of the old and entirely inadequate institute in the Dorotheenstrasse. I have personal knowledge of what he suffered under these unfavorable conditions, but, in keeping with his quiet, dignified character, he put up with things as they were and did

ot allow untoward conditions to oppress him or to affect is scientific work. Flügge was a scientist and investigator f the first rank, and his performance in his chosen field of esearch must be appreciated all the more owing to the fact nat hygiene at that time was just beginning to be developed. \side from Pettenkoffer, Germany had, at the time Flügge egan his researches, scarcely any hygienists of note. In 878, Flügge published two articles that dealt with funda- nental questions, "Das Wohnungsklima zur Zeit des Hoch- ommers" and "Zur Kenntnis der Kost in öffentlichen Anstal- en." In the last mentioned article, Flügge declared that the uantity of protein demanded by Voit (100 gm.) for the diet f the North German laborer is not provided and, further- nore, is not necessary. In 1879 he published an important reatise on the hygiene of drinking water, and asserted that he usual methods of chemical analysis did not constitute an dequate criterion for determining the quality of drinking vater. In 1888 he published a comprehensive textbook on ygienic methods of research. To the handbook of hygiene, ublished by Pettenkofer and Ziemssen, he contributed a umber of articles. In discussing the status of microbiology, e declared himself an adherent of Robert Koch's doctrines. The new methods of bacteriologic research he learned in the aboratory of Koch under the latter's personal supervision. From this time dates the friendship of the two men, which ndured up to the death of Koch. This friendship proved valuable to both, for through Flügge Koch became acquainted with many problems of hygiene which lie outside the realm f bacteriology, while Flügge had an opportunity of gaining better insight into bacteriology. In 1880, he published what was, considering the times, an important work, "Die Mikro- rganismen mit besonderer Berücksichtigung der Aetiologie ler Infektionskrankheiten." In 1889 appeared his "Outlines f Hygiene," the value of which is shown by the fact that t has passed through ten editions. In his further researches, Flügge contributed much that was valuable in the several branches of hygiene. Most of his articles appeared in the journal founded by Flügge and Koch, *Zeitschrift für Hygiene und Infektionskrankheiten.* Possibly his most important work was on the transmission and control of tuberculosis, which was begun in 1894. Special attention may be called to his discovery that tubercle bacilli are transmitted in the minute droplets of the sputum of the tuberculous. In the cholera question also, he adhered to Koch's conceptions. In his insti- tute at Breslau, M. Neisser discovered the peculiar staining of diphtheria bacilli, which has proved to be of great prac- tical value. His articles on the hygiene of dwellings and of industry are comprehensive and significant. To show how modern his ideas were, it may be stated that in his institute was created the first department of social hygiene, under Grotjahn. In recent years, Flügge, partly on account of his physical condition and partly on account of his retiring dis- position, which was in marked contrast with the life of the capital, did not appear much in public. He seldom attended medical sessions, and did not attend the meetings of the Robert Koch Foundation for Combating Tuberculosis, although he was a collaborator who contributed toward the solution of its problems. In Flügge, not only a witness but also a creator of German medicine has gone to his rest.

Personal

Professor Kuzynski, a department head of the Berlin Pathologic Institute, has accepted a call to the West Siberian University of Omsk, where he will serve, for the time being, as a pathologist, being entrusted more particularly with epidemiologic research.

Professor Gruber, formerly prosector at the municipal hos- pital in Mainz, has been called to Innsbruck as director of the Anatomic Institute, to succeed Professor Pommer.

Marriages

ELLIS ARTHUR STEPHENS, Lieut., M. C., U. S. Navy, Wash- ington, D. C., to Miss Kathleen Curtis of Springfield, Mass., at New York, October 27.

SHELTON ELLIOTT WILSON, Dawson, N. M., to Miss Fernande Edelblut of Augusta, Ga., at El Paso, Texas, October 11.

HENRY ELSNER MARKS, New York, to Miss Diana Louise Constance Ponsonby of London, England, October 11.

AUGUSTUS CHARLES BARRY, Norfolk, Neb., to Miss Gretta McClow of Council Bluffs, Iowa, in October.

CHARLES EDGAR WHITE, Pawhuska, Okla., to Miss Carolyn Hearn Hurt of Memphis, Tenn., October 8.

BRANSFORD LOUIS ADELSBERGER, Peoria, Ill., to Miss Helen Scribner White of St. Louis, November 5.

BENJAMIN A. DVORAK, New Prague, Minn., to Miss Beatrice G. Pesek of Minneapolis, in October.

WANN LANGSTON, Oklahoma City, to Miss Clara Louise Jones of Onteora, N. Y., October 6.

ALONZO BYRON WALKER, Canton, Ohio, to Miss Lena Dixon of Burlington, Ill., October 17.

HARRY JOSEPH FRENCH, St. Martinsville, La., to Miss Laulie Guidry of Levert, October 30.

ERMINIA E. GREENBERG to Mr. Edward D. Schwartz, both of New York, in October.

CLAUDE ROSS LAIRD, Blue Hill, Neb., to Miss Emma Krula of Kearney, September 5.

HERMAN L. MASLOW to Miss Pauline Halperin, both of Brooklyn, October 27.

JOHN E. BEEBE, Chicago, to Miss Clara Pause of Oakland, Calif., October 21.

JERALD J. BRUCE to Miss Winifred Travis, both of Omaha, September 4.

Deaths

Jacob Block, San Diego, Calif.; Medical College of Ohio, Cincinnati, 1879; member of the California Medical, the Mis- souri State Medical and the American Urological associa- tions; formerly professor of genito-urinary diseases at the University of Kansas School of Medicine, Rosedale; at one time a practitioner in Missouri, and on the staff of St. Mar- garet's Hospital, Kansas City; aged 70; died suddenly, Octo- ber 31, in Philadelphia, of heart disease.

Arthur Gibbon Kelley ⊕ Atlanta, Ga.; University of Ten- nessee College of Medicine, Memphis, 1915; associate pro- fessor of pathology and bacteriology at Emory University School of Medicine; served in the M. C., U. S. Army, in France, during the World War; aged 35; died recently, of a skull fracture received when struck by an automobile.

Albert Ferdinand Brugman ⊕ New York; Medical Depart- ment of Columbia College, New York, 1883; professor of pediatrics at the Fordham University School of Medicine; on the staff of the Fordham Hospital, New York, and the United Hospital, Port Chester; aged 62; died, October 30, of cerebral hemorrhage.

Merwin W. Glover ⊕ St. Louis; Georgetown University School of Medicine, Washington, D. C., 1898; surgeon, U. S. Public Health Service; for many years with the U. S. Bureau of Chemistry, Washington, D. C.; medical officer in charge of the U. S. Marine Hospital, St. Louis, where he died, November 3, aged 49.

Sidney Philip Delaup ⊕ New Orleans; Medical Department of the Tulane University of Louisiana, New Orleans, 1890; professor of genito-urinary and rectal surgery at the New Orleans Polyclinic of Tulane University; on the staffs of the Charity and New Orleans hospitals; aged 60; died, Octo- ber 29.

Lloyd T. Miller, Caseyville, Ill.; St. Louis (Mo.) Medical College, 1863; Jefferson Medical College of Philadelphia, 1864; Missouri Medical College, St. Louis, 1879; member of the Illinois State Medical Society; aged 82; died, October 25, at the Lutheran Hospital, St. Louis, of senility.

William T. Masencup, Echols, Ky.; Kentucky University Medical Department, Louisville, 1903; member of the Ken-

tucky State Medical Association; aged 43; died, August 28, at a hospital in Louisville, of injuries received in an accident.

Walton L. Bean, Andalusia, Ala.; Louisville (Ky.) Medical College, 1897; member of the Medical Association of the State of Alabama; served in the M. C., U. S. Army, during the World War; aged 48; died, October 5, of pneumonia.

Frank Simpson Smith, Pittsburgh; Medical School of Harvard University, Boston, 1895; member of the Medical Society of the State of Pennsylvania, and the Massachusetts Medical Society; aged 54; died, September 6, of angina pectoris.

Thomas Connor Brennan, Shenandoah, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1920; aged 28; was killed, October 20, in Mifflinburg, when the automobile in which he was driving was struck by a train.

Harry Wyle Emerson, Centerville, Calif.; Medical Department of Columbia College, New York, 1892; member of the California Medical Association; aged 60; died, October 21, of chronic nephritis and cerebral hemorrhage.

G. G. Cannon, Cumberland Furnace, Tenn.; University of Tennessee College of Medicine, Memphis, 1901; member of the Tennessee State Medical Association; aged 49; died, August 28, of carcinoma of the liver.

James David Don Trumbauer, Ohio, Ill.; Rush Medical College, Chicago, 1897; aged 48; died, November 5, at the People's Hospital, Peru, of a self-inflicted bullet wound, while suffering from ill health.

Robert Isaac Allen, Bristow, Okla.; Barnes Medical College, St. Louis, 1899; member of the Oklahoma State Medical Association; aged 46; died, October 27, of injuries received when struck by an automobile.

Augustus C. F. von der Luhe, Brooklyn; Medical Department of the University of the City of New York, 1872; on the staff of the Brooklyn Hospital; aged 73; died suddenly, October 20, of heart disease.

Henry K. Blough, Elizabethtown, Pa. (licensed, Pennsylvania, 1881); member of the Medical Society of the State of Pennsylvania; aged 79; died, October 20, of heart disease, while attending a patient.

James Loyal Christie, Conoquenessing, Pa.; Miami Medical College, Cincinnati, 1877; member of the Medical Society of the State of Pennsylvania; aged 72; died, October 13, following a long illness.

Israel Solomon Feinberg, New York; Medical Department of Columbia College, New York, 1888; member of the Medical Society of the State of New York; aged 58; died, October 28, of chronic nephritis.

William Henry Harr Bull, Douglassville, Pa.; Pulte Medical College, Cincinnati, 1885; formerly on the staff of the Walter Clarke Inn, Wernersville; aged 64; died, October 25, of cerebral hemorrhage.

Will A. Conklin, Leitchfield, Ky.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1883; formerly county health officer; aged 69; died in October.

Allen Thomas Leonard, North Tonawanda, N. Y.; Medical Department of the University of City of New York, 1891; aged 62; died, October 20, of a skull fracture received in an automobile accident.

Robert C. Prewitt, Osceola, Ark.; Kentucky School of Medicine, Louisville, 1879; University of Louisville (Ky.) Medical Department, 1884; Confederate veteran; aged 79; died, October 27, of senility.

John Herman Branth ⊕ New York; Miami Medical College, Cincinnati, 1875; aged 82; died, November 1, at the Roosevelt Hospital, of a skull fracture received when struck by an automobile.

David Louis Rauch, New York; Bellevue Hospital Medical College, New York, 1889; formerly on the staff of the Bellevue Hospital; aged 63; died suddenly, October 30, of heart disease.

Samuel Carpenter Pigman ⊕ Concordia, Kan.; Jefferson Medical College of Philadelphia, 1879; formerly member of the school board and coroner; aged 66; died, November 5, of carcinoma.

Ralph Elliott Rugh ⊕ Racine, Wis.; Rush Medical College, Chicago, 1903; formerly on the staff of the Lake Geneva (Wis.) Sanitarium; aged 48; died, October 28, of cerebral hemorrhage.

Henry Jabez Barnes ⊕ Boston; Medical School of Harvard University, Boston, 1872; professor of hygiene at Tufts College Medical School, Boston, 1899-1912; aged 75; died, October 20.

William Quinton Kendall, Berlin, Ala.; College of Physicians and Surgeons, Baltimore, 1880; member of the Medical Association of the State of Alabama; aged 64; died, October 23.

Louis E. McCurry, Tahlequah, Okla.; University of Arkansas Medical Department, Little Rock, 1890; member of the Oklahoma State Medical Society; aged 63; died, September 12.

James Dace Plunket, Nashville, Tenn.; University of Pennsylvania School of Medicine, Philadelphia, 1863; Civil War veteran; aged 84; died, October 29, at Pasadena, Calif., of senility.

William A. Mosier, Tekoa, Wash.; Hahnemann Medical College and Hospital, Chicago, 1889; aged 60; died, October 20, in a sanatorium at Portland, Ore., of carcinoma of the stomach.

Willis Weiss McNamara, Thompson, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1896; aged 55; died, October 18, at a hospital in New York City, of bronchopneumonia.

Clarence C. Smith, Burbank, Okla.; Rush Medical College, Chicago, 1920; member of the Oklahoma State Medical Association; aged 34; was found dead in his office, October 19.

Raymond Peter Bonelli ⊕ Boston; Tufts College Medical School, Boston, 1907; aged 43; died, September 13, at Wells, Me., of a skull fracture received in an automobile accident.

Thomas S. Fawcette, Burlington, N. C.; Baltimore (Md.) Medical College, 1892; member of the Medical Society of the State of North Carolina; aged 55; died in October.

Zephaniah W. Shepherd, Ashley, Ind.; Hahnemann Medical College and Hospital, Chicago, 1877; also a minister; aged 85; died, October 19, of cerebral hemorrhage.

Hugo Rothstein, St. Louis; Missouri Medical College, St. Louis, 1877; member of the Missouri State Medical Association; aged 85; died, October 22, of senility.

John Franklin Osborn, Corning, Mo.; Missouri Medical College, St. Louis, 1880; member of the Missouri State Medical Association; aged 67; died, October 21.

Oscar J. Fullerton, Waterloo, Iowa; State University of Iowa College of Medicine, Iowa City, 1884; aged 74; died, October 23, at a hospital in Los Angeles.

Clarence Rhodolphus Gardner ⊕ Northampton, Mass.; Medical Department of the University of the City of New York, 1879; aged 73; died, October 21.

James Luther Morehouse ⊕ Fowler, Ind.; Starling Medical College, Columbus, Ohio, 1897; aged 49; died, October 23, of epidemic (lethargic) encephalitis.

Charles Beers ⊕ Asheville, N. C.; Medical College of Ohio, Cincinnati, 1896; aged 51; on the staff of the Meriwether Hospital, where he died, October 23.

Patrick Burns, Perry, Kan.; University of Nashville (Tenn.) Medical Department, 1867; formerly mayor of Perry; aged 77; died, October 20, of myocarditis.

Ulysses L. Kinnison, Kirkersville, Ohio; Starling Medical College, Columbus, 1894; mayor of Kirkersville; aged 58; died, October 24, of heart disease.

John Morris Fry, Cleveland; Medical Department of Western Reserve University, Cleveland, 1890; aged 55; was found dead in bed, October 23.

Frederick Hester, Rushville, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1895; aged 55; died, October 27, of cerebral hemorrhage.

Charles C. Lucas, Kearneysville, W. Va.; University of Maryland School of Medicine, Baltimore, 1886; aged 62; died, October 20.

Aaron B. Ogden, St. Charles, Iowa; Eclectic Medical Institute, Cincinnati, 1884; aged 63; died, September 3, of cerebral hemorrhage.

Jackson Vaughn Chilton, Hannibal, Mo.; Northwestern University Medical School, Chicago, 1923; aged 26; died, October 20.

James G. Cherry, Hattiesburg, Miss.; Louisville (Ky.) Medical College, 1873; aged 80; died, October 19, of senility.

Josephine Lyford Peavey, Denver; Denver College of Medicine, 1895; aged 61; died, October 20, of carcinoma.

Winfield Scott McNeill, Veedersburg, Ind. (years of practice); aged 74; died, October 27, of senility.

Correspondence

MORTALITY FROM CANCER

To the Editor:—I have recently had occasion to consider the mortality statistics from cancer of a number of representative governments. ("Cancer and Civilization," *Prudential Press,* Newark, N. J., 1923). In this investigation I was not able to give extended consideration to Asiatic governments for which trustworthy statistics are available. However, I here present certain statistics for Japan which may be of interest to your readers, together with a brief table of the cancer mortality of five cities of Finland. I have not been able to secure the cancer mortality statistics of Japan for 1919. (Furnished by the Statistical Division, Army Medical Library, Washington, D. C.)

Table 1 shows the mortality from all forms of cancer in Japan during the period 1911-1921, excluding 1919.

According to this table, the cancer death rate of Japan during the present decade has increased from 66.9 to 76.1 per hundred thousand of population. The Japanese cancer death rate, therefore, approaches the corresponding death rate for the U. S. registration area.

Table 2 shows the mortality from cancer of the breast in Japan, with the rates based on the female population only.

This table reveals a surprisingly low death rate from cancer of the breast, which has probably remained stationary during the decade under observation.

TABLE 1.—*Mortality from Cancer in Japan, 1911-1921*

Year	Population of Japan	Deaths from Cancer and Other Malignant Tumors	Death Rate Per 100,000
1911	50,683,600	33,888	66.9
1912	52,167,000	34,186	65.5
1913	52,917,600	36,845	69.3
1914	53,675,700	36,652	68.2
1915	54,448,200	37,494	68.9
1916	55,235,000	39,059	70.7
1917	56,035,100	38,714	69.1
1918	55,662,900	40,257	72.3
1919	.....	.....	....
1920	55,963,053	42,994	76.6
1921	56,787,300	43,234	76.1

TABLE 2.—*Mortality from Cancer of the Breast in the Female Population of Japan, 1911-1921*

Year	Female Population	Deaths from Cancer of Breast	Death Rate Per 100,000
1911	25,528,000	481	1.8
1912	25,888,400	511	1.8
1913	26,257,400	504	1.9
1914	26,630,900	507	2.0
1915	27,011,000	549	1.9
1916	27,398,000	537	1.9
1917	27,538,300	606	2.2
1918	27,678,600	552	1.9
1919	.....	...	...
1920	27,918,145	592	2.1
1921	28,332,800	542	1.9

Approximately, cancer of the breast is ten times less frequent among Japanese women than among women of the United States or of England and Wales. The results of the present investigation are in strict conformity to previous data made public in my work on the mortality from cancer throughout the world.

There is no more interesting phase of the cancer mortality problem than the differential rate for cancer of the breast among different populations. A somewhat similarly surprising result has recently been revealed by the investigation of the Cancer Committee of the League of Nations with reference to Holland and Great Britain. No field of statistical research in cancer mortality would seem to offer more promising possibilities than a strictly scientific study of the relative incidence of cancer of the breast among different races with due regard to dietary habits, lactation, obstructive clothing and other possible forms of breast irritation.

Even more surprising in this respect have been the results of important investigations among native Indians of North and South America among whom cancer of the breast is of very rare occurrence, if indeed it occurs at all, when there is no intermixture of white blood or any assimilation of the surrounding white population.

Table 3 presents the cancer statistics of large cities of Finland.

In the case of Finland, the cancer death rate of large cities has increased from 66.1 in 1908 to 80.5 in 1918, conforming, in this respect, to the general trend of the cancer death rate in other civilized governments for which trustworthy data are available. The British medical and lay press during recent months has given considerable attention to the relative frequency of cancer among native races or primitive peoples. It is to be hoped that the suggestions made, in this respect, to those who are in a position to render the required services will yield more promising and useful results in the future than has been the case in the past. There is certainly a wealth of material available for the purpose. It may be said in this connection that the statistical division of the Army Medical Library in Washington now possesses the largest collection of international vital statistics accessible anywhere in the world. The data are available, and they require only to be subjected to qualified statistical and medical consideration and analysis.

TABLE 3.—*Mortality from Cancer in Five Cities of Finland, 1908-1918 (Helsingfors, Borga, Lovisa, Fekenas and Hango)*

Year	Population	Cancer Deaths in Cities	Death Rate Per 100,000
1908	155,815	104	66.1
1909	161,767	117	72.3
1910	167,719	106	63.2
1911	172,476	131	75.9
1912	180,001	120	66.6
1913	186,304	133	71.3
1914	189,638	146	76.9
1915	195,535	134	63.4
1916	202,268	154	76.1
1917	206,248	154	74.6
1918	203,566	164	80.5

FREDERICK L. HOFFMAN, Wellesley Hills, Mass.

A "DIVINE HEALER"

To the Editor:—Some weeks ago the associate secretary of the Alberta Medical Association wired your secretary for information concerning the Rev. "Dr." C. S. Price, "Divine Healer," who lays claim to California as his place of residence. Your secretary replied that he could give no data regarding him.

In some way this man has been able to secure the cooperation of ministers and religious organizations to aid and abet him in his practices. Under the guise of religion, he attempts to cure "the lame, the halt and the blind" as well as those with serious organic diseases, calling to his aid hypnotism pure and unadulterated. I may say that he will not admit that it is hypnotic power, but places the onus on the intervention of the Lord.

In many cases, as might be surmised, the results have been disastrous. From official sources in Vancouver, I learn that,

following his séances, twenty victims had to be placed in hospitals, while it was necessary to confine six in the insane asylum. One of the latter died a few days following incarceration.

From Oregon I learn that the same disastrous consequences resulted in Albany, Ashland, Eugene and Corvallis (all towns and cities in Oregon). In Corvallis, according to a physician of Albany, Ore., who writes me, "One woman was put under the 'power' and remained so for four days, dying without regaining consciousness." Other deaths occurred soon after the patients had been pronounced cured by Price. In one typical case, a woman was treated for cancer and pronounced cured; the third day she died, and it was announced that recovery was so rapid that it overtaxed her weakened heart. If the poor dupes show no apparent cure, they are told that it is because of lack of faith.

The financial end of his campaign is cleverly maneuvered, and "love offerings" are sought. In Albany, Ore., after all expenses were paid, out of four weeks' sojourn he netted $2,334; in Victoria and Vancouver, in the neighborhood of $25,000, and in Calgary over $15,000, from a three weeks' sojourn.

I am informed that in Vancouver this man claimed to be a Rotarian, which he is not, and also that he has no right to the title of "Doctor." Some years ago he toured the states with a "medicine show."

Surely, in these enlightened times, practices such as I have outlined should be brought to the full light of day and full exposure made through THE JOURNAL.

G. E. LEARMONTH, M.D., Calgary, Alta.

CAN THE RECURRENT LARYNGEAL NERVE FUNCTION THROUGH THE DESCENDENS HYPOGLOSSI?

To the Editor:—Several cases of paralysis of the recurrent laryngeal nerves, both right and left, have been referred to me by Dr. Chevalier Jackson. The resultant paralysis is most distressing, involving, as it does, not only aphonia, but also dyspnea. In fact, to relieve the latter, Dr. Jackson had to perform a tracheotomy. Dr. Jackson and I discussed the question of relief by nerve anastomosis, and we came to the conclusion that, on theoretical grounds, at least, it might be possible to supply the necessary cortical stimulation by way of the ramus hypoglossi descendens. This operation, with Dr. Jackson's approval, I have carried out on one side, and two months after the operation the following report was received: "Mirror examination shows the glottic chink on deep inspiration to be about twice as wide as before operation. There is more movement in the cord and, while the excursion is only slightly greater, it is I think sufficient to be unmistakable."

While function has not been fully restored, it would appear that eventual recovery is merely a matter of time.

CHARLES H. FRAZIER, M.D., Philadelphia.

Tuberculin in Diagnosis.—For more than twenty years we have used the subcutaneous tuberculin test and have encountered no untoward results of any moment. When I pause to think today of the chances we ran in giving the test to many patients with extensive pulmonary tuberculosis but few physical signs, I am convinced that given as we give it today, the tuberculin test is never harmful. We use it only in patients with doubtful or slight parenchymatous roentgen-ray lesions, in whom other sufficient data are lacking. Should the test prove to be negative, we return the patient to his home and work, telling him that if he should ever wish to reenter the institution, we will take him in at once. So far no such patient has ever applied for readmission. Brown: Annual Medical Report, Trudeau Sanatorium, 1923.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MEDICAL DISCOVERIES

To the Editor:—I am anxious to locate in the literature the reference to the discovery of some of the more important advances in preventive medicine. I refer particularly to such discoveries as (1) the use of silver salts for the prevention of ophthalmia; (2) the use of iodin as a prevention of infection; (3) the value of vaccination against typhoid; (4) the importance of infected water for the spread of cholera; (5) the use of quinin for the prevention and cure of malaria, and others of the same type. Are there outstanding names connected with these discoveries similar to that of Jenner in the discovery of the value of vaccination and of Semmelweis in the discovery of the cause of puerperal infection?

A. C. BURNHAM, M.D., New York.

ANSWER.—1. Credé is credited with the introduction of silver nitrate in the treatment of ophthalmia neonatorum.

2. Senn recommended the use of iodin to sterilize the skin in 1905, and Grossich strongly advocated its use in 1908.

3. A. E. Wright introduced vaccination against typhoid in the British Army, and Col. F. F. Russel and associates in the United States Army.

4. Vaughan says that one of the first to recognize that water was instrumental in the spread of cholera was Snow, who brought forward the evidence against the "Broad Street Pump," a case which has become a classic in the history of epidemiology. As early as 1848, Budd of Bristol, England, supported Snow in his claim.

5. Markham, in his book entitled "A Memoir of the Lady Ana De Osoria, Countess of Cinchon," says: "In 1638, the Countess of Cinchon, the wife of the Viceroy of Peru, lay very ill with tertian fever at Lima, the capital city. The news was carried to Canizares, the Corregidor of Loxia, a town among the Andes, in the present Ecuador. Though the natives of Peru were unacquainted with the curative power of the bark, those of the more northern-lying countries appreciated its worth, and from them Canizares obtained the secret. He, therefore, sent a parcel of it to the vice-queen. Her physician, de Vega, agreed to its employment, and she recovered in a short time. In 1640 the Countess returned to Spain, and carried with her a large quantity of the precious bark, which she distributed about her native place in the vicinity of Madrid. De Vega followed and brought likewise a large amount of the bark to Spain, which he sold at Madrid for a hundred orrales a pound. The Countess employed the bark so extensively that for a long time it bore the name 'Countess' Powder (pulvis Comitissae)."

WHEN IS GONORRHEA CURED?

To the Editor:—Some years ago, I read in THE JOURNAL a statement to the effect that no reputable physician was justified in pronouncing a case of gonorrhea cured until treatment had been taken for a period of five years at least; that even then the cure might be considered problematic, and that the patient should consider his case very carefully before thinking that a cure had been effected. It seems to me that I read this article along about 1919 or 1920. I was in a unit in the war that treated this disease, and there it was considered as possible to effect a cure if undertaken before becoming deep seated; but that after becoming deep seated, a cure was very doubtful. Is there anything lately that would tend to contradict this statement? My reason for asking is to combat statements of "wise laymen" who consider the disease as no worse than a "cold." I myself doubt many so-called cures.

CLIFFORD T. COLVIN, M.D., Fowler, Ind.

ANSWER.—Gonorrhea in the male is, in approximately 96 per cent. of subjects, a local disease, limited to the genital tract. The proof of cure must demonstrate, therefore, that this tract harbors no gonococci. By the methods of a past generation, still prevalent, such proof is impossible; for such methods ignore two facts: (1) that in more than half the cases the infection extends to the seminal vesicles, where gonococci may be harbored for years, with no other discharge than an intermittent morning drop; and (2) that the urethra is lined with glands and pockets, the latter half an inch deep and opening toward the bladder in the posterior half, in which likewise gonococci may flourish indefinitely, unharmed by treatment of the urethral surface. So long as intelligent treatment of the urethra, posterior as well as anterior, is continued, there may be little or no discharge; but within a few days after injections are discontinued, the urethra may be reinfected from these pockets, prostatic follicles or

vesicles; and a pus discharge containing gonococci shows that the "cure" was only apparent.

There is, however, a feasible way of securing for examination the contents of all the glands and lacunae of the urethra as well as of the vesicles. It is common knowledge that, during the sexual excitement with erection which precedes emission, there is active secretion by all glands opening into the seminal tract, which secretion floats to the urethral surface their contents, filling the canal to overflowing. This fluid, together with that from the vesicles, constitutes the emitted semen. If repeated expert examinations of the seminal fluid fail to reveal gonococci, their absence from the entire tract is assured—but in no other way. Cultures from the seminal fluid are academically proper, but practically unnecessary if the test described is negative.

The complement fixation test, giving a distinctly positive result, is a strong presumption of present or past infection; but it is often negative even when gonococci are detected in the emitted semen.

LITERATURE ON THE PROGRESS OF MEDICINE

To the Editor:—I have been asked to present a paper on "Medical Progress" before one of the clubs in our town, and should like to know whether you have any literature that would give me the information in a concise form or in an interesting manner, so as to make the paper of value and acceptable to them. Any help you can give me will be very much appreciated.

E. H. J., Kansas.

ANSWER.—The following references may be consulted:

Owen, W. O., and Hitchens, A. P.: Recent Advances in Medicine in 1922, *Internat. Clin.* **1**: 260-276, 1923.
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Risley, E. H.: Recent Progress in Surgery, *Boston M. & S. J.* **184**: 98 (Jan. 27) 1921.
Rooney, R. F.: Over Fifty Years in Medicine, *California State J. Med.* **20**: 354 (Oct.) 1922.
Marsh, A. W.: Changes That Have Occurred in the Past Twenty-Five Years Having an Effect on the Progress of Medicine, *Boston M. & S. J.* **187**: 2821 (Dec. 7) 1922.
Slack, H. R.: Progress of Medicine in the Last Generation, *J. M. A. Georgia* **11**: 405 (Oct.) 1922.
Shelton, W. J.: Progress of Preventive Medicine, *Kentucky M. J.* **20**: 99 (Feb.) 1922.
Whitelock, C. K.: Some Notes on Progress of Medical Science, *Canadian M. Month.* **5**: 242 (June) 1920.
McDonald, S. F.: Recent Advances in Medicine, *M. J. Australia* **1**: 515 (June 5) 1921.
Vaughan, V. C.: Service of Medicine to Civilization, THE JOURNAL, March 14, 1914, p. 2003.
Miller, H. A.: Relation of Chemical Research to Medicine, *Southwestern Med.* **6**: 175 (May) 1922.
Chittenden, R. H.: Research in Chemistry as Related to Medicine, THE JOURNAL, April 29, 1922, p. 1273.
Blackman, G. E.: Half Century of Medicine and Surgery, *New York State J. Med.*, April, 1915.
Grinker, Julius: Progress in Neurology and Psychiatry During the Last Twenty-Five Years, *Internat. Clin.* **4**, 1915.
Nuckols, O. P.: Today and Yesterday in Medicine, *Kentucky M. J.*, October, 1915.
Keister, B. C.: Cursory Review of Surgery and Medicine of Twentieth Century Viewed from Several Angles, *Southern M. J.* **12**: 160 (March) 1919.

NONSURGICAL DRAINAGE OF THE GALLBLADDER

To the Editor:—Please send me some information about medical drainage of the gallbladder. Please omit my name.

——— ———, M.D., South Carolina.

ANSWER.—A full description of the technic may be found in Chapter XVII of the book by Dr. B. B. V. Lyon, entitled "Non-Surgical Drainage of the Gall Tract." The patient presents himself after fasting for twelve hours. Disinfection of the mouth is attempted by thoroughly rinsing the throat with an astringent solution containing zinc chlorid and solution of formaldehyd, followed by rinsing with 1:500 solution of potassium permanganate and again followed by rinsing and gargling with the astringent solution, finishing with a similar rinsing with sterile water. The sterilized duodenal tube is passed to the greater curvature at the 55 cm. mark, at which the gastric residue is extracted by aspiration or gravity. The gastric mucosa is now washed with several changes of sterile water and treated with 250 c.c. freshly prepared solution of protargin mild-N. N. R. or some other antiseptic which is mentioned. The patient now lies on his right side, the proximal end of the tube having been swallowed slowly to the 75 cm. mark. If no free hydrochloric acid is present, the tip is probably in the duodenum. The gallbladder is then stimulated to evacuate its fluid contents by instillation into the duodenum of 75 c.c. of 33 per cent. volumetric solution of magnesium sulphate at body temperature. As a rule, gravity is sufficient to allow the bile to escape. Three types of bile are obtained: A-bile from the common duct, B-bile from the gallbladder, and C-bile from the hepatic duct and liver. The various biles are examined macroscopically and microscopically for sediment and chemical reaction, and cultures are made from which vaccines are also made. A description of these procedures would require considerable space, and can be had by referring to the author's book or to many of his articles.

DATE OF YELLOW FEVER ANNOUNCEMENT

To the Editor:—Please let me know, if possible, the date, day, month and year when it was officially announced that the mosquito is the cause of yellow fever.

W. O. HART, New Orleans.

ANSWER.—The causative agent of yellow fever has not been discovered, although Noguchi claims that *Leptospira icteroides*, which he isolated, is the cause. What our correspondent probably desires to know is the date of the official announcement that mosquitoes transmit yellow fever. This was demonstrated by U. S. army officers in Cuba in the summer and autumn of 1900, and a preliminary report of the work was made before the annual meeting of the American Public Health Association, Indianapolis, Oct. 22-26, 1900. This was published in the *Philadelphia Medical Journal*, Oct. 27, 1900, and in abstract in THE JOURNAL, Nov. 3, 1900. Camp Lazear was then established near Quemados, Cuba, in order absolutely to control the movements of those who were to submit to inoculation. Under these conditions, conclusive evidence was soon obtained to establish the fact that the mosquito transmits yellow fever, and that it is not transmitted in any other way. A report of this work was presented before the Pan-American Medical Congress in Havana, Cuba, Feb. 4-6, 1901, and published in THE JOURNAL, Feb. 16, 1901.

ALKALI IN DIABETES

To the Editor:—Should an alkali—such as sodium bicarbonate—be given in the treatment of diabetes conjointly with insulin? If not, why? Should an alkali be given at all in the treatment of diabetes?

J. S. BOYERS, M.D., Decatur, Ind.

ANSWER.—There is only one indication for the use of alkali in the treatment of diabetes mellitus, and that is the presence of acidosis or coma. In acidosis the presence of organic acid uses up a certain share of the reserve alkali in the body, and a condition of hypo-alkalosis occurs. Sodium bicarbonate is used often to restore the alkali reserve to normal. Medical opinion is divided as to its value. Some authors believe that sodium bicarbonate should be given in doses large enough to render the urine alkaline. Others have seen no benefit from its use, and advise gradual withdrawal if previously it has been employed.

The use of insulin should prevent the occurrence of acidosis and thereby render alkali unnecessary in treatment. In the presence of acidosis or coma, when insulin is being used, the majority of authors seem to favor alkali therapy; but there is no unanimity about the amount. Allen, in his most recent contribution, suggests from 10 to 40 gm. daily. Except in acidosis, diabetic patients are probably better off without alkali, except for the relief of occasional gastric disturbance.

LIABILITY FOR INJURY FROM USE OF RENTED RADIUM

To the Editor:—I desire to take advantage of an opportunity that has been afforded me to rent radium for use in my practice, the rentor advising as to details of application. What would be my legal status if a patient should allege that he had been injured through some fault in advice or application?

H. W. H.

ANSWER.—Under the circumstances stated, the liability of the physician would be in no way different from that of the physician who owned his own radium and used it according to his own judgment. The attending physician must treat his patient with due care and with ordinary knowledge and skill; and, if he fails to do so, and harm results without fault on the patient's part, the physician is liable, even though he may have acted in good faith, on the advice of others whom he supposed to be competent.

COMPENSATION FOR MEDICAL SERVICES TO SOLDIERS AND SAILORS ON FURLOUGH

To the Editor:—I operated for mastoiditis on a sailor of the U. S. Navy, on furlough. I am now told that I must look to the man himself for my pay, as the liability of the government ceases while a sailor is on furlough. What are the facts?

G. F. K.

ANSWER.—The government does not pay civilian physicians for services rendered soldiers and sailors on furlough.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

DELAWARE: Wilmington, December 11-13. Sec., Dr. P. S. Downs, Dover.

DELAWARE: Wilmington, December 11. Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.

LOUISIANA: New Orleans, December 13-15. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

NORTH CAROLINA: Chapel Hill, December 4. Sec., Dr. Kemp P. B. Bonner, Raleigh.

OHIO: Columbus, December 5-7. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

TEXAS: Dallas, November 20-22. Sec., Dr. T. J. Crowe, Dallas County Bank Bldg., Dallas.

VIRGINIA: Richmond, December 11-14. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

FURTHER DIPLOMA MILL INVESTIGATIONS IN CONNECTICUT

The main activities in the diploma mill investigation have now been transferred to Connecticut, extensive reports of which have appeared in the Hartford *Courant* and *Times*.

It is now reported that Dr. George E. Sutcliffe of Unionville, Conn., was the physician who confessed to Governor Templeton and other state officers, that he had fraudulently obtained a diploma in Missouri which permitted him to take the examination in Connecticut for a license to practice medicine, details of which were recorded in THE JOURNAL last week.

Sutcliffe's statement has led to an investigation as to how 142 physicians secured their licenses from the Connecticut Board of Eclectic Medical Examiners, by which they have been practicing medicine in that state.

Dr. Sutcliffe is one of the twenty-one physicians whose licenses were declared invalid by the attorney-general of Connecticut last June. It will be remembered, as was mentioned in THE JOURNAL,[1] that the Connecticut legislature passed a bill which would have given them legal authority to practice; Governor Templeton, however, vetoed the bill.

The twenty-one physicians for whom the legislature sought to restore a legal status are reported as follows:

Joseph Irving Berlin	Peter K. Koraitus
Minnie Telitha Brinkley	Wilbur T. Ledebur
John Benjamin Buehler	Samuel Lilienthal
Maurice B. Burstan	Catherine Linehan
Anthony R. Campo	Etamar A. Mower
Harry Chaimson	Robert Ware Rogers
Modestino Coppola	George Sutcliffe
Frederick Desaunier	Frances M. Axman Tuttle
William Feldman	Lamar X. Tuttle
Robert P. Hammie	Isadore Yochelman
Joseph Koplowitz	

The original report in regard to these persons which appeared in the Bridgeport *Herald* of June 24, 1923, included also the names of Paul Victor Marzio and Raymond C. Prosque.

An investigation of the records on file at the headquarters of the American Medical Association shows that eight of these individuals are given as graduates of the St. Louis College of Physicians and Surgeons. These are Campo, Chaimson, Coppola, Desaunier, Lilienthal, Mower, Sutcliffe and Yochelman; Burstan as a graduate of the Chicago College of Medicine and Surgery; Feldman of the University and Bellevue Hospital Medical College; Brinkley as a graduate of the Kansas City College of Medicine and Surgery, and Hammie as a graduate of the College of Physicians and Surgeons, Boston. For the other eleven candidates named, the information in the files of the American Medical Association does not indicate that they ever graduated from or even attended any bona fide medical school. One of these "unknowns" Ledebur is reported by the Eclectic Board of Connecticut as a graduate of the Maryland College of Eclectic Medicine and Surgery of Baltimore in the year 1923, although an official statement on file says that the "corporation was dissolved in 1915."

1. Connecticut Sees the Light, editorial, J. A. M. A. **81**: 216 (July 21) 1923.

Dr. Hammie is said to have had considerable difficulty in obtaining his original license. It is stated he failed eight times in the examination given by the Connecticut (Regular) Board of Medical Examiners, but passed the examination given by the Eclectic Examining Board with high marks and was certified to the State Board of Health for a license which was issued, but was later revoked when it was found that the school he attended had not been listed as approved by the eclectic board.

In the investigation Health Commissioner Osborn notified Governor Templeton that all the doctors named in the validating bill, vetoed by the governor last June, had since been reexamined and again passed by the Eclectic Medical Examining Board.

A report from the National Eclectic Medical Association published in the Hartford (Conn.) papers states that the Kansas City College of Medicine and Surgery, Kansas City, Mo., has never been recognized by that association. The same report also states that neither the St. Louis College of Physicians and Surgeons nor the National University of Arts and Sciences have ever been recognized by the National Eclectic Medical Association.

In the investigation, the report states that Dr. James Christian, of Fairfield, who had been nominated as a member of the Connecticut Eclectic Examining Board, held a degree from the Kansas City College of Medicine and Surgery. He is said to be the one to whom Dr. Ralph A. Voigt of St. Louis, the alleged mastermind of the diploma ring, referred when, according to the report, in conversation with Dr. Adcox, another member of the ring, he said that "one of the members up there (Connecticut) died and Alex. (Dr. D. R. Alexander) is trying to get one of his past graduates on the board in his place."

This situation was referred to, according to the report, in a letter written to Dr. Adcox by a Chicago physician, the original of which was found in Dr. Adcox's office and shown at Governor Templeton's conference. The letter in part is as follows: "Dear Ad—Was in St. Louis five hours and the first man I tried to locate was you, but nothing doing. Sure wanted to see you too, P. & S. (St. Louis College of Physicians & Surgeons) is now O. K. in Connecticut, but certificates granted before the school was listed are N. G., but from now on everything will be O. K. Looks as though we will have to take the exams over."

This story will be continued next week. Meanwhile what is Arkansas going to do about it?

Mississippi June Examination

Dr. W. S. Leathers, secretary, Mississippi Board of Health, reports the written examination held at Jackson, June 13-14, 1923. The examination covered 12 subjects and included 96 questions. An average of 75 per cent. was required to pass. Of the 26 candidates examined, 22 passed and 4 failed. Twelve candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Emory University School of Medicine	(1923)		83
Northwestern Univ. Med. School	(1923) 78.5, (1923, 3)* 79,†		80.5
Tulane University	(1921, 2) 75, 84, (1922) 88.5, (1923, 6) 83.5, 83.5, 85.5, 88, 89		82,
University and Bellevue Hospital Medical College	(1923)		86.5
Columbia University	(1923)		88
University of Pennsylvania School of Medicine	(1923, 2)		82, 87.5
Meharry Medical College	(1923, 3) 76,		80, 80.5
University of Virginia	(1919)		89

College	FAILED	Year Grad.	Per Cent.
Meharry Medical College	(1908) 64, (1923, 3) 68,		68, 73.5

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Alabama	(1901),	(1904)	Alabama
College of Physicians and Surgeons, Chicago	(1883)		Iowa
Rush Medical College	(1902)		California
Tulane University	(1919),	(1921)	Louisiana
University of Pennsylvania	(1909)		Alabama
Chattanooga Medical College	(1904)		Arkansas
Meharry Medical College	(1915)		Missouri
University of Tennessee College of Medicine	(1914),	(1921)	Tennessee
Vanderbilt University School of Medicine	(1916)		Louisiana

* Graduation not verified.
† No grade given.

Book Notices

MEMOIRS: WITH A FULL ACCOUNT OF THE GREAT MALARIA PROBLEM AND ITS SOLUTION. By Ronald Ross. Cloth. Price, $9. Pp. 547, with illustrations. New York: E. P. Dutton & Company, 1923.

Sir Ronald Ross' Memoirs make a book of nearly 550 solidly printed pages. The author first gives his pedigree, going back into the dim past, where it becomes obscure. Born in India in 1857, during the Indian mutiny, son of an Indian army officer, his early boyhood was spent in that country, but his education was obtained in England. For a time it would seem that he was as likely to be a novelist, a poet or a dramatist as a medical man; for years he dabbled as much in one as in the other; in fact, as late as 1892 he wrote that he was thinking of taking to literature as a profession after his first pension became due. His publications in the field of romance, the drama and poetry alone, judging from the number, indicate diversified talents. Later in life, although he had little fundamental knowledge of the subject, except that which was self taught, he took up and advanced the most abstruse problems in higher mathematics. His incursion into this field may be appreciated by the titles of some of his published papers: "The Algebraic Space," "The Method of Solving Algebraic Equations," "Isosceles Trigonometry" and "The Operative Rules of the Circle-Function."

In 1879 he took the examination—for which he said he was not prepared—and after a three days' "grind" obtained his M.R.C.S. As the Indian Medical Service required a medical as well as a surgical qualification, he took the easiest way, he says, to secure it—that as licentiate of the Society of Apothecaries—"L.S.A." He failed, much to his own discomfiture and to the annoyance of his father, who threatened to reduce his allowance. As he could not come up for another examination for some months, he became a ship surgeon on one of the Anchor Line steamers and relates some of his experiences on his ocean practice. In 1881, he received his L.S.A., passed his examination for the Indian Medical Service, and, after four months at Netley for the course in military medicine, went to India. His account of the life of an Indian Medical officer is both informative and interesting. He is rather pessimistic with respect to the scientific work of the average Indian medical officer, and this is explained by the fact that even at Netley they "were told nothing of bacteriology . . . nor of the parasites of malaria which had been discovered by Laveran."

In 1888, he returned to England on a year's furlough. At that time bacteriology was coming to the fore "even in England," and Ross took a course under Kline; he also took a course in public health, which had just been started, and obtained the D.P.H. In August, 1889, he returned to India, and says that he became really interested in scientific medicine; evidently, however, he was still as much concerned with his various literary ventures as in his professional work.

In the spring of 1894, he went to England on another furlough. At this time he had not become interested in malaria any more than in other diseases prevailing in India. While he knew of Laveran's discovery of the malaria plasmodium, he was not convinced. But on consulting Kanthack, pathologist at St. Bartholomew's, London, and Patrick Manson, his doubts were soon removed. It was this visit to England, especially the personal contact with Manson, that started Ross in the right general direction, which, after many vexatious, discouraging and time-consuming "detours" were made, led to the goal. Manson's knowledge and experience gained while doing parasitology and other tropical medicine work in China, and later in London, made him a valuable adviser for Ross. It was during this year's furlough in England—it was really fourteen months, for he was granted two months' extension—that he won the Park's gold medal and prize of 75 guineas for an essay on malarial fever. This was after he had been a year in England, and is evidence that he had become thoroughly interested in the disease. In this essay, he admits Laveran's parasite, describes the appearance in the blood which were mistaken for the plasmodia, and explains why he had failed to find them; he also discusses the fevers then confused with malaria.

Thus it was that in 1895 he returned to India with entirely different motives and feelings than he had when returning from his previous furloughs. Dominating all was an ambition to solve the malarial problem. Then began a correspondence with Patrick Manson in which, judging from the letters published, Ross gives, step by step, the progress made and the obstacles met and overcome, and tells how finally he demonstrated that malaria—a disease that killed over a million annually in India alone—was caused by the bite of the anopheles mosquito. Altogether, during the four years following April, 1895, Ross wrote 110 letters to Manson and received fifty-five letters from him. Reading these letters, one feels that had it not been for Manson's encouragement, cooperation and helpful suggestions contained in his correspondence, it is not at all impossible that Ross would have given up. Through these letters to Manson, he reported in great detail his daily work, thus making it possible for others to take up the same work and possibly, through better facilities, reach the goal before he did—praiseworthy unselfishness. Many of the letters are reproduced in full; others, in part.

Assuming that malaria is transmitted by the mosquito, the problems to be solved were (1) What particular species of the mosquito is the criminal? and (2) How is the infecting material transmitted? What baffled Ross for a long time, although he did not know or suspect it, was that only a certain species of mosquitoes is concerned. In a letter to Monson, May 12, 1897, these lines occur quite incidentally:

> I found not a single mosquito grub anywhere, but caught a mosquito full of blood in the Rest-House [at Sigur]. This mosquito was small, with wings striped brown and white.

In a footnote, Ross says "the wings were spotted, not striped. It was the first anopheles I had ever observed." A solution of one of the problems was in his grasp, but he did not know it. Four months later, a hospital assistant pointed out a mosquito "seated on the wall with his tail sticking outwards." It was like the insect he had observed at the "Rest-house" at Sigur. He dissected it but found nothing. "While I was doing so, the worthy hospital assistant ran in to say that there were a number of mosquitoes of the same class which had hatched out in the bottle that my men had brought me yesterday." These mosquitoes were used as the other species had been—fed on malaria-infected birds or patients, then studied and dissected. Thus, after two-and-a-half years, Ross, though unsuspecting, was on the right track; he was now working with the anopheles, but many months passed before he learned that it was the real culprit.

The other problem was: Assuming that the mosquito was the causative infecting agent, how was the plasmodium transmitted to man? There were various theories. Aug. 12, 1895, Ross wrote to Manson (p. 172) ". . . so far as I can see, all the facts which I observe respecting the occurrence of malaria fever here can be explained best on the supposition that the poison is conveyed by mosquitoes into isolated pots of drinking water in the houses of men." Hence, various experiments were tried with this theory in mind, such as drying and crushing mosquitoes and inhaling the powder, drinking water in which mosquitoes had been crushed, and water which formed the breeding place of mosquitoes. This was in the early stages of the work. Later, the more important experiments and those which brought results were made with birds. As he says, he was not permitted to experiment with—at least, to attempt to infect—human beings. But birds were satisfactory, for he was finally able to report to Manson (July 9, 1898):

"Now for the clincher. On the 25th of June, I carefully selected three healthy sparrows. Their blood had been examined three times on different occasions and always found free from parasites. On the 25th night, and almost every night following, I have used these birds to refeed a large stock of mosquitoes which had been infected from diseased sparrows on 21st-22nd June. This was the identical stock with which I worked out the story of the germinal rods.

. . . but I hardly expected such knockdown results. All three birds, perfectly healthy a fortnight ago, were now simply swarming with proteosoma—twenty parasites and more in one oil-immersion field."

He repeated these and similar experiments with like results, so that he was able to say to Manson, further on in the letter just quoted, "I may now say Q. E. D., and congratulate you on the mosquito theory indeed. The door is unlocked, and I am walking in and collecting the treasures." The circle was complete.

Meanwhile, Ross had traced the life history of the germ in the anopheles mosquito to the thorax, and in his letter to Manson of July 6, 1898, he says that he is "almost" entitled to lay down the law by direct observation and tracking the parasites step by step—"malaria is conveyed from a diseased person or bird to a healthy one by the proper species of mosquito and is inoculated by its bite." While he was "almost," he was not quite ready to announce the law, and it took him months to demonstrate its correctness.

Ross returned to England in the spring of 1889, and was soon made lecturer on tropical diseases in the Liverpool School of Tropical Medicine, then being inaugurated. Incidentally, to Ross belongs much of the credit for the development of, and the excellent work done at, this institution. While the cause and the mode of transmission of malaria fever had been discovered, this discovery was of no practical value unless it was utilized to prevent the disease. This fact Ross and others tried to impress on the colonial government and others, but without success. Finally, he determined to show what could be done and, through the generosity of a Mr. Coats of Glasgow, he went to South Africa and directed an actual clean-up that proved the value of his methods. Later he went to Ismailia—a fearfully malaria-infected town—discovered the mosquito breeding places, and in a few weeks rid the town of the source of the infection, which was threatening its downfall. In 1900, with a population of 7,000 whites, there were 2,284 cases of malaria. His work in 1902 reduced the number of cases to 214; in 1903, to 90; in 1904, to 37; and in 1905, to none.

Meanwhile, the source of yellow fever had been discovered in Cuba, and the disease eliminated in Havana and the Canal Zone by the eradication of the mosquito, although of a different species. It was this work of the Americans, of Gorgas especially, that made it comparatively easy for Ross to put over his last effort in antimalaria propaganda.

These memoirs are marred by being overloaded with personal grievances, with the reiteration of the author's ill treatment—real or imaginary—and with the emphasis of his personal valor and persistence in overcoming apparently insurmountable obstacles. All this is perfectly appropriate in a biography, but some of it is hardly so in an autobiography. True, Ross had many reasons for complaint and sufficient cause for bitterness against his superior officers in the Indian Medical Service. He certainly did not have their cooperation; rather, it would seem just the opposite. But the goal is reached, success is attained; why recall all the obstacles that had to be surmounted, and especially when the personal equation comes in? Before Ross published these memoirs, the scientific world had recognized him as the discoverer of the cause and of the method of prevention of one of the most serious diseases affecting humanity; honors had been poured on him by his own as well as by other countries; he had been awarded the Nobel prize; he had had conferred on him two knighthoods and several honorary degrees, and had been elected to membership in many of the learned societies in all countries. If some of these honors or recognitions had come to him during his troubles, it would have been splendid. But, alas! this is not the way of the world.

Ross wrote for lay readers, but it is doubtful whether the book will appeal to many layman; it is too overloaded with technical details. But it is a book which every medical man who is interested in the development of modern medicine will read with profit and satisfaction. To the research worker it will be a stimulus, for it is a record of success reached by persistence, by hard work, and by overcoming obstacles that would discourage the ordinary research worker.

THE COMMON NEUROSES: THEIR TREATMENT BY PSYCHOTHERAPY. B. T. A. Ross, M.D., F.R.C.P.E., Medical Director, Cassel Hospital for Functional Nervous Disorders. Cloth. Price, $4.20 net. Pp. 256. New York: Longmans, Green & Co., 1923.

In his preface, the author defines his stand on the problems of the neuroses by declaring himself in accord with the conservative views of Dejerine, which he rightly depicts as more sober and less dazzling than those of Freud and his school of psychanalysis. He does, however, give the latter credit for having thrown much light on the mechanism of the production of the neuroses. Ross believes that the great bulk of functional nervous disorders can be treated successfully by the general practitioner, and it is to him and not to the specialist that the book is addressed. He was, himself, in general practice during seventeen years, and states that he can vouch in what good stead his psychologic knowledge stood him with every class of patient. As may be expected from a follower of Dejerine, the "neurasthenic state" receives the greatest amount of attention. Hysteria is second, and there is a chapter of twenty-three pages on the application of the freudian method. He classifies the neuroses simply by stating that they are the result of three bad ways of reacting to difficulties: (1) by overreaction, which leads to neurasthenia; (2) by underreaction or failure to react at all, leading to hysteria, and (3) pretending that the difficulty is not present, with production of obsessions and compulsions.

LEWANDOWSKYS PRAKTISCHE NEUROLOGIE FÜR AERZTE. Von Dr. R. Hirschfeld. Fourth edition. Cloth. Pp. 396, with 21 illustrations. Berlin: Julius Springer, 1923.

The fourth edition of this well known book, designed specifically for the general physician, has been brought up to date by the inclusion of chapters on epidemic encephalitis, extrapyramidal motor syndromes and the results of war injuries. The original plan of Lewandowsky has been preserved, and emphasis is laid on points of practical importance in diagnosis and treatment. With the present development of the various specialties there is great need for books containing only those fundamentals that are essential for the general practice of medicine, and it was with this in view that Lewandowsky wrote this book. The natural tendency of the neurologist is to include many of the finer points and theories on which he depends as a specialist, with the consequence that the need for concise expression leads to the development of a compendium and the sacrifice of clearness and intelligibility. Excellent as the general plan of presentation is, this book is far from avoiding the danger of obscuring the woods with the trees. The student and general physician will find much that is of real assistance in securing a broad grasp of neurologic principles, but is liable to be appalled by the mass of detail.

FIRST AID X-RAY ATLAS OF THE ARTERIES. By H. C. Orrin, O.B.E., F.R.C.S., Surgeon, Ministry of Pensions Orthopaedic Hospital. Cloth. Price, $1. Pp. 47, with 11 illustrations. New York: Paul B. Hoeber, Inc., 1923.

This booklet is an adjunct to the author's "X-Ray Atlas of the Systemic Arteries of the Body," and is of value in teaching the arterial system to students of first aid. The attempt has been made to clarify the course and relations of the large and small arteries by their injection in chosen cadavers with an opaque material, and exposures of sections of the body to the roentgen ray. The exposures have been well reproduced. It has value in demonstrating the point of election in the application of pressure in arterial hemorrhage in any section of the body.

MISTAKES AND ACCIDENTS OF SURGERY. By Harold Burrows, C.B.E., M.B., B.S., Assistant Surgeon at the Royal Portsmouth Hospital. Cloth. Price, $4 net. Pp. 470. New York: William Wood & Company, 1923.

It must be admitted that the author of this book approaches surgery from an unusual but interesting angle. Beginning with the head and neck, and followed by the thorax, abdomen, and so on, the subject is considered regionally. The discussion is limited chiefly to diagnosis and operative technic. There is no attempt at dogmatism, nor does the author exploit his personal views. The text is obviously the result of wide clinical experience, and can be read with profit by the surgeon.

Miscellany

MORTALITY AMONG WAGE EARNERS

Five life insurance companies have cooperated recently in publishing a report[1] on the mortality experience of wage earners. The report covers the period from 1916 to 1920, and a combined membership of twenty-six million. This five-year record shows a mortality rate of 11.65 per thousand lives exposed. There was two dominant factors: the influenza epidemic, and the casualties due to the World War. There has been a greater fall in mortality among these wage earners than among the general population of the country, which may be partly explained by improved living conditions due to better wages during and after the war, and to the effects of health campaigns. The intercompany committee in charge of preparing this report adopted as classification guides the manual of the International List of Causes of Death, the rules of the U. S. Census Bureau for jointly returned causes of death, and the Index of Joint Causes of Death, issued by that office.

Tuberculosis was the leading cause of death among these policyholders, with a rate for all forms of 154.5 per hundred thousand; organic disease of the heart was third, and chronic nephritis, fifth. The death rate from suicide in these five companies during this period was 8.9 per hundred thousand. The suicide death rate declined continuously during this period, among the insured and in the general population. However, when the 1921 figures are published, they will probably show a pronounced increase. Early in 1921 the National Committee for Mental Hygiene directed attention to the large number of suicides, and the industrial depression of that year was probably a principle cause. A comparison of the suicide rates for this period with those of the registration area of the United States brings out the interesting fact that the rate is much higher in the general population than in this group of wage earners. Diabetes had a death rate of 15.4 per hundred thousand, and caused 1.3 per cent. of all deaths. Beginning with age 35, diabetes became an important cause of death and sharp increases were noted in the age period from 45 to 54, 55 to 64 and 65 to 74, with a maximum rate at 75 and over. This, the first report of its kind, applies to a definite stratum of the population. The figures are necessarily accurate, for obvious reasons. Comparison with figures of the Census Bureau is interesting. There are numerous tables for such comparison arranged in this report.

A LARVICIDAL AQUATIC PLANT

In preparing to direct a campaign against yellow fever in Mexico, Vasconcelos noted the following quotation in a recent book: "An aquatic plant, *Chara foetida,* appears to prevent the development of mosquito larvae in water, according to recent experiments of Caballero. *Chara foetida,* which is quite hardy and grows easily, could be employed advantageously in the antilarval campaign in swamps and lagoons." Obtaining specimens of *Chara gymnophylla* from Yucatan, Vasconcelos (*Am. J. Pub. Health,* July, 1923) set about to confirm this report, and invited several physicians on the east coast of Mexico to do the same thing. He placed a portion of *Chara gymnophylla* weighing about 2 kg. in a wooden trough of 10 liters capacity in which there was a little earth. An enormous number of *Culex* larvae developed in the trough within a few days, and a film of coal oil was laid on the water to destroy them. The coal oil and water were then removed by a continuous flow of fresh water into the trough of several hours' duration. There was then a new crop of larvae within forty-eight hours, but not one of them was normal. Some were dead, some almost motionless; some floated on the surface of the water and made no attempt to escape. The experiment was continued for two weeks with identical results, in spite of the fact that the water in the trough was "continuously" changed. It was noticed also that adult mosquitoes resting on the surface of water in the trough could be easily captured. Cool weather prevented the completion of the experiment. Vasconcelos was sufficiently convinced, however, to agree with Caballero and Connor that the alga in question secretes a substance that kills mosquito larvae. There are five species of *Chara,* it appears, that have a larvicidal action: *Chara foetida, Chara contraria, Chara hispida, Chara fragilis* and *Chara gymnophylla.* Reports of those who cooperated with Vasconcelos in confirming Caballero's observation will be awaited with interest, for if it is true that this plant kills mosquito larvae, a new agent in antimalarial work will have been introduced that is inexpensive and easily applied.

1. The Mortality Experience of Industrial Policyholders, 1916-1920: A Contribution to the Public Health Movement in America by the Colonial Life Insurance Company of America, the John Hancock Life Insurance Company, the Life Insurance Company of Virginia, the Metropolitan Life Insurance Company, and the Prudential Insurance Company of America, New York, 1923.

Medicolegal

Exclusion of Physicians from Practicing in Hospital

(State ex rel. Wolf et al. v. La Crosse Lutheran Hospital Association (Wis.), 193 N. W. R. 994)

The Supreme Court of Wisconsin says that the petitioners, who were copartners in the practice of medicine and surgery, sought to secure, through a writ of mandamus, their reinstatement as members of the medical staff of the defendant hospital association. But the allegations of their petition failed to reveal any right on their part which might be enforced by mandamus; wherefore an order quashing an alternative writ of mandamus that was issued is affirmed.

The defendant was a private corporation. Its articles of incorporation provided, according to the allegations of the petition, that the board of directors or trustees thereof should have the control and management of its affairs and have power to adopt and enforce reasonable rules, regulations and by-laws to that end. Presumably no one had any voice in the control of the affairs of the corporation except its members. The petitioners were seeking to enforce no right that accrued to them as officers or members of the corporation. Their right to practice their profession in the hospital was subject to the license or consent of the board of directors. If the petitioners had the right to continue that practice indefinitely, it must be due to some contractual relations established between them and the hospital association. It is well settled that duties imposed on corporations, not by virtue of express law or by the terms of their charter, but arising out of contract relations, will not be enforced by mandamus.

Considerable reliance was placed by the petitioners on the constitution and by-laws established for the government of the attending staff, especially on a provision that unprofessional and unethical conduct and violation of the rules of the staff should constitute a cause for expulsion, but that any member against whom charges had been preferred should be notified thereof and have an opportunity of appearing in his own defense before the attending staff and the board of directors in joint meetings; that a three-fourths vote of the staff should be necessary to recommend expulsion of a member. However, these by-laws did not in any manner operate to deprive the board of directors of their power to exclude physicians from practicing in the hospital. They merely operated to give to the members of the attending staff a voice in the matter and to clothe them with advisory powers only. The provision was that a "three-fourths vote of the staff shall be necessary to recommend expulsion of a member." The staff might not expel, it might recommend. If it did recommend, the directors might still do as they please about expelling the member, and the board of directors might expel a member without any recommendation from the staff. This was a power lodged in them by the articles of incorporation, and probably one that they could not delegate if they would. The result of the petitioners' contentions would be to place it within the power of those originally constituting the attending staff to determine who should not practice in the hospital,

a rather important part of the management of the hospital association. This court cannot ascribe any such effect to the constitution and by-laws established for the government of the attending staff.

The power to manage the affairs of the corporation included the power to exclude physicians from the privilege of practicing therein. If the exercise of this power constituted a breach of contractual relations, the rights of the other party must be enforced in a proceeding to recover damages or to enforce specific performance. Mandamus would not lie. In Comb. p. 41, a mandamus to restore a surgeon to a hospital was denied by the court of King's Bench "because it is not in the power of the court nor is it a public office." The writ was denied for a like purpose in *People ex rel. Replogle* v. *Burnham Hospital,* 71 Ill. App. 246.

Construction of Provision for Release of Women—Duty of Health Officer

(Ex parte Irby (Kan.), 215 Pac. R. 449)

The Supreme Court of Kansas holds that a provision, in an ordinance for the isolation of persons affected with venereal disease, that a woman so affected may be released by the city physician on her making an affidavit that she is not a prostitute and giving a bond not to expose any other person to infection is to be construed to mean that such application is to be granted or refused according to whether such officer in the exercise of his best judgment shall find it to be meritorious. An ordinance of the city of Wichita requiring such isolation by the city physician contains a provision that in lieu of isolation or quarantine, any person infected with any of such diseases may be released on bond. Such person shall make written application therefor to the city physician, which application must be under oath and state that the applicant is not a prostitute. The applicant shall then file with the city treasurer a bond for $1,000 conditioned that the applicant will not permit or perform any act that might or would infect or expose to infection any other person, will continue proper medical treatment until cured, and will faithfully observe all rules and requirements of the city physician to protect the public against infection or contagion. The petitioner in this case, having been found by the city physician to be infected with gonorrhea, had been by his order taken to the state industrial farm at Lansing for isolation during treatment. Her petition recited that she had applied to the city physician for release, presenting such a sworn statement and bond as the ordinance describes. She contended that it thereupon became the duty of that officer to release her, and, as he had not done so, she asked to be released by a writ of habeas corpus.

But the supreme court thinks that the ordinance should be interpreted as having this effect: The mere tender of the affidavit and bond does not compel a release, but authorizes it, if in the judgment of the city physician the public welfare will not suffer thereby. The purpose of the ordinance is to release the applicant if she is not a prostitute, rather than to release her if she swears that she is not a prostitute. Her affidavit is not in terms made conclusive, nor from the nature of the case is a purpose to make it conclusive readily to be implied. As the application is addressed to the city health officer, he is the proper person to pass on the question of fact; his decision being final if made in good faith, but subject to be set aside for fraud, oppression or arbitrary conduct.

A writ would be denied in this case, on the presumption that the city physician did not find the petitioner's affidavit convincing, were it not for the fact that the agreed statement recited that he refused to consider her application. He did not have absolute discretion in the matter in the sense that he was free to follow his own wish. His duty was to consider the application and to refuse or grant it according to whether or not in the exercise of his best judgment he found it to be meritorious. The duty would arise irrespective of the ordinance, for the rules of the board of health require isolation only when in the opinion of the health officer it is necessary for public protection. According to the agreed statement, that duty remained unperformed. The occasion for it, however, had not entirely passed. If, on consideration of the petitioner's application on its merits, he should conclude that the interests of the public required its denial, her restraint might properly be continued. Unless on or before a given date a showing that he had in the meantime made a finding to that effect was presented to this court, the petitioner would be discharged. Otherwise no writ would issue.

Employer Liable for Death from Postoperative Shock

(National Rolling Mill Co. et al. v. Kish (Ind.), 139 N. E. R. 454)

The Appellate Court of Indiana, Division No. 1, in affirming an award made by the industrial board of compensation for the death of one Kish, says that he received an injury from an accident arising out of and in the course of his employment by the mill company. It appeared that after his injury he was attended by a physician employed by the company. That physician called another one into consultation. From an examination of a roentgenogram that was made after Kish was injured, the two physicians concluded that he was suffering from "a large stone in the upper bowel of the right kidney," which condition they attributed to his injury, and a surgical operation was advised as a means of relief. The operation was performed by a surgeon who was employed and paid therefor by the mill company. Death followed from postoperative shock.

The operation revealed the fact that Kish was suffering, not from a stone in the kidney, but from a calcareous tuberculous right suprarenal gland, something entirely different from what was expected, and a condition which the testimony tended to show was in no way caused by the injury mentioned. Based on these facts, it was contended that the award of the industrial board was contrary to law; that as Kish was suffering from a tuberculous trouble, and not from a condition which resulted from his accidental injury, the causal connection was broken, and his death was not the result of that injury. Had he survived the operation, and had this been a hearing on an application to modify the award on account of the changed condition, an entirely different question would have been presented for the court's consideration.

But in this case, on the record, the following facts appeared without controversy: that Kish received an injury by accident arising out of and in the course of his employment; that he received medical attention from a physician employed by the company; that a surgical operation was advised by such physician and by a surgeon employed by the company, as the only means of relieving his condition, which he was advised was the result of the accident; that Kish consented to have the company's surgeon perform the operation; that the operation was performed by the surgeon at the expense of the company, and that Kish died of postoperative shock, as the result of the operation. The court sees no break in the line of causation. The finding of the industrial board that Kish's death was the result of the accident sustained by him was, in the opinion of the court, fully sustained by the record.

Society Proceedings

COMING MEETINGS

American Pathological Society, St. Louis, Dec. 27-29. Dr. Wade H. Brown, Rockefeller Institute for Medical Research, New York, Sec'y.

American Physiological Society, St. Louis, Dec. 27-29. Dr. Charles W. Greene, University of Missouri, Columbia, Mo., Secretary.

American Society of Biological Chemistry, St. Louis, Dec. 27-29. Dr. Victor C. Myers, New York Post-Graduate Medical School, New York, Secretary.

District of Columbia, Medical Society of Washington, Jan. 2. Dr. C. B. Conklin, Medical Science Bldg., Washington, Secretary.

Isthmian Canal Zone, Medical Association of, Ancon, Dec. 21. Dr. J. J. Moore, Ancon Hospital, Ancon, Secretary.

Porto Rico, Medical Association of, San Juan, Dec. 14-16. Dr. Augustin R. Laugier, Box 1117, San Juan, Secretary.

Radiological Society of North America, Rochester, Minn., Dec. 3-7. Dr. M. J. Sandborn, Appleton, Wis., Secretary.

Society of American Bacteriologists, New Haven, Conn., Dec. 27-29. Dr. J. M. Sherman, Box 184, Washington, D. C., Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., Dec. 11-13. Dr. H. A. Royster, 423 Fayetteville Street, Raleigh, N. C.

Western Surgical Association, Colorado Springs, Colo., Dec. 6-8. Dr. Warren A. Dennis, Hamm Bldg., St. Paul, Minn., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

6: 257-388 (Sept.) 1923

*Autotransplantation of Endometrial Tissue in Rabbit. V. C. Jacobson, Albany, N. Y.—p. 257.
*Acid Base Equilibrium in Pregnancy and New-Born. A. C. Williamson, Pittsburgh.—p. 263.
Broader Aspects of Birth Control Propaganda as It Should Interest Physician. G. W. Kosmak, New York.—p. 276.
Prenatal Care as Viewed from Public Health Standpoint. R. W. Lobenstine, New York.—p. 286.
*Control of Midwives. H. Bailey, New York.—p. 293.
Treatment of Pelvic Infections in Women. E. W. Holladay, New York.—p. 299.
Pelvic Inflammations, Their Etiology and Pathology. I. Kross, New York.—p. 308.
Utility of Digital Dilatation of Cervix. P. T. Harper, Albany, N. Y. —p. 315.
*Urinary Symptoms in Women Due to Urethral Pathology Only. A. M. Judd, Brooklyn.—p. 318.
Manual Extraction of Placenta. T. R. Goethals, Boston.—p. 322.
Lactation Atrophy of Uterus. H. Schiller, Chicago.—p. 333.
What I Have Learned from My One Hundred and Six Cesarean Sections. S. P. Warren, Portland, Me.—p. 338.
*Puerperal Sepsis (Bacteremia) Caused by Bacillus Influenzae. W. Thalhimer and B. M. Hogan, Milwaukee.—p. 343.
*Stricture of Esophagus Occurring During Pregnancy. P. P. Vinson, Rochester, Minn.—p. 346.
*Case of Sexual Precocity. H. Thoms and A. A. Hershman, New Haven, Conn.—p. 349.

Experimental Autotransplantation of Endometrial Tissue.—Fifteen nonpregnant rabbits, from 7 to 9 months old, were subjected by Jacobson to autotransplantation of scrapings and minute pieces of endometrium within the abdominal cavity and the mesosalpinx. After 150 days it was found that (1) normal endometrial tissue free in the abdominal cavity attaches itself usually to the mesosalpinx or mesometrium, not to the abdominal wall or mesentery, and in only one animal was the omentum involved. This distribution is that of most cases of implantation resulting either from a primary dispersion through the fallopian tube, or secondarily from a perforated hemorrhagic (menstruating) cyst of the ovary. (2) There are usually produced multilocular cysts which, except for their small size, are similar in many ways to the "ovarian" cystadenoma of women. (3) Extirpation of the ovaries at the time of transplantation does not prevent growth of the transplants, but the cysts formed are much smaller and thinner walled. (4) In two rabbits, which were in heat at the termination of the experiment, the cornua were swollen and congested, and in a few of the cysts estrual hemorrhage had occurred in small amount but not sufficient to constitute a "hemorrhagic" cyst of the type so common in the ovaries of women.

Acid Base Equilibrium in Pregnancy and New-Born.—Graphs are presented by Williamson that show a definite and characteristic drop in the plasma combining power as gestation goes on to completion and labor. In several cases the figures fall within the dangerous or fatal limits. The patients, whose combining power fell within and below the so-called fatal zone and yet recovered, demonstrate the effectiveness of the mechanisms that protect the individual when within the danger limits. The findings suggest a cause for sudden deaths in cesarean sections and other types of delivery when death occurs apparently from shock. This is probably due to acidosis and might be avoided by attention to the lowered carbon dioxid tension. There is a definite and constant difference between the plasma combining power of the mother and the infant. This difference may be due to physiologic lag at the placental barrier, partial asphyxia or an inadequate infantile apparatus for preserving equilibrium.

Control of Midwives.—Bailey presents the method of procedure employed in New York in the training of midwives. The standard for admission to the training school should be high and nurses should be permitted to take the course if they intend to practice maternity work in public health positions. The practical training should consist in attendance at 100 cases of confinement. The midwife should not be permitted to take primiparous women and she should be required to present all cases for a prenatal examination so that proper diagnosis of pregnancy and labor may be made by a medical consultant. Vaginal and rectal examinations should be prohibited. All women in labor for twenty-four hours without delivery should be considered as abnormal cases. Consultation with a private physician or medical inspector should follow deliveries conducted by midwives.

Urinary Symptoms in Women Due to Urethral Disease.—Judd asserts that the proper method of palpation and stripping of the urethra when searching for discharge is not described in textbooks. It can only be done by using the forefinger of either hand on that extent of the urethra which lies above the symphysis, changing to the thumb when the symphysis is reached; supporting the hand by pressing the finger which has been used in stripping the upper urethra against the back of the symphysis and advancing the thumb from this point downward until the discharge appears at the meatus. At the same time, the forearm is supported by resting the elbow on the knee or thigh. If the finger alone is used, it will, ninety-nine times out of a hundred, slip, and the findings, or rather lack of findings, will deceive the examiner. He urges that treatment of the woman be the same as for the man.

Puerperal Sepsis Caused by Influenza Bacillus.—Thalhimer and Hogan report one more case of puerperal infection caused by *Bacillus influenzae,* which makes a total of four published cases of infection of the female genital tract caused by this organism. The most striking feature is the apparently slight virulence of the strains of *B. influenzae* in all four cases. The source of infection is unknown in each case, and none presented a recent history of respiratory infection of any kind. It is interesting also that, though both vaginal and cervical smears showed great numbers of various types of bacilli and cocci, both gram-positive and gram-negative, only a few colonies of *Staphylococcus aureus* and *Streptococcus viridans* developed in the cultures, although many colonies of *Bacillus influenzae* grew.

Stricture of Esophagus During Pregnancy.—Vomiting of blood or dark colored material was a prominent symptom in five of the nine cases reported by Vinson; in another it is probable that a peri-esophageal abscess ruptured into the esophagus. Six of the patients had substernal or epigastric pain. All of the lesions were located in the lower half of the esophagus.

Sexual Precocity.—Thoms and Hershman cite a case of sexual precocity in a girl, aged 3 years and 11 months, in which the chief characteristics noted were enlargement of the internal and external genitalia, menstruation, enlargement of the breasts, and the presence of pubic hair. When the child was about 1 year old the father noticed that the breasts were larger than normal. At the age of 3 years and 7 months she went through a period of normal menstruation which lasted four days and was accompanied by a good amount of flow. Six weeks later a similar menstruation occurred which lasted three days. After an interval of three weeks this was repeated. Then followed a period of amenorrhea lasting eight weeks when another three day flow was experienced. This has been the last period to the present time. The breasts are those of a woman. The primary areola is well differentiated, the nipple well developed and protuberant. There is no secretion. There is no axillary hair. The pubic hair is moderately thick and covers the pubes. The external genitalia show well developed labia. No internal examination was made. A roentgen-ray examination revealed a normal sella turcica. The child was of average intelligence; her mental age was 3½ years.

American Journal of Roentgenology and Radium Therapy, New York

10: 681-766 (Sept.) 1923

Lateral Position and Other Methods of Examination of Renal and Gallbladder Areas. J. Thomson-Walker and H. Knox, London.—p. 681.
Acute Mediastinal Abscess: Report of Four Cases in Children. O. S. Cook, San Francisco.—p. 696.
*Examination of Posterior Mediastinal Glands in Early Recognition of Pulmonary Tuberculosis. L. B. Crow, San Francisco.—p. 699.

Osteochondritis Deformans Juvenlis. B. R. Kirklin, Muncie, Ind.—p. 701.
Typical Disease of Second Metatarsophalangeal Joint. A. Kohler, Wiesbaden, Germany.—p. 705.
*Two Cases of Localized Metastatic Carcinoma of Vertebrae Without Demonstrable Primary Lesion. C. P. O'Boyle, Philadelphia.—p. 711.
Hypernephroma: Two Cases. H. B. Podlasky, Milwaukee.—p. 714.
Roentgenographic Interpretation of Hcoclonic Stasis. E. C. Samuel, New Orleans.—p. 721.
Plea for Use of Roentgenoscope in Diagnosis of Urinary Calculi. J. L. Tabb, Richmond, Va.—p. 722.
Results of Roentgen-Ray Treatment of Pyorrhea Alveolaris. G. von Poswik, Scranton, Pa.—p. 724.
Fifteen Years' Experience with Fractional Dose Method of Treating Cutaneous Malignancies. J. M. Martin, Dallas, Texas.—p. 726.
Radium Needles in Malignant Growths of Tongue: Time Factor. A. J. Larkin, Chicago.—p. 734.
Radium Emanation Slide Rule for Use in Field of Therapeutics. J. Ransom, Chicago.—p. 735.
Flat Diaphragm of Spiral Design in Roentgenography. H. S. Sawford, Kansas City, Mo.—p. 737.
Biologic Reactions of Roentgen Rays: Effect of Radiation on Nitrogen and Salt Metabolism. C. F. Cori and G. W. Pucher, Buffalo.—p. 738.
Deep Roentgen-Ray Therapy and Skin Reactions. P. Del Buono, Naples, Italy.—p. 745.

Involvement of Posterior Mediastinal Glands Early Sign of Pulmonary Tuberculosis.—As a negative sign, Crow says, the noninvolvement of the glands in the posterior mediastinum possesses great value in eliminating pulmonary tuberculosis when this disease is suspected. He has examined the glands situated in the posterior mediastinum in about 4,000 cases, and has never failed to find them involved when a frank pulmonary tuberculosis was manifest. In many cases of early pulmonary tuberculosis, when practically no signs were present in roentgenograms of the chest (the fluoroscope showed involvement of the posterior mediastinal glands and there was a suspicious anamnesis), patients have been greatly benefited by being placed on treatment for suspected pulmonary tuberculosis.

Metastatic Carcinoma of Vertebrae.—Two cases of metastatic carcinoma of the vertebral column are reported by O'Boyle. The primary focus was not demonstrated in either case. The most prominent symptom in the two cases was pain on motion. By roentgenologic examination such lesions are usually readily diagnosed.

Illinois Medical Journal, Oak Park

44: 153-228 (Sept.) 1923

Ventriculography—Its Place in Brain Surgery. G. L. Davenport, Chicago.—p. 179.
Nine Years of Clinical Research in Trachoma Problem. E. E. Edmondson, Mt. Vernon.—p. 181.
Value of Roentgen-Ray Report as Liaison Between Roentgenologist and Referring Physician. E. S. Blaine, Chicago.—p. 185.
Legislature Matters. J. R. Neal, Springfield.—p. 191.
Chronic Malaria. Some Clinical Aspects. L. J. Petritz, Rockford.—p. 193.
Electro-Roentgenographic Dental Diagnosis. H. Swanberg, Quincy.—p. 197.
Chronic Septic Splenomegaly Syndromes. F. Buckmaster, Effingham.—p. 199.
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Indiana State Medical Association Journal, Ft. Wayne

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57: 317-631 (Sept.) 1923

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*Inorganic Elements of Blood Plasma. A. P. Briggs, St. Louis.—p. 351.
*Concentration of Insulin by Adsorption on Benzoic Acid. P. J. Moloney and D. M. Findlay, Toronto, Can.—p. 359.
*Physiology of Muscular Exercise. V. Oxygen Relationships in Arterial Blood. H. E. Himwich and D. P. Barr, New York.—p. 363.
Biochemical Studies on Allantoin. I. Influence of Amino-Acids on Excretion of Allantoin by Rabbit. A. A. Christman and H. B. Lewis, Ann Arbor, Mich.—p. 379.
Growth of Yeast on Medium of Wholly Synthetic Origin (Methose). E. I. Fulmer, V. E. Nelson and A. White, Ames, Iowa.—p. 397.
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Dietary Properties of Yeast. V. E. Nelson, V. G. Heller and E. I. Fulmer.—p. 415.
Action of Proteolytic Enzymes on Insulin. E. J. Witzemann and L. Ivyshis, Chicago.—p. 425.
Refractometric Determination of Hemoglobin. J. L. Stoddard and G. S. Adair, Boston.—p. 437.
*VIII. Microchemical Detection of Lead. L. T. Fairhall, Boston.—p. 455.
Comparative Study of Concentration of Various Anions and Cations in Cerebrospinal Fluid and Serum. J. B. Pincus and B. Kramer, Baltimore.—p. 463.
Asteriastrol. New Sterol from Starfish and Sterols of Certain Other Marine Echinoderms. I. H. Page, Woods Hole, Mass.—p. 471.
Accuracy of "Ionemetric" Method and Protein Correction in Measuring Serum Conductivity. H. C. Gram and G. E. Cullen, Philadelphia.—p. 477.
Micromethod for Determination of Hydrogen Ion Concentration of Whole Blood. J. A. Hawkins, New York.—p. 493.
*Quantitative Color Reaction Given by Epinephrin and Urine. H. Friend, New York.—p. 497.
Nitrogen Distribution in Globin. A. Hunter and H. Borsook, Toronto, Can.—p. 507.
*Study of Several Cases of Cystinuria. J. M. Looney, H. Berglund and R. C. Graves, Boston.—p. 515.
Normal Variations in Plasma Hydrogen Ion Concentration. G. E. Cullen and H. W. Robinson, Philadelphia.—p. 533.
*Effect of Insulin Treatment on Hydrogen Ion Concentraton and Alkali Reserve of Blood in Diabetic Acidosis. G. E. Cullen and L. Jones, Philadelphia.—p. 541.
Strophanthin. II. Oxidation of Strophanthidin. W. A. Jacobs, New York.—p. 553.
III. Crystalline Kombe Strophanthin. W. A. Jacobs, New York.—p. 569.
*Observations on Dogs with Experimental Pyloric Obstruction. Acid-Base Equilibrium, Chlorids, Nonprotein, Nitrogen and Urea of Blood. A. R. Felty and H. A. Murray, Jr., New York.—p. 573.
*Clinical Calorimetry. XXXIII. Effect of Fasting in Diabetes as Compared with Diet Designed to Replace Foodstuffs Oxidized During Fast. H. B. Richardson, E. H. Mason and G. F. Soderstrom, New York.—p. 587.
Application of Quinhydrone Electrode to Electrometric Acid-Base Titrations in Presence of Air, and Factors Limiting Its Use in Alkaline Solution. V. K. La Mer and T. R. Parsons, Cambridge, England.—p. 631.

Inorganic Elements of Blood Plasma.—A system of methods is outlined by Briggs for determining the inorganic elements in blood plasma. Analyses of a number of pathologic plasmas are presented which, except in nephritis, show fairly normal values. It is asserted that marked variations in the level of inorganic elements of blood are quite exceptional.

Concentration of Insulin Solutions.—In the preparation of insulin on a large scale a problem of considerable importance is the concentration of dilute aqueous solutions. On account of the expense and loss of potency which result from boiling, it seemed desirable to Moloney and Findlay to investigate the possibilities of adsorption. They found that if a dilute solution of sodium benzoate in an impure aqueous solution of insulin is acidified, finely divided benzoic acid is precipitated and carries down with it a large percentage of potent material. If this method of concentration is carried out on a highly purified solution, the amount adsorbed is not so large as in an impure solution. This is probably due to the relative size of the particles of benzoic acid; the benzoic acid from the impure solution giving more adsorbing surface than that from a more purified solution. It was noted also that even in very acid solutions the potent material is partly carried down. This method of precipitating insulin with benzoic acid was successfully used in solutions containing 5 units in each 30 c.c.; the resulting solutions readily contain 5 units per cubic centimeter in a highly purified form. This method has been used on a large scale on the concentrate from the original alcoholic extract of the gland.

Anoxemia Causes Hyperpnea.—Experiments made by Himwich and Barr suggest the possibility that in exhausting exercise an anoxemia in the arterial blood may play a part in the causation of hyperpnea.

Electrochemical Study of Hemoglobin.—Preliminary experiments made by Conant with hematin seem to indicate that the reduction of this substance to hemochromogen involves the addition of two hydrogen atoms. If this is so, Conant asserts that the relationship between this pair of compounds has no bearing on the problem of the oxidation or oxygenation of hemoglobin.

Modified Hexanitrite Test for Lead.—A modified procedure for the hexanitrite test for lead is described by Fairhall and applied to the detection of lead in biologic material. By means of this method as small a quantity as 1 mg. of lead may be separated and identified in the presence of a considerable amount of other inorganic salts. The test may be used as a satisfactory and relatively simple clinical method for the detection of lead.

Color Reaction Given by Epinephrin and Urine.—The color reaction described by Friend depends on the fact that epinephrin reacts with sulphanilic nitrous acids in the presence of an alkali (ammonia) to give a red color. The phenols present in urine, which cannot be removed, also give the color. This necessitates the running of two determinations simultaneously, one with the addition of an iron suspension to destroy the epinephrin. The phenols are not affected by the iron. The amount of epinephrin, or of substance reacting like epinephrin, is estimated by the decrease in the color of the one containing the iron.

Familial Cystinuria.—Looney, Berglund and Graves investigated five cases of cystinuria occurring in one family—the mother, her two sisters and two daughters. The results of this investigation confirm most of the conclusions of Alsberg and Folin, and of Wolf and his co-workers. The excretion of cystin is not simply an index of a general disturbance in the metabolism of the amino-acids, but a definite entity confined to cystin. Of these five cases only one gave definite record of disease of the urinary tract with the formation of calculi.

Effect of Insulin Treatment on Alkali Reserve.—The behavior of the acid-base balance was followed by Cullen and Jonas in diabetes during insulin treatment. The acidosis of severe diabetes is characterized by the lowering of both alkali reserve and plasma p_H. Under insulin treatment both alkali reserve and p_H return to their normal level coincidently. There appears to be a consistent relation between these two factors during the return to normal. Two cases of coma with recovery under insulin treatment with plasma p_H at 38 C. of 6.98 and 7.02, respectively, are reported. These are believed to be the lowest values for human plasma p_H with recovery that have been reported.

Blood Studies After Experimental Pyloric Obstruction.—In seven dogs in whom complete or partial pyloric stenosis was effected, Felty and Murray noted, after operation: a rise in p_H, which, however, was only marked in the three dogs that developed tetany; a marked increase in bicarbonate concentration; a very rapid diminution of chlorids in the plasma, whole blood, and tissues which could be accounted for by the amount of chlorid secretion into the gastro-intestinal tract above the point of obstruction; an inconsistent, but, in some cases, a marked rise in urea and nonprotein nitrogen of whole blood. Mention is also made of an increased concentration of phosphorus in two dogs and an augmented electrical resistance noted while taking electrocardiograms in four dogs. The electrocardiograph was negative in each case.

Effect of Fasting and of Dieting on Diabetes.—By means of the respiration calorimeter the quantities of protein, fat and carbohydrate oxidized by diabetic patients at rest were determined by Richardson and Mason. The same amounts were given in a diet termed a replacement diet. With this the metabolism was held at the level previously reached by fasting. According to evidence based on the respiratory quotient, the replacement diet was attended with an increase in the quantity of protein and carbohydrate oxidized, and of glucose excreted. To remedy this defect, it should be modified by decreasing the protein and carbohydrate, and increasing the fat, thus approaching the Newburgh type of diet. A method is described for the quantitative comparison of the food ingested with the food oxidized. Diabetic patients receiving their basal caloric requirements, plus, in several instances, considerable quantities of fat, oxidized more protein, more carbohydrate and less fat than they received. In other words, to their allowance of food they added protein and carbohydrate derived from their own tissues and subtracted a considerable portion of the fat for storage. It is inferred that the quantities of food eaten by diabetic patients may be widely different from the quantities oxidized, and that calculations based on the diet are subject to error.

Journal of Laboratory and Clinical Medicine, St. Louis

8: 775-848 (Sept.) 1923

*Basal Metabolic Rates in Some Psychoneuroses. B. S. Levine, Waukesha, Wis.—p. 775.
Clinical and Laboratory Procedures in Pediatrics. A. Levinson, Chicago.—p. 790.
Investigations on Double Type of Receptors in Typhoid-Paratyphoid Group and Their Significance for Widal Reaction. A. M. Fishberg, New York.—p. 806.
Bacteriophage Phenomena. II. L. Arnold, Chicago.—p. 813.
*Sugar in Urine. R. L. Thrasher and C. W. O. Bunker, Washington, D. C.—p. 816.
Ultrafiltration of Blood Serum and Cerebrospinal Fluid with Special Reference to New Apparatus. G. Egerer-Seham, Minneapolis, Minn.—p. 818.
*Method and Diagnostic Value of Quantitative Determination of Sugar in Cerebrospinal Fluid. G. H. Moates and J. J. Keegan, Omaha.—p. 825.

Basal Metabolism in Psychoneuroses.—One hundred psychoneurotic patients were tested by Levine for their basal metabolic rates because of the presence of two or more of the cardinal signs believed to be indicative of exophthalmic goiter. Only eight of the 100 were found to be affected with primary organic afflictions, the remaining ninety-two being classified primarily as cases of psychoneurotic type. Of the group, as a whole, fifteen patients possessed rates with a percentile variation exceeding the + 10.0 per cent. limit, and only four cases possessed rates with a percentile variation below the — 10.0 per cent. limits, making a total of 19.0 per cent. of cases with basal metabolic rates lying without the ± 10.0 per cent. limits. Further statistical study shows that the average of the plus rates of the group, as a whole, is — 7.4 per cent.; that of the minus rates, — 6.5 per cent., and the total average rate is — 2.0 per cent. Less than 30.0 per cent. of the cases studied had metabolic rates the average of which was qualitatively of a minus type. Less than one third of these, or only about 10.0 per cent., were below the — 10.0 per cent. limit. There was a more frequent occurrence of "high raters" among neurasthenics suspected of hyperthyroidism than among cases of other neuroses. The coexistence of secondary psychoneurotic manifestations or of organic concomitants of the types met with does not seem to influence the basal metabolic rate in any way. Close observation of psychoneurotics with high metabolic rates has led the authors to the conclusion that the high rates in most instances are not due to an hyperthyroidism or exophthalmic goiter superimposed on a well defined neurosis, but rather that the hyperthyroidism or the exophthalmic goiter are the direct consequences of, or rather the necessary response to, the mental state of the patients. Consequently, any amount of surgical treatment, such as ligation or even excision, will lead only to an hypertrophy of the remaining tissue, frequently to such an extent as to make the postoperative basal metabolic function unstable and, in most instances, of a higher magnitude than it was before the operation. This seems to be especially true of "high raters" manifesting the anxiety syndrome complicated by some sexual complex. To perform any surgical operation, except the one absolutely warranted and found necessary after a joint consultation of an internist, surgeon, and a competent psychiatrist thoroughly acquainted with the case under consideration, means to introduce into the patient's life new points of fixation, added causes for fear and worry, and hence, an increased demand on the thyroid.

Sugar in Urine.—Benedict's qualitative test for sugar in urine, according to Thrasher and Bunker, has quantitative

significance in only the most general terms. Greenish turbidities secured in this test demand care in their interpretation, and are to be considered pathologic only when other features of the case warrant such an assumption.

Sugar in Cerebrospinal Fluid.—The normal range of the cerebrospinal sugar is between 0.040 and 0.068 per cent. The sugar content of the cerebrospinal fluid, Moates and Keegan found, is distinctly increased in most cases of epidemic encephalitis and has a diagnostic significance. Sugar in the cerebrospinal fluid is decreased in infectious meningitis probably as the result of the reducing powers of the invading micro-organisms. There is no apparent relation between the sugar content of the cerebrospinal fluid and the Wassermann reaction, colloidal gold curve, cell count, globulin or total protein.

Journal of Urology, Baltimore

10: 185-274 (Sept.) 1923

*Studies on Ureter and Bladder. Regurgitation of Vesical Contents. R. C. Graves and L. M. Davidoff, Boston.—p. 185.
*Relation of Bowel to Bacillus Coli Kidney Infections. V. C. David and E. C. McGill, Chicago.—p. 233.
*Antiseptic Pyelographic Medium. J. H. Cunningham, R. C. Graves and T. L. Davis, Boston.—p. 255.
*Temporary Suppression of Urine Following Double Pyelography. H. M. Morton, Brooklyn.—p. 261.
Tremendous Bilateral Ureteral Dilatation in Adult. E. Davis, Omaha.—p. 267.
Case of Hematuria from Lead Poisoning. N. F. Ockerblad, Kansas City, Kan.—p. 273.

Bladder Regurgitation Causes Ascending Infections of Urinary Tract.—Because of its bearing on ascending types of renal infections, regurgitation of vesical contents was made the subject of a special study by Graves and Davidoff. The occurrence of regurgitation was first studied in seventy-three normal rabbits, the bladders of which were slowly filled with warm physiologic solution of sodium chlorid. The phenomenon was observed in 73.7 per cent. of these cases. In this series attention was particularly concentrated on the relation of the bladder to reflux. In a second group of animals, the ureters had been rendered abnormal by previous operative procedures. Regurgitation was produced in 78.7 per cent. of the attempts. Several animals were subjected to complete urinary obstruction for the purpose of producing regurgitation as a result of prolonged retention. In a final series reflux was studied in the intact animal, and the phenomenon was witnessed through the fluoroscope in six of eleven experiments. On the basis of this work the authors believe that bladder regurgitation may be accountable for ascending infections of the urinary tract, particularly in cases of vesical neck obstruction.

Relation of Bowel to Kidney Infections.—David and McGill conducted experiments on dogs to study the possibility of the passage of bacteria and especially the colon bacillus, through the normal and pathologic bowel wall to the mesenteric glands, to the blood stream or directly into the urinary tract through the lymphatics. Small amounts of actively growing colon bacilli injected into the stomach of dogs had no appreciable effect in increasing the bacterial content of the mesenteric glands, the blood stream or the urinary tract. In eleven dogs which had been given large amounts of *B. coli* with fat by stomach tube, eight were found to have organisms in the mesenteric glands, six of which were *B. coli*. The incidence of organisms in the mesenteric glands was slightly higher than in the control animals but not sufficiently so for definite conclusions. The incidence of organisms in the urinary tract was much higher than in control animals and was striking because of the negative urine in these animals before experimental conditions were established. Very marked constipation, even associated with injection of *B. coli* into the gastro-intestinal tract, was not associated with increased bacterial content of the mesenteric glands or with infection of the urinary stream. Prolonged and severe diarrhea was not associated with infection of the urinary organs or with an increased bacterial flora in the mesenteric glands, even though large amounts of *B. coli* were introduced into the intestinal tract. Obstruction of the large bowel raised the incidence of bacteria in the mesenteric glands very materially. In no experiment did urinary tract infection accompany it. This emphasizes the fact that the presence of intestinal organisms in the mesenteric glands is not synonymous with blood stream infection or urinary tract infection. Traumatism of the bowel was associated with a higher percentage of bacterial content of the mesenteric glands than in control dogs. Urinary tract infection was absent. Actively growing *B. coli* in the mesenteric glands was not necessarily associated with blood stream infection or urinary tract infection and negatives the probability of infection of the kidney by the way of the lymphatics from the bowel. In these experiments bacteria implanted in the mesentery or glands were isolated from the mesentery and mesenteric glands several days after their implantation and yet no urinary tract infection resulted.

Antiseptic Pyelographic Medium.—After consideration of all possible antiseptics in connection with a pyelographic solution, Cunningham, Graves and Davis decided that 1:3,000 mercuric iodid in 0.12 per cent. sodium iodid solution is the most satisfactory. Sodium-mercuric iodid of this strength has a phenol coefficient of 0.033. In other words it is comparable, on this basis, to 3 or 4 per cent. phenol. Used in equal amounts with a colon bacillus infected urine, it destroyed bacterial growth in two and one-half minutes. The solution retained in the mouth for a considerable period produces a salty taste, but no irritation of the buccal mucosa. Introduced into the circulation of a rabbit, it produced no significant change in the condition of the animal so far as heart, blood pressure, and respiration were concerned.

Temporary Suppression of Urine Follows Double Pyelography.—Morton cites a case which illustrates the danger of attempting double pyelography at one time, for if the secretion of one kidney is impaired, the patient has the other kidney with which to carry on elimination until the temporary anuria has subsided.

Laryngoscope, St. Louis

33: 657-730 (Sept.) 1923

Classification of Deafness from Standpoint of Pathology, Functional Tests and Pedagogy. M. A. Goldstein, St. Louis.—p. 657.
Results of Functional Tests of Vestibular and Auditory Apparatus in Forty-Four Children with Congenital or Early Acquired Deafness. A. M. Alden, St. Louis.—p. 665.
New Plastic Procedure for Closure of Perforations of Nasal Septum. J. D. Lewis, Minneapolis.—p. 671.
Treatment of Hemorrhage Following Tonsillectomy by Ligation. J. F. Callahan, Brockton, Mass.—p. 675.
Use of Radium to Induce Atrophy of Faucial Tonsils. W. A. Wells, Washington, D. C.—p. 681.
Use of Suction in Disease of Accessory Nasal Sinuses. M. Unger, New York.—p. 691.
Anatomic and Pathologic Structure of Larynx. E. M. Josephson, New York.—p. 699.
Control of Pain of Herpes Zoster of Nervus Ophthalmicus Through Nasal (Sphenopalatine, Meckel's) Ganglion and Through Sphenoid Sinus. W. M. C. Bryan, St. Louis.—p. 703.
Varix of Vocal Cord. Histologic Study in Sixteen Cases. C. B. Faunce, Boston.—p. 706.
Symptomatic Case of Mastoiditis. T. T. E. Hughes, Richmond, Va.—p. 716.

New York Medical Journal and Medical Record

118: 333-396 (Sept. 19) 1923

Present Day Treatment of Asthma. A. Brown, New York.—p. 333.
Physical Therapeutics. J. M. Taylor, Philadelphia.—p. 336.
Quinin Test in Hyperthyroidism. I. Bram, Philadelphia.—p. 339.
Typhoid Fever. J. C. Small, Philadelphia.—p. 341.
Physiologic Effects of Static and High Frequency Currents F. De. Kraft, New York.—p. 347.
*Indigocarmine as Functional Permeability Test of Liver. M. Einhorn and G. L. Laporte, New York.—p. 350.
*Interesting Case of Laryngeal Stenosis. E. M. Josephson, New York.—p. 352.
*Septic Portal Thrombosis. Report of Two Cases. W. I. Sirovich and G. Schwartz, New York.—p. 354.
Intussusception in Infants. L. M. Kahn, New York.—p. 356.
Cancer of Breast. What Can General Practitioner Do to Improve Prognosis. L. B. Meyer, New York.—p. 358.
Gastro-Intestinal Infections in Chronic Arthritis. G. A. Persson, Mount Clemens, Mich.—p. 363.
Significance of Spinal Mercurial Manometer. A. S. Maclaire, New York.—p. 367.
Appraisal of Newer Methods of Deep Roentgen-Ray Therapy. J. T. Case, Battle Creek, Mich.—p. 368.
Splenectomy for Traumatic Subcutaneous Rupture of Spleen. M. S. Kakels, New York.—p. 372.
Atresia of Anus, Rectum and Esophagus. J. H. Marcus, Atlanti City.—p. 374.

Indigocarmin Functional Test of Liver.—Einhorn and Laporte record their experiences with indigocarmin as a convenient test for liver function. At first they tried to give this substance in suppositories by rectum or by injection of solutions into the rectum. Then they tried the intramuscular method, as suggested by Haticganu. Ten c.c. of a 1 per cent. solution of indigocarmin proved to be the correct amount for general use. In cases in which there was difficulty in obtaining the duodenal contents after the injection of indigocarmin, a few cubic centimeters of saline solution was injected through the duodenal tube and syphoned out. This, in most instances, effected a flow of bile. In only rare instances were other means resorted to in order to establish a flow of bile. In these cases the authors usually applied an instillation of 25 per cent. glucose solution into the duodenum. In all these cases the urine was likewise watched. The average time of first appearance of the indigocarmin in patients not afflicted with liver troubles was about forty minutes. In diseases of the liver, especially when accompanied by jaundice, its appearance was usually delayed, most in malignant trouble of the liver, in one case not appearing until two hours after injection and in another case, one of cancer of the liver, it did not appear at all. In one case of catarrhal jaundice the indigocarmin did not appear in the bile, the period of observation lasting four hours. The injection of indigocarmin also produces a stimulation of the liver secretion, resulting in the production of a dark bile, previous to or after the appearance of the indigocarmin in the bile.

Inflammation of Mucous Gland Causes Laryngeal Stenosis.—The case presented by Josephson was one of laryngeal stenosis caused by a primary infection of a laryngeal structure, consisting principally of a group of secretory glands, secondarily conditioning a necrosis of the arytenoid cartilage. The onset was acute, febrile, associated with a stomatitis, and the infection initially acute, subsequently ran a chronic course. The stenosis in due time became so high grade that tracheotomy was necessary to relieve dyspnea. In view of the failure of palliative treatment, including iodids, mixed, and arsphenamin treatment, enucleation of the gland was necessitated. The gland was readily enucleated submucously.

Septic Portal Thrombosis.—In one of the cases cited by Sirovich and Schwartz there was a large abscess cavity in the gastrocolic omentum. The abscess cavity, as far as could be ascertained, had no connection with the transverse colon or stomach, but because of the close proximity of the stomach to the abscess cavity, there was little doubt that the abscess was the result of a perforation of the stomach. The portal vein was occluded completely by a large septic thrombus. Frank pus was found in the portal vein, and the liver on section showed miliary abscesses. In the second case the portal vein contained a large septic thrombus which included about three quarters of the lumen of the vein. The liver showed miliary abscesses.

Southern Medical Journal, Birmingham, Ala.

16: 647-736 (Sept.) 1923

*Deafness in Late Congenital Syphilis. A. Keidel and J. E. Kemp, Baltimore.—p. 647.
*Vaccines in Treatment of Secondary Infection in Pulmonary Tuberculosis. C. H. Cocke, Asheville, N. C.—p. 651.
Physiologic and Philosophic Study of Relation of Sleep to Bodily Nutrition. G. M. Niles, Atlanta, Ga.—p. 659.
Efficiency of Therapeutics. W. R. Houston, Augusta, Ga.—p. 664.
Mental Disease Problem. G. L. Echols, Milledgeville, Ga.—p. 668.
Food and Life. C. H. Rice, Jr., Montgomery, Ala.—p. 673.
*Transfusion Through Umbilical Vein: Case Report. J. B. Sidbury, Wilmington, N. C.—p. 676.
European Child Health Program, American Red Cross, 1921-1922. J. H. M. Knox, Jr., Baltimore.—p. 679.
Obstruction of Bronchi by Nonopaque Foreign Bodies: Case Report. C. C. Phillips and R. H. Lafferty, Charlotte, N. C.—p. 685.
Modification of Van Slyke and Cullen Aeration Block in Determinations of Ammonia and Urea in Blood and Urine. R. J. Miller, University, Ala.—p. 688.
Recent Advances in Treatment of Hookworm Disease. A. T. Cooper, Fort Benning, Ga.—p. 689.
Public Confidence and Medical Profession. O. Dowling, New Orleans.—p. 691.
Ankylosis as True Cure of Destructive Joint Tuberculosis. E. G. Brackett, Boston.—p. 697.
Conclusions After Six Years' Use of Radium. E. D. Newell, Chattanooga, Tenn.—p. 706.
*Pregnancy with Impassable Vagina: Case Report. R. M. Wilson, Kwangju, Korea.—p. 708.
Intestinal Obstruction. T. W. Holmes, Winona, Miss.—p. 708.
Tuberculosis of Larynx. H. H. Briggs, Asheville, N. C.—p. 715.
Group Medicine: Process of Evolution. R. B. McBride, Dallas, Texas.—p. 722.
Group Medicine: Critical Survey. W. T. Vaughan, Richmond, Va.—p. 724.

Deafness Caused by Late Congenital Syphilis.—Twenty-two cases of deafness due to late congenital syphilis are reported by Keidel and Kemp. The incidence of this form of deafness is approximately 10 per cent. The symptom complex is characteristic. Active manifestations of congenital syphilis other than aural lesions coexist with or antedate the malady and are often of unusual severity. Of these interstitial keratitis is the most common. The blood Wassermann test is positive in over 90 per cent. of the patients, and spinal fluid studies were invariably negative for abnormalities due to cerebrospinal syphilis. Cranial nerves other than the branches of the eighth are rarely involved. The prognosis is not good, and the results of treatment are poor. Adequate treatment of all patients with early congenital syphilis is advocated as a prophylaxis for late aural involvement.

Vaccines of Limited Value in Secondary Infection in Tuberculosis.—Cocke is emphatic in stating that autogenous vaccines should never be used in pulmonary tuberculosis as a routine measure. They are of very limited value and should be administered only to selected cases free of demonstrable foci of infection which have been studied sufficiently to warrant the attempt at specific therapy and in whom the usual routine conservative measures have failed. They should never be used to the exclusion of these measures, and if reliance is put on them with disregard for more essential matters a great deal of damage will result. The dose should be calculated carefully and an attempt at a general reaction of serious nature should not be made. A fair and honest trial in the individual case without improvement on the patient's part should be sufficient ground for discontinuance.

Transfusion Through Umbilical Vein.—Sidbury reports a case of transfusion through the umbilical vein on the fourth day of life because of continuous bleeding from a dorsal slit incision of the penis made just after delivery.

Pregnancy with Impassable Vagina.—In Wilson's case the vagina had been obliterated by scar formation. The Oriental woman, after the child is born, gets up at once and goes to work. Consequently, many cases of complete prolapsus occur, the uterus being down between the legs. The Oriental treatment is to apply pure nitric acid to the uterus, cauterizing it and then replacing it, and sometimes complete adhesion follows. Often the vagina is entirely destroyed. As a result of the cautery the vagina of Wilson's patient had been obliterated by scar tissue, and at labor it was impossible for her to bear the child. It died at labor and then began to decompose. Four months later she was brought to the hospital with a very foul smelling condition. Wilson dilated the small opening and removed from the uterus the bones, hair and some remnants of tissue, the balance of the child having already passed out in a purulent form. The patient was much emaciated, but after being a week in the hospital returned home.

Texas State Journal of Medicine, Fort Worth

19: 265-312 (Sept.) 1923

Pituitary and Some of Its Disorders. M. L. Graves, Galveston.—p. 272.
Some Disturbance of Pituitary Body Illustrated. C. A. Wright, Los Angeles.—p. 278.
Etiologic Factors in Bronchial Asthma. I. S. Kahn, San Antonio.—p. 283.
Influence (?) of Endocrines on Lenticular Opacities. I. L. Van Zandt, Fort Worth.—p. 286.
Nasal Ganglion Neurosis. Endocrine Aspects. C. B. Williams, Mineral Wells.—p. 289.
Insulin in Diabetes. D. W. Carter, Dallas.—p. 290.
Pathologic Biochemistry in Diabetes. W. H. Bailey, Oklahoma City.—p. 295.
Factors Affecting Blood Grouping and Transfusion. K. M. Lynch, Dallas.—p. 298.
Blood Transfusion as Therapeutic Agent; Use of Whole Blood. R. H. Moore, Dallas.—p. 300.
Transverse Myelitis Following Influenza. R. B. McBride, Dallas.—p. 303.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

28: 97-128 (Sept.) 1923

Cauterization of Adhesions in Artificial Pneumothorax Treatment of Pulmonary Tuberculosis Under Thoracoscopic Control. H. C. Jacobaeus, Stockholm, Sweden.—p. 97.
Roentgen-Ray Stereoscopy. R. Kegerreis, Rochester, Minn.—p. 105.
Elevation of Diaphragm. Unilateral Phrenic Paralysis. Differential Diagnosis. J. M. Woodburn Morison, Manchester.—p. 111.
Stimulating and Paralyzing Effect of Roentgen-Rays. W. E. Schall.—p. 124.

British Journal of Children's Diseases, London

20: 129-192 (July-Sept.) 1923

*Serum Phenomena and Their Relationship to Prognosis of Diphtheria. G. W. Ronaldson.—p. 129.
*Muscle Tone in Rickets. J. D. D. Galbraith.—p. 143.
Epispadias Associated with Complete Incontinence Treated by Rectus Transplantation. A. R. Thompson.—p. 146.
*Twenty-Five Cases of Whooping-Cough Treated by Injections of Ether. A. Panayotatou.—p. 151.

Relation of Serum Phenomena to Prognosis in Diphtheria.—Ronaldson's conclusions based on the consideration of 1,000 cases afford additional confirmation of Rolleston's assertion that "the more marked the antitoxin reaction, the better is the prognosis." Increased dosage increased the incidence of serum manifestations, but diphtheria toxin exercises an inhibitory influence both on the frequency and the intensity of serum reactions. In very severe cases the rash is late in development, scanty, or entirely absent. The presence of a rash, even of the most limited nature, is a favorable sign. A good rash suggests a good prognosis. A case with a well marked reaction is not likely to end fatally, and the appearance of a rash affords some assurance that severe paralysis is unlikely. A primary rash is valueless in forming an estimate as to the likelihood of paralysis generally, its value being restricted to the severer forms. A secondary rash enables one to forecast with confidence that the patient will neither die nor suffer from paralysis of the graver types.

Muscle Tone in Rickets.—Emphasis is laid by Galbraith on the condition of the musculature in rickets, and clinical observations support the view that the disease may involve muscles as well as bones. Bad hygienic conditions, by depressing muscle activity, would be strong predisposing factors to the development of rickets.

Ether Injections in Whooping Cough.—Twenty-five cases of whooping cough were treated by Panayotatou by injections of 2 c.c. of ether every second day. The result was rapid recovery in all in from twelve to fifteen days.

British Medical Journal, London

2: 547-590 (Sept. 29) 1923

*Treatment of Obstruction of Colon. A. H. Burgess.—p. 547.
*Are Results of Operative Treatment of Cancer Better Than Twenty Years Ago? H. J. Paterson.—p. 556.
*Standardization of Commercial Preparations of Parathyroid Glands. H. W. C. Vines.—p. 559.
*Treatment of Hypothyroidism by Thyroid Transplantation. A. Kocher.—p. 560.
*Differential Diagnosis of Rheumatoid Arthritis As a Clinical Entity. V. Coates and R. G. Gordon. p. 561.
*Large Renal Calculus. R. O. Ward.—p. 563.
Treatment of Urticaria with Collosol Manganese. H. McC. Mitchell.—p. 563.
Vaccination Propaganda and Medical Professions. C. K. Millard.—p. 564.

Cecostomy for Obstruction of Colon.—When, in any given case of acute intestinal obstruction, the site of obstruction can be assigned to the colon but is not more precisely known, and when there is no special reason to suspect volvulus or internal strangulation, Burgess believes that a cecostomy should be the sole immediate procedure.

Results of Operative Treatment of Cancer.—H. J. Paterson pleads for earlier and, therefore, less extensive operations, and especially operations in two stages whenever practicable—that is, removal of the growth and of the glands at a later period. Although evidence is lacking that the ultimate results of operation for cancer are better than they were twenty years ago, Paterson sees no grounds for pessimism. What is needed, he says, is a vigorous campaign to impress on the public the supreme importance of early recognition of the disease and operation for its removal at the very earliest stage.

Standardization of Parathyroid Preparations.—It is generally held that the parathyroid glands have two functions: they regulate calcium metabolism, and they are in some way able to prevent intoxication by guanidin and its derivatives. On this second property the standardization method proposed by Vines is based. The principle is as follows: if an active parathyroid preparation is incubated at 37 C. with a known amount of guanidin in solution, the amount of guanidin reckoned as picrate at the end of the incubation period is found to be less than at the beginning of the test. Only one function of the glands is, therefore, tested, but there is reason to believe that if the preparation is deficient in this function it will also be deficient in the other. The method of procedure is described in detail.

Thyroid Transplantation for Hypothyroidism.—Kocher prefers to use homotransplants taken from the hypertrophic gland of a severe but recent case of exophthalmic goiter, which is in a state of cellular hypertrophy and active new formation of vesicles. The best part of the gland to be taken is the upper pole or posterior part of the gland near the superior thyroid artery. It is essential that the pieces of gland shall be put into the receiver's body immediately after being cut out of the donor. Kocher transplants mostly into the upper end of the tibial bone, because it is very vascular and has a special affinity for thyroid tissue. However, he also transplants into the sheath between the fascia transversalis and peritoneum, or into the peritoneal cavity. But in the latter locality it is better to stitch the parietal peritoneum over the transplanted gland and not put the gland free into the peritoneal cavity. If the graft is to be successful, the healing of the wound must take place without rise of temperature or other postoperative reaction. Most important of all is the preoperative and postoperative treatment. The patient must take thyroid some time before and several weeks after the transplantation, in order to decrease his actual want of thyroid, because if this is great, the transplanted gland tissue is simply eaten up by the organism. Failure to observe this need is the most common cause of failure of transplantation, especially in cases of total congenital absence of the gland.

Achlorhydria in Rheumatoid Arthritis.—Coates and Gordon lay emphasis on the presence of achlorhydria in these cases as a causative factor. Of the twenty cases examined, fourteen had complete achlorhydria, one a trace of free hydrochloric acid only, two a marked diminution, while three were normal. Achlorhydria precedes not only the anemic conditions, but also chronic gastritis which formerly was supposed to be the cause of the achylia. The gastritis is due to the failure of the normal softening and diluting action of the juice, and as the food is not sufficiently digested in the stomach, it will irritate the intestine in the same way and cause intestinal dyspepsia. At the same time, proteins will reach the small and large intestines unchanged, and with them numerous bacteria which would normally be destroyed by the acid disinfecting properties of the gastric juice. The decomposition of the proteins by these bacteria produces further irritative material which modifies the absorption of toxins.

Large Kidney Stone.—Large stones of the kidney are not common; the calculus weighed one pound three and one-half ounces in this case, and it is of interest that the symptoms were very mild; operative treatment was successful.

China Medical Journal, Shanghai

37: 709-796 (Sept.) 1923.

Conjunctival Bridge as Safeguard Against Vitreous Loss in Cataract Extraction. H. J. Howard.—p. 709.
Blood Pressure of Normal Cantonese Students. W. W. Cadbury.—p. 715.
Life History of Schistosoma Japonicum Katsurada. E. C. Faust and H. E. Meleney.—p. 726.
Identification of Babies by Means of Footprints. L. M. Miles.—p. 734.
Early Diagnosis of Laryngeal Tuberculosis. J. H. Liu.—p. 738.
Chinese Drugs of Therapeutic Value to Western Physicians. P. C. Kiang.—p. 742.
Aneurysm of Temporal Artery. B. R. Vickers.—p. 747.
Imperforate Anus: Report of Case. E. H. Brunemeier.—p. 748.

Indian Journal of Medical Research, Calcutta

2: 1-320 (July) 1923

*Pathogenesis of Deficiency Disease. No. XI. Fat Excess in Relation to Iodin Requirements and to Thyroid Gland. R. McCarrison.—p. 1.
Antihookworm Campaign in Tea Estates of Madras. K. S. Mhaskar and J. F. Kendrick.—p. 52.
Some Indian Species of Genus Phlebotomus. J. A. Sinton.—p. 65.
Studies in Filariasis. No. 1. Filarial Survey with Statistical Enquiry into Relationship Between Filariasis and Elephantiasis. J. A. Cruickshank, J. Cunningham and T. S. Iyer.—p. 79.
Correlation Between Chemical Composition of Anthelmintics and Their Therapeutic Values in Connection with Hookworm Inquiry in Madras Presidency. XVII. Antiseptics. J. F. Caius and K. S. Mhaskar.—p. 92.
Id. XVIII. Cathartics. J. F. Caius and K. S. Mhaskar.—p. 103.
Influence of Age and Temperature on Bacterial Vaccines. W. F. Harvey and K. R. K. Iyengar.—p. 110.
Relation Between Size of Prophylactic Dose and Protection. W. F. Harvey and K. R. K. Iyengar.—p. 113.
Bacteriologic and Laboratory Technic. W. F. Harvey.—p. 119.
*Tetrachilomastix N. Sp. Parasitic in Human Intestine. G. C. Chatterjee.—p. 177.
*Rat Bite Fever: Its Etiologic Agent. M. J. Parmanand.—p. 181.
Pathology of Acute Experimental Kala-Azar in Monkeys. H. E. Shortt.—p. 186.
Chemotherapy of Antimonial Compounds in Kala-Azar Infection. Toxicity of Antimonial Compounds—Delayed Antimony Poisoning. U. N. Brahmachari.—p. 196.
Revision of Culicine Mosquitoes of India. Part III. P. J. Barraud.—p. 214.
Id. Part IV. P. J. Barraud.—p. 220.
Id. Part V. P. J. Barraud.—p. 224.
Wassermann Reaction in Leprosy. R. B. Lloyd, E. Muir and R. G. C. Mitra.—p. 229.
Interval for Retreatment of Hookworm Infection. K. S. Mhaskar and J. F. Kenrick.—p. 234.
*Value of Wassermann Test in Kala-Azar, No. 5. K. R. K. Iyengar.—p. 237.
*Spread of Leprosy Throughout Body from Initial Lesions. E. Muir, E. Landeman, T. N. Roy and I. Santra.—p. 239.
Dysentery in Colliery Areas; Jheria Mining Settlement. G. C. Maitra.—p. 296.
Outbreak of Typhus in Simla. Weil-Felix Reaction. E. S. Phipson.—p. 305.
Recovery of Herpetomonas Donovani from Urine of Kala-Azar Patient. H. E. Shortt.—p. 319.

Fat Excess in Relation to Iodin Requirements and to Thyroid.—The results reached by McCarrison in the course of his experiments with pigeons may be summarized as follows: Confinement in cages that became grossly contaminated by the animals' own excreta is a potent cause of thyroid hyperplasia and enlargement. It can be prevented by scrupulous cleanliness and to a less extent by the administration of chlorin water. The thyroid hyperplasia under these circumstances is not due to inadequate supply of iodin in the food, but is probably due to the inadequate absorption, assimilation or utilization of iodin consequent on the conditions provided by dirty animal cages; of these conditions gastro-intestinal infection is considered to be chief. An excess of butter or of oleic acid in the food may, in certain cases, enhance the goiter producing action of insanitary conditions of life, such as are present in dirty animal cages; or, the goiter producing influence exerted by an excess of fats in the food may be enhanced, in certain cases, by such insanitary conditions of life. There is a reason to believe that the effects of fat excess in determining thyroid hyperplasia may be related in some way to bacterial intervention in the digestive tract. Cod liver oil affords complete protection against goiter induced by insanitary conditions of life, such as are present in dirty animal cages. A relation exists between the intake of fats in the food, the amount of available iodin in the food and the functional perfection of the thyroid gland.

Tetrachilomastix in Intestine.—This intestinal flagellate is very common in India in the stools of patients suffering from chronic intestinal complaints. It apparently has little pathogenic property. In one case, in particular, it was found by Chatterjee in large numbers along with innumerable *Endameba coli* organisms; the patient complained of colicky pain over the abdomen and was anemic. A provisional diagnosis of duodenal ulcer was made.

Spirochetes in Rat Bite Fever.—In the primary skin lesion of a case of rat bite fever, Parmanand was able to demonstrate spirochetes apparently identical with Futaki's spirochetes. Subsequently three more cases were encountered from two of which guinea-pigs and white mice were inoculated, the spirochetes being recovered from these inoculated animals.

Wassermann Reaction in Kala-Azar.—An unselected, apparently healthy Indian male adult population has given a positive Wassermann reaction in eighty-eight cases out of 400. Iyengar, therefore, infers that a figure of not more than 20 per cent. occurring in an unselected Indian male adult population suffering from kala-azar must be due to existence in this population of latent or clinically inactive syphilis.

Spread of Leprosy in Body.—Muir and his associates assert that the multiplication of leprosy bacilli in the body takes place in the lymph channels. The nourishment required by the bacilli for multiplication is supplied by the surrounding tissues and the lymph. The setting free of bacilli in the lymph spaces is due to softening or solution of the matrix in which the bacilli lie embedded. As a rule the superficial layers of the skin are first infected. Later the infection spreads to the deeper layers. Muscle and bone changes are due to fibrous pressure on the nerve trunks. Nerve leprosy has a relation to skin leprosy, the one tending to increase while the other tends to diminish, and vice versa.

Indian Journal of Medicine, Calcutta

4: 57-122 (June) 1923

Cardiac Rhythm. A. R. Majumdar.—p. 57.
Snake Bite and Its Treatment. P. Ganguli.—p. 68.
Treatment of Influenza by Quinin. S. N. Banerjee.—p. 75.

Indian Medical Record, Calcutta

43: 241-272 (Sept.) 1923

Field Work for Control of Kala-Azar in Bengal. D. N. Banerjee.—p. 241.
Kala-Azar in Malda and Some Practical Difficulties in Its Treatment. R. D. Roy.—p. 243.
Prevention of Malaria and Kala-Azar in Bengal. G. Panja.—p. 244.
Duties of Medical Man to Development of Antimalarial Societies. M. K. Ray.—p. 246.
Anti-Malarial and Anti-Kala-Azar Works. R. H. G. Bahadur.—p. 247.
Different Factors in Control of Malaria and Kala-Azar in Bengal. S. N. Nandi.—p. 251.
Anti-Kala-Azar Campaign and Cost of Management of a Center. A. N. Mitra.—p. 254.
Old Age. A. Roy.—p. 258.

Irish Journal of Medical Science, Dublin

4: 241-290 (Sept.) 1923

Report of Coombe Hospital for 1922.—p. 241.
Infant Feeding: Pirquet's System. M. M. O'Leary.—p. 277.

Journal of Tropical Medicine and Hygiene, London

26: 285-296 (Sept. 15) 1923

Lamblial Dysentery Treated with Carbon Tetrachlorid. M. Khalil.—p. 285.
*Treatment of Erythromelalgia Tropica by Injections of Antimony. J. T. Clarke.—p. 285.

Antimony Treatment of Erythromelalgia.—Clarke has treated thirty cases by injecting 1 grain of antimony tartate, diluted in 20 minims of water, into the muscles of the buttock once a week. All of the patients have been benefited; most of them are cured. Some have required six, some have been cured with two injections. In one case of four months' duration apparent cure was effected by one injection.

Lancet, London

2: 637-684 (Sept. 29) 1923

*Effect of Roentgen Rays of Different Wave Lengths on Some Animal Tissues. Proof of Differential Action. S. Russ.—p. 637.
*Traumatic Intestinal Rupture. G. Massie.—p. 640.
*Case of Complete Decerebrate Rigidity in Man. F. M. R. Walshe.—p. 644.
*Relation Between Growth Promoting and Antirachitic Functions of Certain Substances. H. Goldblatt and S. S. Zilva.—p. 647.
Prenatal Care and Puerperal Mortality. A. L. Robinson.—p. 649.
Diathermy Treatment of Gonorrhea in Women. A. E. Milner and A. K. McClachlan.—p. 652.

Effect of Roentgen Rays of Different Wave Lengths on Tissues.—The results of Russ' experiments show that when equal amounts of roentgen-ray energy are absorbed from beams of different wave lengths by animal tissues, the reactions of these tissues may differ considerably in degree and possibly to some extent in nature. The experiments show that a bigger differential effect between "hard" and "soft" rays exists for skin than for tumor cells—an argument for the use of very hard roentgen days or gamma rays when

tumors at a considerable depth below the skin have to be irradiated. The conclusion would, perhaps, be just the reverse in superficial conditions not involving the irradiation of normal skin. The result also raises the question whether the specification which has been adopted by Seitz and Wintz for expressing the carcinoma dose in terms of the skin dose is sufficiently rigorous, for this may be a function of the wave-length. The two main results obtained are that about six times as much short wave-length energy as long wave-length energy must be expended in a layer of skin in order to produce equal reactions and that this factor falls to about 2.6 in the case of the tumor.

Traumatic Intestinal Rupture.—Thirty-four cases of intestinal rupture, without penetration of the abdominal wall are reviewed by Massie. The majority of ruptures (twenty-six) occurred in the small intestines. The comparative immunity of the stomach; the duodenum, and the colon is striking. The jejunum was more commonly injured than the ileum, and of the fourteen jejunal lesions, seven were found within eighteen inches of the duodenojejunal junction. Of the ruptures of the duodenum, two showed complete transverse division, and all were associated with other severe injuries in the upper abdomen. In the small intestine the majority of the lesions were partial ruptures; that is, the continuity of the bowel was not completely divided, although all its coats were involved. Of the nine cases of complete transverse division, seven were in the jejunum and two were in the ileum. It is noteworthy that whereas all the cases of rupture of the stomach and of the duodenum were complicated by other injuries, usually intra-abdominal, the cases of rupture of the small intestine, with the exception of two, were uncomplicated by any such injury. The lesion was usually single. Five cases occurred in which there was a double lesion. In these, the perforations were usually close together, although in one case they were separated by a distance of five feet. In many of the cases of multiple perforation of this kind already reported the patient had been kicked by a horse, and it has been suggested that these injuries were due to the impact of the two ends of the hoof. In only one of the five cases in this series was the injury due to a kick; in another the patient was crushed between the buffers of a train. No one sign or symptom can be regarded as in any way diagnostic of the condition in its early stages. In nearly all the cases the predominating feature at the time of admission was pain, shock, or rigidity of the abdomen. Of the thirty-four cases, three patients refused operation. Of the number operated on seven recovered and twenty-four died—a mortality of nearly 78 per cent. No patient with rupture of the stomach or duodenum recovered; this is accounted for by the fact that injury to these structures was in each case complicated by some other severe laceration, usually intra-abdominal. Of the fifteen cases of injury of the jejunum, one case refused operation, and of the remaining fourteen five recovered. Of the eight cases of rupture of the ileum, one patient also refused operation, and of the remaining seven patients two recovered. There does not appear to be, therefore, any great difference in the mortality of ruptures of the jejunum and ileum respectively. In all the successful cases with the exception of one in which Murphy's button was used, simple suture of the rupture was the only surgical procedure necessary. In the three cases in which resection was undertaken the patient died. In only one case was enterostomy performed, and in this case also the patient died. The shock always associated with intestinal rupture, if at all severe, tends to become worse as time goes on, and offers almost insuperable difficulty in the treatment of these cases. In extreme cases the patient dies, even after an early and otherwise successful operation, while in its less severe degrees it obscures the whole clinical picture and masks the onset of peritonitis.

Decerebrate Rigidity in Man.—In Walshe's case not only was the hypertonus physiologically identical with that described by Sherrington, but there were present Magnus and de Kleijn's tonic neck reflex and also a form of interaction between tonic and phasic reflexes, both of which are a normal accompaniment of the rigidity in animals. Further, the clinical picture was free from complication by those irregularities of respiratory and cardiac activity and by tonic fits, which are in all probability due to gross disturbances in the blood supply of the brain stem, and are not part of true decerebrate rigidity. A detailed report of the case is given.

Effect of Heat on Growth Promoting and Antirachitic Substances.—In the experiments reported by Goldblatt and Zilva, an attempt was made: (1) to ascertain whether the inactivation of the growth-promoting and antirachitic functions by heat in the presence of air proceeded at the same rate. For this purpose cod liver oil was investigated. (2) To determine the quantitative distribution of the alleged two factors. For this a substance different in character from cod liver oil, such as spinach, was employed. It was learned that the growth-promoting and antirachitic properties of cod liver oil are inactivated at different rates by heat in the presence of air. There is a very great disparity between the growth-promoting and the antirachitic potency of spinach. A certain sample of hardened cod liver oil had been found to possess high growth-promoting and antirachitic activity. These observations give further support to the hypothesis of McCollum, Simmonds, Shipley and Park that the antirachitic and the fat soluble A factors are different principles.

Medical Journal of Australia, Sydney

2: 217-242 (Sept. 1) 1923

Roentgen Ray Treatment of Skin and Its Appendages. F. J. Stansfield.—p. 217.
Supracondylar Fracture of Humerus Treated by Hook Extension. A. J. Cunningham.—p. 229.

2: 243-266 (Sept. 8) 1923

Congenital Hypertrophy of Pylorus: Surgical Treatment. R. M. Downes.—p. 243.
Notoedres Cati: Its Possible Transmission to Man. I. C. Ross.—p. 246.
Middle-Aged Man in Love: Henri Quatre. C. MacLaurin.—p. 249.
Postoperative Acidosis. M. C. De Garis.—p. 254.

2: 267-290 (Sept. 15) 1923

Tonsil from Point of View of Physician. C. B. Blackburn.—p. 267.
Treatment of Tonsils and Adenoids. W. C. Mansfield.—p. 269.
Indications for Treatment of Tonsils and Adenoids. W. Vickers.—p. 270.
Mongolian Idiocy. W. A. T. Lind.—p. 272.
Acute Leukemia. G. C. Willcocks.—p. 278.

2: 291-328 (Sept. 22) 1923

Treatment of Typhoid by Intravenous Administration of Vaccines. K. D. Fairley.—p. 291.
Primary Blastomycotic Meningitis Occurring in a Child. D. L. Barlow.—p. 302.

Practitioner, London

111: 173-240 (Sept.) 1923

Chronic and Rare Forms of Suppuration in Breast. D. C. L. Fitzwilliams.—p. 173.
Artificial Pneumothorax. F. G. Chandler.—p. 187.
Investigation of Prognostic Significance of Urinary Permanganate Reaction in Pulmonary Tuberculosis. Z. P. Fernandez.—p. 195.
Dental Sepsis in Dermatology. H. C. Semon.—p. 199.
Chronic Urticaria in Adults. G. H. Lancashire.—p. 206.
Home Treatment of Internal Hemorrhoids. C. E. Shelly.—p. 211.
Enlarged Tonsils and Adenoids. B. V. Dunn.—p. 222.

South African Medical Record, Cape Town

21: 389-412 (Sept. 8) 1923

Treatment of Cholecystitis and Gallstones. Surgical Anatomy of Gallbladder. L. Bordon.—p. 390.
Transverse Incision: Plea for Caution. H. A. Moffat.—p. 391.
Indications for Operation. P. M. Daneel.—p. 392.
When to Operate. C. F. M. Saint.—p. 392.
Surgery of Bile Ducts. C. C. Elliott.—p. 394.
Conservatism in Surgical Treatment for Gallstones. T. L. Sandes.—p. 396.
Treatment from Outpatient Surgeon's Point of View. L. B. Goldschmidt.—p. 397.
Case of Double Pyelitis (B. Coli Infection). E. B. Fuller.—p. 399.

Archives Franco-Belges de Chirurgie, Brussels

26: 527-614 (June) 1923

*Sarcomas of Bones. L. Tavernier.—p. 527.
*Epidural Injections. A. Hannecart.—p. 540.
Treatment of Displacement of the Spleen. A. Hannecart.—p. 550.
Trephining Over the Cerebellum. P. Martin.—p. 557.
Good and Bad Ankylosis. Delchef.—p. 575.
*Treatment of Grave Ankylosis. De Munter.—p. 578.

Diagnosis of Sarcoma in Bones.—Tavernier asserts that roentgenography is sometimes more instructive than microscopic examination of an excised fragment in distinguishing

between malignant disease of the bone and an ordinary mild inflammatory process. The statement that the epiphysis is never attacked by malignant disease is disproved by one of his cases in which the epiphysis of the femur was the site of a metastatic sarcoma. Acute osteomyelitis usually shows light patches in the roentgenogram, and the bone is less opaque than normal bone. The impression is more of multiple foci than with sarcoma. But he reproduces three atypical cases in which sarcoma presented a multiple foci appearance, with hyperostosis suggesting syphilis. Small irregular erosions of the anterior margin of the bone were accepted as excluding syphilis. In one case the sarcoma had invaded the entire femur without much enlargement of its diameter. Twenty-seven roentgenograms of atypical cases are reproduced. Osteosarcomas may form new bone but they never induce a reactional formation of new bone in adjacent normal bone, as in osteomyelitis.

Epidural Injections.—Hannecart relates that sciatica permanently subsided in the eleven cases treated by epidural injection of about 150 c.c. of physiologic saline solution. Similar relief was obtained in cases of pains in the leg after trauma or childbirth. One man had been incapacitated for three weeks by pain in the ankle. The epidural injection cured it at once. Two of the patients with sciatica had a recurrence five or six months later which yielded anew to the epidural injection. In one case pain and swelling of the malleolus had recurred at times for more than five years, and finally continuous lancinating pains totally incapacitated the man. All kinds of treatment had been applied without relief, until epidural injection of 200 c.c. cured the pains, the swelling subsided, and the purplish, tender skin became normal. Except for the old ankylosis, the cure was complete. Rebellious multiple and painful varicose ulcers on the leg of one woman healed over gradually after the epidural injection, the largest ulceration, measuring 3.4 cm., had subsided to 0.6 cm. in less than a month and clinically normal conditions were restored before the end of the second month. The epidural injection in these last two cases had evidently modified trophic and vascular conditions. The injection begins to be painful after 30 or 40 c.c. have been introduced, but he continues to the bearable limit, from 100 to 200 c.c. or even 240 c.c. A local anesthetic might be injected beforehand. Experiments on the cadaver have shown that the foramina act as safety valves, but it is wise to inject the fluid slowly after 50 c.c. His experience with epidural anesthesia has also been favorable. He thinks that with perfected technic we may be able to inject the entire epidural space and thus anesthetize all the spinal nerves. The conservation of the motor function with the epidural technic, and the noninclusion of the pneumogastric insure noninterference with the respiration.

Treatment of Crippling Ankylosis.—Munter describes his method of forcible mobilization of grave ankylosis of joints, supplemented by gentle manipulation.

Bulletins de la Société Médicale des Hôpitaux, Paris

47: 729-768 (May 25) 1923

*Bilateral Artificial Pneumothorax. P. Ameuille.—p. 729.
*Chronic Syphilitic Rheumatism. H. Dufour et al.—p. 732.
Portable Standard Manometer. C. Laubry.—p. 735.
*Antisyphilitic Measures in Morocco. J. Comby.—p. 736.
*Differential Diagnosis of Endocarditis. Routier and Walser.—p. 743.
Thrombosis of the Portal Vein, with Perihepatitis. J. Hatzieganu and P. Shiirteu.—p. 747.
Thrombocytopenia with Hemolytic Jaundice. J. Hatzieganu and Petvi. —p. 751.
*Pneumothorax in Interlobar Pleurisy. A. Pellé.—p. 754.
*Pneumococcus Meningitis. Hallé.—p. 757. Idem. Netter and Césari. —p. 763.

Two Cases of Bilateral Artificial Pneumothorax.—In the two cases which Ameuille describes in detail, the first lung affected had practically healed, but the gas had not all been absorbed when he produced a pneumothorax on the other side, in which the lung had developed a tuberculous process.

Syphilitic Polyarticular Arthritis Deformans Treated with Bismuth.—Dufour, Duchon and Durand report a case in which bismuth treatment produced favorable results. The woman, aged 42, entered the hospital Jan. 17, 1923, with chronic rheumatism of the shoulders, wrists, knees, ankles, hip joints, fingers, toes, neck and jaw. The rheumatism had started in the finger joints six years before, and rapidly became general and chronic. Neo-arsphenamin had been the only drug that gave relief, but this was discontinued because of intense albuminuria. The Wassermann reaction had in turn been positive and negative. She was given a course of ten bismuth injections. As a result, spontaneous pain has disappeared, pain on pressure is less intense, and the joints, especially the knees, have lost their stiffness. This syphilitic, deforming, chronic polyarthritis usually appears in youth or in the period of the menopause in women. It is frequently mistaken for tuberculosis when localized in one joint. If specific treatment is given in time, the chances for cure or great improvement are good. The osteitis tends to atrophy rather than to hyperostosis.

Campaign Against Syphilis in Morocco.—Comby says that estimates by physicians in Morocco of the prevalence of syphilis among the natives vary between 50 and 90 per cent. of the total population. Cutaneous, bone, joint and liver lesions are common; general paralysis is rare, and tabes appears only among the Europeans. Injections of arsphenamin and neo-arsphenamin have proved successful among the natives. The first two antivenereal disease dispensaries were founded in 1916, and the natives flock to them, especially the pregnant women.

Differentiation of Slow Endocarditis from Subacute Tuberculosis.—Routier and Walser say that the possibility of infectious endocarditis lenta must not be excluded in septicemia, even without apparent cardiac localization. Even when heart symptoms exist or develop, this does not prove that the condition is endocarditis. In one woman, aged 52, the diagnosis of endocarditis seemed to be certain though two blood cultures at intervals of a week were negative. Necropsy revealed only caseous infiltration of the lungs and pleural adhesions.

Pneumothorax Treatment of Interlobar Pleurisy.—Pellé's patient, aged 15, during the first five months showed symptoms similar to those of pulmonary tuberculosis; during the second stage a vomica occurred twice. This together with the absence of tubercle bacilli from the sputum, determined the diagnosis of interlobar pleurisy. The serious general condition contraindicated surgical intervention. An artificial pneumothorax soon arrested the development, and recovery followed.

Purulent Pneumococcus Meningitis.—Hallé reports a case in a young man with recovery, and Netter and Césari report the recovery of a child, both presenting severe meningitis, under treatment with serotherapy and a fixation abscess. The pus of the turpentine abscess contained the antigens of the pneumococcus. The mortality of pneumococcus meningitis has averaged 92.9 per cent. in the forty-two cases previously published in the *Bulletin*, and Netter has had only six patients recover in his sixty cases. The multiplicity of the localizations of the pneumococcus and its rapid proliferation hamper the effect of serotherapy as a rule.

Paris Médical

157-188 (Sept. 1) 1923

Ophthalmology in 1923. F. Terrien.—p. 157.
Attitude of Head with Certain Visual Disturbances. Cantonnet.—p. 167.
Wernicke's Reaction. G. Cousin.—p. 168.
Otorhinolaryngology in 1923. Dufourmentel.—p. 169.
Practical Advice on Tracheotomy. P. Sebileau.—p. 174.
Stomatology in 1923. P. Fargin-Fayolle.—p. 177.
Treatment of Facial Paralysis. G. Bourguignon.—p. 184.
*Canities and Dental Irritation. Raison.—p. 187.

Canities in Relation to Dental Disease.—A possible relation between the turning white of the hair and dental disturbances is illustrated by Raison, who tells of three cases of canities closely following dental irritation. The first case was that of a man, aged 29, who suddenly developed a patch of gray hair in the region of the vertex after an injury to the skull and dental irritation. The second case was in a man, aged 25, with a patch of white hair on the right temple. It had developed immediately consecutive to alveolitis after extraction of the right upper premolar. The third case was in a medical

student, aged 31, who developed gray patches on the chin and upper lip after the nerve had been killed in the lateral incisor and first premolar teeth on that side.

Presse Médicale, Paris

31: 761-768 (Sept. 5) 1923

*The Sympathetic Factor in Worry. M. Laignel-Lavastine.—p. 761.
*Arthritis of Hip Joint in Infants. Lamy and Benoiste-Pilloire.—p. 762.
Biologic Diagnosis of Echinococcus Disease. P. F. Ithurrat and B. N. Calcagno.—p. 765.

The Nervous Element in Worry.—Laignel-Lavastine incriminates the sympathetic as an important factor in emotional instability, restlessness, and morbid apprehensions, and here explains the anatomic and physiologic bases for this assumption.

Hip Joint Disease in Infants.—Lamy and Pilloire show by concrete examples that a suppurating process in the hip joint may induce secondary luxation from wearing off part of the femoral head or neck, or from primary destruction of the head, or from separation of the epiphysis after the head in the acetabular focus had been resorbed. Simple puncture alone may cure pneumococcus arthritis of the hip joint in an infant. Continuous extension during the acute phase tends to prevent true luxation, and to limit the intensity of the processes. The pseudoluxations from destructive processes should be treated like true luxations; the stump of the neck restored to the acetabulum aids in regeneration of the bone. The differential diagnosis is facilitated by the absence of the epiphyseal protuberance on the upper inner end of the neck, compared with the sound side, and the normal outline of the socket cavity.

Revue Française d'Endocrinologie, Paris

1: 185-280 (July) 1923

*Suprarenals and Cholesterol. G. Laroche.—p. 185.
Infantilism Due to Leprosy. G. Delamare.—p. 208.
*Endocrines and Development of Batrachians. P. Remy.—p. 220.
*Endocrine Derangement Traceable to Helminths. P. Simonin.—p. 238.

Suprarenals and Cholesterol.—Laroche reviews the literature on cholesterol content of the suprarenals, and concludes that the cortical substance of these glands produces cholesterol and regulates its content in the blood.

Endocrines and Development of Batrachia.—Remy reviews the experiments on the action of different endocrine glands and of iodin on the metamorphosis of tadpoles.

Endocrine Derangement Traceable to Helminths.—Simonin reviews the clinical and experimental facts on the influence of helminthiasis on the endocrine glands. Almost every gland may be disturbed. Infantilism, abortions, and disturbances of menstruation may result.

Scalpel, Brussels

76: 937-960 (Aug. 25) 1923

*Diverticulum of the Anterior Urethra. Beyer.—p. 937.
Advantages of Extended Pyelotomy. J. De Smeth.—p. 941.
Surgical Treatment of Atrophic Rhinitis. L. Van den Wildenberg.—p. 944.

Acquired Diverticulum of the Anterior Urethra.—Beyer reports the case of a house painter, aged 63, with a secondary urethrocele which developed in three weeks after a fall. There was no history of gonorrhea or calculi, but the cavity soon became infected. The disturbances were bearable for three years, and then Beyer resected the walls of the diverticulum after internal urethrotomy, reconstructing the urethra with the walls of the diverticulum over a retention catheter. Clinically normal conditions were restored at once and apparently permanently. Denk has collected thirty-three cases, several congenital. In several a fistula was left in the perineum. It might be safer to divert the urine beforehand, but Beyer's patient healed promptly and completely without this.

Schweizerische medizinische Wochenschrift, Basel

53: 745-768 (Aug. 9) 1923

Acute Occupational Mercury Poisoning. M. Winkler.—p. 745.
Roentgen Treatment of Mammary Cancer. H. E. Walther.—p. 747.
*Treatment of Heart Disease in Switzerland. F. Kornmann.—p. 752.
Primary Sarcoma of Mesentery. B. Waser.—p. 755.

Contraindications for Treatment of Heart Disease in Switzerland.—Kornmann emphasizes the danger of sending to mountain health resorts patients with severe heart disturbances, and likewise those who suffer from a "latent anxiety." This does not mean the well known sensation in angina pectoris; it is the anxiety that develops in the course of cardiac disturbances, and makes the patient feel best when he is at home. This latent anxiety is a manifestation of the deficient circulation in the brain.

Policlinico, Rome

30: 1057-1087 (Aug. 13) 1923

Pancreatic Ferments in Stools. U. Carpi.—p. 1057.
*Pediatrics and Medical Prejudices. A. Gismondi.—p. 1059.
Calculus in the Prostate. E. Sciaky.—p. 1061.
Bladder Calculus from Foreign Body. A. Sartogo.—p. 1062.
Pseudosigmoiditis in Bladder Disease. Licini.—p. 1062.
*Fistulas from Foreign Body in Bladder. G. Brendolan.—p. 1064.
Rapid Bacteriologic Diagnosis of Diphtheria. G. Pecori.—p. 1066.
Circular Surgical Saw. G. Galata.—p. 1067.

Pediatrics and Medical Prejudices.—Gismondi shows the fallacy of the frequent diagnosis "intestinal (or gastric) fever." Only the typhoid group belongs here. Other fevers of intestinal origin (gastro-enteritis, dysentery) cause marked local symptoms. The favorable action of a laxative does not exclude the possibility of an affection of the tonsils. The middle ear may be diseased, and a diagnosis based on the fever and coated tongue alone would mislead. Examination of the urine reveals sometimes a pyelonephritis in a supposed "intestinal fever." Tuberculosis and septicemia are to be considered also.

Fistulas from Hairpin in Bladder.—Each point of the hairpin had perforated the wall, so that two vesicovaginal fistulas required operative correction.

Riforma Medica, Naples

39: 697-720 (July 23) 1923

*Scarification Method of Tuberculin Treatment. P. Rondoni.—p. 697.
Complement Fixation in Diagnosis of Tuberculosis. N. Parise.—p. 699.
*Thrombopenia in Anaphylaxis. C. Piana.—p. 702.
Acute Bilateral Purulent Pleuritis. L. Andrenelli.—p. 705.
Poisonous Snake Bites in Italy. M. Gioseffi.—p. 706.

Thrombopenia and Accumulation of Platelets in Liver in Anaphylaxis.—Piana found that the liver of guinea-pigs retains large quantities of blood platelets in an anaphylactic shock.

39: 721-744 (July 30) 1923

*Noncoagulable Blood Nitrogen and Muscular Exertion. G. Aiello.—p. 721.
*Blood Platelets During Hemoclastic Crisis. F. Cattopetti.—p. 722.
Case of Polyglandular Syndrome with Celiac Neurosis. N. Valobra.—p. 723.
Inexpensive Heliotherapy in Tuberculosis. Ottolenghi.—p. 728.

Noncoagulable Blood Nitrogen and Muscular Exertion.—Aiello found a transitory increase of 20 per cent. in the average after muscular exertion under normal working conditions. There was no relation between blood pressure and nitrogen content.

Platelets in Blood During Hemoclastic Crisis.—Cattapetti observed diminution of the number of blood platelets in the circulating blood in every case of "hemoclastic crisis." The phenomenon starts later and progresses slower than the leukopenia.

39: 769-792 (Aug. 13) 1923

*Anaerobic Germs in Otology. P. Brisotto.—p. 769.
*Anatomy and Histology of Heat-Stroke. A. Fabris.—p. 775.
Histology of Tissues Inoculated with Tuberculous Toxin. I. O. Saggioro.—p. 781.
Bronchophonia in Pleurisy with Effusion. R. de Battisti.—p. 783.

Anaerobic Germs in Otology.—Brisotto examined thirty-five otologic cases and twenty cases of atrophic rhinitis bacteriologically. Among other findings he noted that no anaerobes would grow from the pus of his cases of mastoiditis which were caused by an acute otitis. If the otitis was chronic, both the pus from the mastoiditis and from intracranial complications contained anaerobic germs.

Anatomy and Histology of Heat Stroke.—Fabris had occasion to perform necropsies on twelve typical and seven less pure cases of heat stroke. He publishes the details of the pathologic findings.

Gaceta Médica de Caracas

30: 193-208 (July 15) 1923

*Spirochetal Bronchitis in Venezuela. J. R. Rísquez.—p. 193. Cont'd.
Medical Geography of Guarigo District. H. Landaeta.—p. 197. Conc'n.

Spirochetal Bronchitis in Venezuela.—Rísquez has succeeded in discovering seventy-six cases of spirochetal bronchitis at Caracas. The search for the spirochete, the clinical picture, and the treatment are discussed in detail. He found a number of cases in which tuberculosis had been diagnosed, but intravenous antimony treatment restored the patients to health, thus correcting the diagnosis. The first case reported in Venezuela was in 1919, and since then only eight cases had been published when he began, six months ago, to search for cases in the tuberculosis sanatoriums and elsewhere, and thus rounded up seventy-six cases.

Prensa Médica Argentina, Buenos Aires

10: 1-36 (June 10) 1923

*Protracted Slight Fever. G. Aráoz Alfaro.—p. 1. Conc'n.
*Functional Gastric Achylia. C. Bonorino Udaondo.—p. 5.
*Amputation of the Forearm. G. Bosch Arana.—p. 11.
*Spirochetal Bronchitis. J. E. Carulla, M. Besimsky and L. Sanguinetti.—p. 16.
Drainage in Surgery. G. Zorraquín.—p. 20.
Semeiology of the Female Urethra. F. Pérez del Cerro and P. Gonzalez.—p. 26.
Experimental Research on Cerebral Localization. Rodriguez Lafora.—p. 32.

Protracted Slight Fever.—Aráoz Alfaro remarks that it is humiliating when we are unable to explain the cause of slight fever that persists tenaciously in spite of treatment, but this sometimes happens, especially in children and women. Sometimes this fever is observed after convalescence from an acute infectious disease, but the probability is that it had preceded the infection. Tuberculosis may usually be excluded when the temperature does not rise after physical exertion. In some cases the slight hyperthermia may subside for a few days or weeks, and then return as tenaciously as before. The patient may feel in perfect health throughout, but generally there is slight malaise, especially in periods of exacerbation during the menses or after physical exercise or emotional stress. He is convinced that temperatures of 37.1 or 37.2 C. in the axilla, 37.3 in the mouth and 37.6 in the rectum may be regarded as physiologic, either congenital or acquired, in certain persons.

Functional Gastric Achylia.—Bonorino tabulates the findings and course in eleven cases of constitutional achylia and in eight in which the achylia was evidently of nervous origin. This latter group included three cases of tabes, and gastric secretion was normal during the intervals of the crises. In the functional cases, intestinal function was normal, in marked contrast to the gastrogenous diarrhea common with organic achylia. Treatment of the functional type should be hygienic with measures to aid digestion only when needed. Acquired neurogenous achylia is generally transient. In the constitutional form there are usually other signs of general asthenia.

The Radio-Ulnar Cleft Method of Amputation of the Forearm.—Bosch Arana discusses the technic which gives the best results with the method of amputation which slits the forearm to utilize the radius and ulna like the tines of a long fork or rather the jaws of forceps. An illustration shows a man feeding himself, the spoon held naturally in the long cleft in the forearm.

Spirochetal Bronchitis.—The man had been presenting symptoms of chronic bronchitis for four years before the sputum became hemorrhagic and Castellani's spirochetes were discovered. He is now improving under arsphenamin.

10: 65-96 (June 30) 1923

*Bone Implants in Pott's Disease. R. E. Pasman.—p. 65.
Treatment of Visceral Syphilis. J. L. Carrera.—p. 80. Conc'n, p. 108.
French System of Welfare Work for Infants. S. Mazza.—p. 84.
Infection of Broad Ligament. R. Beranger and J. Viola.—p. 87.
Hemorrhagic Uterine Disease. O. H. Senet and P. B. Landabure.—p. 93.

Bone Implants in Treatment of Tuberculous Spondylitis.—Pasman gives the detailed history of 23 of the 26 cases in which he applied Albee's technic. His operative mortality was 8 per cent. He agrees that this method of treatment is not adapted for children; in any event, for children under 5. The implant was absorbed in from two to four months in 3 of the 6 children, and one of the other children died. The outcome was extremely favorable in 15 cases, and there was considerable improvement in 4 other cases; 2 are "lost cases."

10: 181-204 (Aug. 10) 1923

*Tuberculosis of the Bones of the Foot. Celesia A. F.—p. 181.
*Bacteriologic Examination of Water. M. V. Carbonell and E. Fynn.—p. 184.
*Traumatic Ossifying Myositis. E. Cornejo Saravia and A. Buzzi.—p. 186.

Tuberculosis of the Bones of the Foot.—Celesia comments on the almost invariable failure of heliotherapy and other nonsurgical measures in tuberculous lesions of the tarsus or metatarsus. The disturbances are ascribed to rheumatism or other cause until the affection is too far advanced for medical measures alone. He describes a case in which he curetted the foci in the foot in 1919, and again in 1920. The patient dated the lesion from a fall from a horse in 1917; her entire weight on striking the ground had been borne by this foot.

Bacteriologic Examination of Water.—Carbonell and Fynn commend as simple and rapid a test for colon bacilli based on the production of sulphureted hydrogen in bouillon containing 1 per cent. peptone. A strip of blotting paper impregnated with a solution of lead acetate is suspended in the test tube, just above the fluid, and this turns a dark color as the hydrogen sulphid is generated. Parallel tests with other technics confirmed the reliability of this method with 1 c.c. of water and even with 0.1 in some specimens. The method can be used also in testing milk.

Ossifying Myositis.—In Schulz' collection of 296 cases, a single severe trauma was known in 232, and this had occurred in the case described here. Cornejo Saravia and Buzzi remark that there is generally a history of dislocation of a joint, and in the majority the elbow and the brachialis muscle are involved. The tumor becomes hard in parts by the third week to the third month. The prognosis is graver, the earlier the ossifying process occurs. It reaches its height by the third month, and then tends to diminish in size while becoming denser. They warn that it is necessary to wait before operating until the osteoma is well defined, encapsulated, as it were, and independent of the skeleton. The operation must leave no hematoma as this would invite recurrence. Even at the best, recurrence is frequent.

10: 229-252 (Aug. 30) 1923

*Associated Infection with Pulmonary Tuberculosis. F. Bezançon and M. Chevalley.—p. 229.
Drainage in Acute Empyema. C. I. Allende.—p. 231. Cont'd.
Serologic Variations of Paratyphoid A Bacillus. A. Bachmann and J. M. de La Barrera.—p. 239.
*Hyperostosis of Upper Jaw. R. Podestá.—p. 241.

Associated Infection in Pulmonary Tuberculosis.—The data presented from fifty-eight cases of tuberculosis confirm the insignificant share of secondary infection in formation of cavities and in hectic fever. Consequently there is little basis for systematic vaccine therapy in pulmonary tuberculosis.

Symmetrical Hyperostosis of Upper Jaw.—Podestá compares with the case he describes the few similar cases on record. The affection is not osteitis fibrosa but merely the transformation of the bone marrow into a fibrous tissue. Although syphilis seems to be a factor in its development, specific treatment has no influence on the hyperostosis. It obstructed the nasal passages in his case, compelling intranasal resection.

Repertorio de Medicina y Cirugía, Bogota

14: 295-334 (May) 1923

The Present Status of Prostatectomy. Hipolito Machado L.—p. 298.
*The Bucaramanga Epidemic. D. Peralta et al.—p. 301.

14: 335-374 (June) 1923

The Medical Practice Law in Colombia. J. M. Montoya and J. Manrique.—p. 335.
Vasotomy or Belfield's Operation. R. Zapata.—p. 344.
*The Bucaramanga Epidemic. F. Lleras Acosta et al.—p. 356.

The Bucaramanga Epidemic.—This article is signed by eight physicians of Bucaramanga, and presents an epitome of their experiences in this present epidemic, which they say is yellow fever. The disease resembles in every respect an epidemic in

1910 and 1911 with 341 deaths. The mortality in the present epidemic has been only 15 per cent.; 80 per cent. of the 200 cases known have been mild. Treatment has been with an alkaline laxative (Seidlitz) and an intravenous injection of 0.3 gm. of neo-arsphenamin given as soon as the case is diagnosed, regardless of the temperature. The benefit from the neo-arsphenamin has demonstrated its fundamental value. Since the epidemic of 1911, dengue has appeared in the region, and the eight physicians are inclined to accept a connection between yellow fever and dengue. Several features in common and the transmission of both by the same species of mosquito suggest a kinship, like that between the different types of malaria plasmodia. The following number of the *Repertorio* publishes the report of three physicians from Bogota who accompanied the committee sent by the Rockefeller Foundation to study the epidemic. The diagnosis of yellow fever was confirmed at once. The serum constantly agglutinated the cultures of the yellow fever leptospira and failed to agglutinate the spirochetes of infectious jaundice.

Revista de la Asoc. Méd. Argentina, Buenos Aires

36: 69-281 (May-June) 1923

*The Snake Venom Supply. B. A. Houssay.—p. 69.
Polyvalent Antiserum for Gangrene. A. Sordelli.—p. 82.
*Changes in Teeth on Deficiency Diets. J. J. Bracco.—p. 86.
*Antiserums for Snake Poison. B. A. Houssay and J. Negrete.—p. 98.
*Mistaken Sex. C. L. García.—p. 117.
Reconstruction Surgery. O. Ivanissevich.—p. 197.
Actinomycosis of the Abdomen. N. Tagliavacche.—p. 203.
The Fight Against Tuberculosis in Germany. G. Bosco.—p. 217.
Development of White Rat on Milk Diet. E. Fynn.—p. 235.
Prophylaxis of Tuberculosis in Infants. J. P. Garrahan.—p. 248.
*Anastomosis of Facial Nerve. M. Alurralde and C. T. Allende.—p. 259.
Case of Wilson's Disease. R. Chiappori and I. Hernández.—p. 267.
Case of Bulbospinal Myasthenia. R. Chiappori.—p. 271.
Increase in Insanity in Argentina. A. Ameghino.—p. 275.

Supply of Snake Poison in Argentina.—Houssay says that in the last four years about 3,000 extractions of snake venom have been made at the official institute. Different species of lachesis have yielded up to 200 and 470 mg. of venom at a time (dried). The monthly yields are much smaller in winter.

Changes in Teeth of Rats on Deficiency Diets.—Bracco's experiments confirmed the defective deposits of calcium, and the irregular growth of predentin in the nine rats on a deficiency diet (McCollum's 2,911), compared with five controls. No signs of decided rickets were found when the animals were killed in 109 days.

Specific Action of Antivenins.—Houssay and Negrete deny any specific action from the antivenins in respect to venoms from another country, even from the same species of snakes. The antivenins are potently specific for the venoms from which they are prepared, and have some neutralizing action on kindred species from the same continent. The action is still less on species not closely akin.

Mistakes in Sex.—Lagos García describes the various deformities that result from lack of the anterior urethra in male infants which mislead the decision as to the sex. In his twenty years of study of cases of pseudohermaphroditism and mistakes in sex, the subjects were always males. He gives an illustrated description of the eleven cases in this category he has encountered. Vulviform penoscrotal hypospadias is a puzzling type. One child, aged 5, seemed to be a well formed healthy girl, except for a hernia. The contents of the hernia proved to be a testis, and the cremaster reflex could be elicited. Nothing resembling a uterus or ovary could be discovered. He removed the ectopic testis. In another case of masculine pseudohermaphroditism, the child, aged 4, developed precocious puberty, and died at 8 from measles. In some of the cases only a laparotomy cleared up the sex.

Anastomosis of Facial Nerve to Correct Contracture.—The contracture complicating paralysis of the left inferior facial nerve was combated by anastomosis of the nerve. The benefit lasted only for five months; then further slight contracture developed in the region innervated by the severed trunk nerve.

Semana Médica, Buenos Aires

1: 989-1028 (May 24) 1923

*Kidney Tumors. C. A. Castaño and A. J. Risolia.—p. 993.
*Anal Fistulas. A. Zeno and C. Piola.—p. 1006.
*Extra-Uterine Pregnancy Near Term. S. E. Bermann.—p. 1008.
Biologic Relativity. A. Mary.—p. 1010.

Kidney Tumors.—Six were hypernephromas in a recent series of 7 cases of kidney neoplasms in Castaño's experience. In 3 of the hypernephroma cases there had been no symptoms from the urinary apparatus, but there had been fever and chills in 2 cases, and irregular fever alone in one. The fever may appear early, and be the only symptom for a time, with or without free intervals. In one case hydatid cyst of the liver and in another perinephritic abscess had been the diagnosis. The fever always subsided after the nephrectomy. Only the 4 patients, aged from 43 to 63, presented hematuria. The 3 free from urinary symptoms were between 18 and 35. The tumor was palpable in 6 cases, and in 4 there had been pain from the first, intense and immobilizing in one case. The general condition remained good throughout; glycosuria was pronounced in one case, but disappeared after the operation. Two of his 7 patients died from operative shock; the tumor had proved inoperable in one of these cases. The others are in good health to date, but metastasis several years later is common with these tumors. He adds that functional tests of the kidneys are superfluous, as hypernephroma is inevitably fatal unless removed.

Anal Fistula.—Zeno and Piola state that the fistula was of tuberculous origin in 9 of their 125 operated cases in the last eight years, and the outcome of the operation was only medioere in this tuberculous group. They excised the fistula into sound tissue, and sutured the walls of the resulting cavity together to wall off the rectum in all but 14 cases.

Extra-Uterine Pregnancy at Term.—In the case illustrated by Bermann, the nine months' child lived two hours after extraction from the left tubo-abdominal fetal cyst with two placentas. Internal hemorrhage had compelled the emergency laparotomy. This is the sixth case of extra-uterine pregnancy at term that has been published in Argentina.

1: 1149-1188 (June 21) 1923

*Benign Periurethral Tumors. F. E. Grimaldi.—p. 1149.
Hemorrhagic Pancreatitis in Dogs, Induced with Snake Venom. C. Preioni.—p. 1176.
Mortality in Colony of Insane. F. Gorriti.—p. 1180.

Benign Periurethral Tumors.—Grimaldi insists that this is the proper term for what is usually called hypertrophied prostate. Treatment should be based on this conception, and the Freyer operation is the only technic that allows radical removal of the tumor. The outcome depends on the care before and after the operation.

Deutsche medizinische Wochenschrift, Berlin

49: 1005-1038 (Aug. 3) 1923

Insulin Treatment. H. C. Hagedorn.—p. 1005.
*Treatment in Disease of Coronary Arteries. Guggenheimer.—p. 1007.
Pomdorf's Vaccination. E. Hassencamp.—p. 1010.
*Hydrogen Ions and the Blood Vessels. Atzler.—p. 1011.
*Lumen of Pores in Filters. A. Einstein and H. Mühsam.—p. 1012.
Mediastinal Pleuritis and Its Roentgen Picture. Brieger.—p. 1013.
*Positive Wassermann Reaction During a Staphylococci Sepsis. A. Storp.—p. 1014.
Cholesterol-Free Meinicke Test for Syphilis. H. Deicher.—p. 1015.
Scleroses in Territory of Pulmonary Artery. P. Engelen.—p. 1015.
Action of Some Antiscorbutic Foods. E. Nassau and O. Meyer.—p. 1016.
Chronic Ulcer of Duodenum in a Child. A. Dienstfertig.—p. 1017.
Thyroid Treatment of Adiposis Dolorosa. F. Reichmann.—p. 1018.
Diagnosis and Treatment of Ascariasis. T. Eickelberg.—p. 1020.
*Chronic Poisoning with Mercury. Alexander and Mendel.—p. 1021.
Treatment of Encephalitis. Lent.— p. 1022.
Alcoholic Decoction of Digitalis. E. Grahe.—p.1022.
Eosinophilia in Case of Sepsis. E. Hachez.—p. 1022.
Survey on Psychiatry. Bostroem.—p. 1023.
Specialized or General Visiting Nurses? Paetsch.—p. 1024.
Relief Funds for German Physicians. J. Schwalbe.—p. 1024.

Heart Treatment in Diseases of Coronary Arteries.—Guggenheimer recommends the use of large doses of purin derivatives in patients suffering from sclerosis of the coronary arteries. The treatment is important in a stage of latent or relative insufficiency of the heart. Sometimes the heart responds to digitalis only after such preparation.

Action of Hydrogen Ions on Blood Vessels.—Atzler found a maximal dilatation of blood vessels when using a perfusion fluid of from 5 to 7 p_H.

Determination of Lumen of Pores in Filters.—Albert Einstein and Mühsam publish a method which allows the deter-

mination of the maximal width of pores in a filter. So far only a scale of different colloids was used for similar determinations. The size of the molecules of these substances is as good as unknown, and the adsorption is responsible also for further errors.

Positive Wassermann Reaction During Staphylococcal Sepsis.—Storp observed a strongly positive Wassermann reaction in a child suffering from staphylococcal septicemia. The reaction became negative when the temperature was normal.

Chronic Mercury Poisoning from an Ointment for Freckles.—Alexander and Mendel report the history of a woman with chronic poisoning with mercury. The patient suffered for six years from headaches, sleeplessness, pains and paresthesias in the extremities, salivation, and fine tremor of the hands. The cause was found in an ointment for freckles, which contained calomel, and which the patient had been using daily for years.

Klinische Wochenschrift, Berlin

2: 1293-1340 (July 9) 1923

Orientation in Space. Köllner.—p. 1293.
*Correlation Between Organs. H. J. Hamburger.—p. 1297.
Physiologic Action of Periarterial Sympathectomy. F. Bruening and O. Stahl.—p. 1298.
*Retention of Arsphenamin in the Tissues. H. Weyl.—p. 1300.
*Reenforcing Action of Radiotherapy. György and Gottlieb.—p. 1302.
Biologic Differentiation of Proteins of Organs. K. Wolff.—p. 1304.
*Pathogenesis of Acute Roentgen-Ray Intoxication. Neuda et al.—p. 1306.
*Protein Therapy of Gastric and Duodenal Ulcers. H. Kalk.—p. 1310.
*The P Peak in the Electrocardiogram. W. von Kapff.—p. 1312.
Action of Iron. Grumme.—p. 1314.
Superinfection in Syphilis of Rabbits. J. Steinfeld.—p. 1314.
Bacteriology of the Duodenum. K. Meyer.—p. 1315. Comment. A. Weilbauer and E. Jacobsthal.—p. 1316.
"Pneumonia in Neuropathic Children." Friedjung.—p. 1316.
Test for Bile Acids in Duodenal Juice. E. C. Meyer.—p. 1317.
Claim for Priority in "Transduodenal Irrigation." Kahn.—p. 1317.
Intramolecular Breathing of Micro-Organisms. R. Bieling.—p. 1317.
Lipases in Urine. E. Bloch.—p. 1318.
Ganglion on Dorsum of Both Feet. A. Hintze.—p. 1319.
Prognosis in Puerperal Fever. R. T. v. Jaschke.—p. 1320.
Present Status of Drugs Inhibiting Sweating. R. Schoen.—p. 1322.

Correlation Between Organs.—Hamburger and his students investigated the action of the perfusing fluid from frogs' hearts after stimulation of nerves. The starting point for the research was O. Loewi's observation of the inhibiting action on the heart of such a fluid after stimulation of the pneumogastric. On the other hand, it increased the frequency of the heart of other frogs and inhibited the movements of the stomach, when the sympathetic, instead of the pneumogastric, had been stimulated. A fluid of this kind increases the surface tension while the "vagus fluid" decreases it. Extracts of the atrium have a "vagus effect"; extracts of the ventricles act the same as with irritation of the sympathetic. He classes these phenomena between the correlation of organs arranged by nerves, and the endocrine glands.

Retention of Arsphenamin in the Tissues.—Weyl wanted to test the theoretic advantages of direct injections of arsphenamin into the carotis in general paralysis, compared with intravenous infusion. His experiments on animals showed a marked difference only when silver arsphenamin was used.

Eosin to Reenforce Radiotherapy.—György and Gottlieb found that sensitization of rachitic children with eosin shortened the time necessary for irradiation treatment with the quartz lamp. Recovery was rapid. The spasmophilic diathesis is a contraindication.

Pathogenesis of Acute Roentgen-Ray Intoxication.—Neuda et al. studied especially the influence of roentgen rays on the metabolism of salt. Although the primary action seemed to concentrate on the proteins, the changes affecting the sodium chlorid content of organs and the elimination of sodium chlorid were so marked that the authors consider the empiric therapeutic use of salt in this acute roentgen-ray intoxication—the roentgenkater—as scientifically justified.

Protein Therapy of Gastric and Duodenal Ulcers.—Kalk did not have favorable results.

The P Peak in the Electrocardiagrm.—Kapff finds it necessary to make jugular tracings if the electrocardiogram does not show the P peak.

2: 1437-1484 (July 30) 1923

Induced Reactions of the Skin. F. von Gröer.—p. 1437. Conc'n., p. 1485.
*Periarterial Sympathectomy. M. Kappis.—p. 1441.
*Irradiation of Prodigiosus. P. S. Meyer.—p. 1446.
Diagnosis of Kidney Pelvis Disease and Calculi. Hohlweg.—p. 1447.
*Action of Purin Derivatives. Guggenheimer and Sassa.—p. 1451.
Blood Fibrinogen in Pathologic States. F. Kisch.—p. 1452.
Anatomy of Vessels of "Stomach Channel." K. Nather.—p. 1454.
Testing Diuretics on Isolated Rabbit Kidney. M. Lemesic.—p. 1455.
"Fibrinogen in Blood in Liver Diseases." W. Scheffer.—p. 1456.
Reply. Isaac-Krieger and Hiege.—p. 1457.
Acetaldehyd Formation in Organs. Neuberg and Gottschalk.—p. 1458.
Injury from Thallium Treatment of Rats. Buschke and Peiser.—p. 1458.
External and Internal Secretion of Pancreas. H. Baer.—p. 1459.
Arsphenamin Intoxication and Sensitiveness to Staphylococci. F. Rosenthal.—p. 1460.
Retention of Placenta. H. A. Dietrich.—p. 1461.
Distress of German Physicians and Pharmacists. Quaet-Faslem.—p. 1464.

Periarterial Sympathectomy.—Kappis saw good results of sympathectomy in some cases of ulcers and a case of retarded consolidation of a fracture of the leg. He observed a lowering of the blood pressure (10-20 mm. mercury) regularly at the time of removing the adventitia.

Irradiation of Prodigiosus.—Meyer found that cultures of *Bacillus prodigiosus* which have been made resistant to artificial sunlight or the arc lamp are also resistant to roentgen rays. Cultures which became resistant to roentgen rays were damaged by the other rays as much as untreated bacilli.

Action of Purin Derivatives on the Coronary Circulation.—Guggenheimer and Sassa found in experiments on animals a very pronounced vasodilating action of purin derivatives (caffein, etc.) on the coronary arteries.

2: 1485-1532 (Aug. 6) 1923

Cutaneous Reactions. F. von Gröer.—p. 1485. Conc'n.
*Secretion of Biliary Acids. Rosenthal and v. Falkenhausen.—p. 1487.
Polydipsia After Epidemic Encephalitis. Beringer and György.—p. 1493.
Vaginal Morcellation of Large Myomas. H. Sellheim.—p. 1496.
*Roentgen Irradiation of Weakly Children. Bucky and Kretschmer.—p. 1498.
*Cancer Transplantation. K. Nather.—p. 1499.
Cutaneous Reaction with Old and Moro Tuberculin. Riedel.—p. 1503.
To Increase Virulence of Saprophytic Acid-Fast Bacilli. P. Rondoni and P. G. Dal Collo.—p. 1504.
Gastroptosis. M. Bönniger.—p. 1505.
Histology of Dementia Praecox. J. Schuster.—p. 1505.
Counting Blood Platelets. I. Berger.—p. 1506.
*Vitamins in Serum. L. Gózony and E. Kramár.—p. 1506.
*Pathology and Treatment of Chloroform Anesthesia. P. Schenk.—p. 1507.
Porphyrinuria with Landry's Paralysis. L. Ehrenberg.—p. 1508.
Treatment of Sinus Affections. Vogel.—p. 1509.
Pharmacology of Uterus. M. Kochmann and A. de Veer.—p. 1513. Conc'n, p. 1560.

Secretion of Biliary Acids in Man.—Rosenthal and Falkenhausen found that the liver secretes bilirubin, cholesterol and biliary acids independently. In the majority of cases, the concentration of glycocholic acid in the bile is stronger than the concentration of taurocholic acid. In several cases of pernicious anemia, however, the proportion was inverted, and sometimes no glycocholic acid at all was to be found. They attribute this to the large amounts of cystin derived from the globin of destroyed erythrocytes. This leads to an increased formation of taurin, which binds almost all the available cholalic acid.

Roentgen Irradiation of Weakly Children.—Bucky and Kretschmer observed increase in weight in weakly children, after a roentgen irradiation with one quarter of the erythema dose. They did not repeat the irradiation until after an interval of two months, and then only if the favorable action of the first exposure was no longer noticeable. They have applied this treatment to tuberculous and other children to date, exposing the chest.

Cancer Transplantation.—Nather was able to grow a mouse tumor on rabbits if he repeated the injections of the emulsion of the tumor. The transplanted tumor became less virulent for mice.

Vitamins in Serum.—Gózony and Kramár found in serums a thermostable substance soluble in alcohol, to which they attribute an action similar to that of vitamins. It enhances the reducing power of liver cells. Fetal serum contains larger amounts of the substance than adult serum.

Pathology and Treatment of Chloroform Anesthesia.—Schenk points to the beneficial effect of infusion of glucose during and after chloroform anesthesia.

Medizinische Klinik, Berlin

19: 1073-1106 (Aug. 5) 1923

Diagnosis and Treatment of Depressive Conditions. S. Locwenthal.—p. 1073.
Hysteria Resembling Postencephalitic Parkinsonism. Kauders.—1077.
*Syphilis as Factor in Gastric and Duodenal Ulcers. P. Tselios.—p. 1080.
Ponndorf's Scarification Tuberculin Treatment. E. Richter.—p. 1082.
*Bismuth Line on the Gums. G. Lumme.—p. 1083.
Arteriotomy in Severe Pneumonia. H. Moro.—p. 1084.
Comparison of Results of Treatment of Syphilis with Various Drugs. G. Blümener.—p. 1084.
Total Absence of Vagina and Uterus. Serdjukoff.—p. 1086.
Paralysis of Serratus After Artificial Pneumothorax. A. Müller.—p. 1086.
Hemoclastic Leukocytosis After Dermographia. W. Worms.—p. 1087.
Abuse of Social Insurance. E.Stier.—p. 1089.

Syphilis as Factor in Gastric and Duodenal Ulcers.—Tselios examined forty-four patients suffering from tabes and ulcers of the stomach or duodenum. He confirms the frequency of low acidity of the gastric juice in these cases. He believes that the syphilitic disease of the nerves, and not a direct affection of the stomach or duodenum, is responsible for the ulcers in these patients.

Bismuth Line on the Gums.—Lumme emphasizes the persistence of the bluish line on the gums due to bismuth treatment. Since this symptom betrays the diagnosis to every one who knows, he believes that bismuth should be used only exceptionally in treatment of syphilis.

19: 1107-1142 (Aug. 12) 1923

*Phantom Pregnancy. W. Liepmann.—p. 1107.
*Vestibular Dizziness. A. Güttich.—p. 1109.
Occult Blood in Stools. W. Baumann.—p. 1111.
Insulin Treatment of Diabetes. Umber.—p. 1115.
Disinfection of Vagina. H. Kionka.—p. 1118.
Suppuration of Costal Cartilages. C. Fürth.—p. 1122.
Treatment of Paroxysmal Tachycardia. J. Schuster.—p. 1123.
To Hold Moist Dressings in Place. B. Günther.—p. 1123.
*The Antagonists of Tuberculin Reaction. C. H. H. Spronck.—p. 1124.
Practical Gynecology. E. Runge.—p. 1127.
Present Status of Experimental Radiologic Research. H. Holfelder.—p. 1129. Conc'n, p. 1168.

Modern Psychogenic Views in Gynecology.—Liepmann analyzes phantom pregnancy from the standpoint of his law of the threefold substratum of the female psyche through the entire animal kingdom, namely, inhibition, vulnerability and pansexuality. It is interesting that, according to R. Kantorowicz, a similar state of phantom pregnancy can occur in female dogs, especially dwarfed ones, which have not been covered. Even the mammary glands may swell and secrete.

Vestibular Dizziness.—Güttich finds that all nations overestimated the importance for aviation of a healthy vestibular apparatus. Since a man who has lost it cannot get dizzy by being rotated, it would seem that such persons would be the best flyers. The most characteristic sign of vestibular vertigo is the sensation of rotation and the occurrence of attacks when the position of the head is changed. Irrigation of the ear with water of other temperature than 38 C. in otitis media may cause dizziness, which here is only a sign that the labyrinth is intact. The caloric reaction is a frequent cause of drowning: A swimmer, especially one with an open tympanic membrane, gets cold water in his ear. Nystagmus sets in, which makes optic orientation impossible. His arm and leg movements are disorganized because of the past-pointing reaction. The falling reaction, which belongs to the syndrome, carries the swimmer to the bottom of the lake or stream, where he is finally overcome by vomiting, the vomit passing into the trachea. Vestibular dizziness may be due to disease of the middle ear or of the endocranium, and to vasomotor changes, since the crista ampullaris is extremely vascular (Shambaugh). Lumbar puncture may be of therapeutic value. Small doses of quinin (0.3 to 0.6 gm. daily) help sometimes. If they do not, mercury ointment should be tried, even if the Wassermann reaction is negative.

The Antagonists of Tuberculin Reaction.—Spronck confirmed the presence of a substance acting like tuberculin in tuberculous tissues. He was able to transmit cutaneous allergy passively to guinea-pigs, with emulsions of such tissues. The passively sensitizing serum of guinea-pigs neutralized in vitro the cutaneous action of old tuberculin.

Münchener medizinische Wochenschrift, Munich

70: 1041-1074 (Aug. 10) 1923

*Development of Otorhinolaryngology. Scheibe.—p. 1041.
Treatment of Erysipelas with Stimulating Vaccines. Koch.—p. 1044.
Treatment of Uveitis in Leprosy. O. Schnaudigel.—p. 1047.
Contrecoup Injuries of Liver and Spleen. F. J. Kaiser.—p. 1048.
*Histologic Examination of Mamma During Operation. Ladwig.—p. 1049.
Clinical Etiology and Anatomic Findings in Brain. J. Fraenckel.—p. 1050.
Blood Changes in Smallpox. W. H. Hoffmann.—p. 1052.
Pneumoperitoneum in Diagnosis of Diseases of Liver and Gallbladder. R. Nussbaum.—p. 1052.
Pneumocolon in Roentgen Diagnosis of Stomach Diseases. W. Förster.—p. 1054.
Laparoscopy and Gastroscopy. G. Kelling.—p. 1054.
Epithelial Cyst in Finger Stump. Sonntag.—p. 1055.
"Mounting Slides with Water Glass." A. Gottstein.—p. 1056.
Changing Times. E. Bruglocher.—p. 1056.
Prophylaxis of Rabies. J. Haedicke.—p. 1059.
"Advice Station for Venereal Disease." H. Schmidt.—p. 1061.

Development of Otorhinolaryngology and the Mortality of Ear, Nose and Throat Disease.—Scheibe deals with the development of these branches of science and is specially interested in their results. While the mortality in suppurative affections of the sinuses seems rather to increase with the progress of surgical methods, the mortality in surgery of the ear has much decreased. The most frequent causes of death are untreated cholesteatomas, and empyemas in acute otitis not diagnosed in time. He says that simple chronic suppuration in the ear is not dangerous, even if not treated at all.

Histologic Examination of Mamma During Operation.—Ladwig reports that exploratory excision of a fragment of a tumor of the mamma is never attempted in the Leipzig clinic (Payr) unless the sections can be examined during the operation. The radical operation, if necessary, can then follow immediately.

Wiener klinische Wochenschrift, Vienna

36: 531-548 (July 26) 1923

Anatomy, Resistance and Allergy in Pulmonary Tuberculosis. H. Beitzke.—p. 531.
*Functional Elongation of the Femur. O. Frisch.—p. 535.
*Genital Organs and Metabolism. Kraul and Halter.—p. 538.
Papyraceus Fetus Palpated in the Uterus. J. Petzold.—p. 539.
*Rarity of Diabetes in Croatia. L. Thaller.—p. 541.
Standards for Physical Growth. L. Wolfer.—p. 541.

Functional Elongation of the Femur.—Frisch shows how to figure the abduction of the femur which is required to compensate shortening of the femur in cases with ankylosis of the hip joint. Oblique resection and extension alone are not sufficient.

Influence of Female Genital Organs on Basal Metabolism.—Kraul and Halter found in four women a lowering of 17-30 per cent. of the basal metabolism rate after castration by roentgen rays. Patients with uterine fibroids averaged 30 per cent. above normal. Hysterectomy lowered the increased rate in six cases.

Rarity of Diabetes in Croatia.—Thaller points to extraordinary rarity of diabetes among Croatian peasants, which he attributes to the diet (little meat and little beer).

36: 549-566 (Aug. 2) 1923

*Tuberculosis as Disease of Systems. E. Löwenstein.—p. 549.
*Oligodynamic Action of Metals. P. Saxl.—p. 551.
Typhoid Meningism. A. v. Torday.—p. 553.
"Injury of Tendons." L. Kirchmayr.—p. 555.
Resorption of Sulphur Compounds from Thermal Springs in Baden. E. Maliwa.—p. 555.

Tuberculosis as a Disease of Systems of Organs.—Löwenstein injected guinea-pigs subcutaneously in the paw with tubercle bacilli. An amputation performed one hour after the injection did not save the animal. Injections into a scar were also followed by a generalization of the process when amputated after twenty-four hours. He concludes, therefore, that in man the process starts also early as a bacillemia. His attention was drawn to the fact that tuberculosis in about 90 per cent. of the cases affects only one system (lungs, bones, skin, eyes, kidneys), but that it has a tendency to affect the

whole system. For instance, the affection of one kidney is followed by infection of the other unless the first is extirpated in time. He injected bacilli in one eye of a rabbit. A subcutaneous injection of bacilli one year later was invariably followed by localization in the other eye. Infection of a kidney in guinea-pigs gave analogous results in spite of the rarity of spontaneous tuberculous nephritis in these animals. He considers these phenomena as analogous to sympathetic ophthalmia. Striated muscles are immune to tuberculosis, though they contain bacilli.

Oligodynamic Action of Metals and Their Salts.—Saxl finds that the disappearance of oligodynamic action of metals by heating and other procedures and its reappearance in weak acids, exposed to the air, cannot be explained by the supposition that salts are responsible for the action. The disinfecting power of water, in which a silver wire has been kept, is much greater than it would be proportionally to the amount of silver dissolved.

36: 567-584 (Aug. 9) 1923

Interstitial Cells and Seminiferous Epithelium. V. Patzelt.—p. 567.
"Exanthema Subitum" (Zahorsky-Veeder-Hempelmann). J. von Bokay.—p. 570.
*Treatment of Abortion with Quinin. R. Poschacher.—p. 572.
Treatment of Goiter with Small Doses of Iodin. H. Haase.—p. 573.
Murder of a Five Weeks Old Infant. W. Schwarzacher.—p. 573.
Human Milk for Sick Infants. A. Reuss.—p. 575.

Treatment of Abortion with Quinin.—Poschacher gives four doses of 0.25 gm. quinin sulphate each, one quarter of an hour apart. The more advanced the pregnancy, especially if fetus and placenta are still in the uterus, the better the results. This treatment should be tried in every case, especially in febrile abortions, before instituting active measures.

Zeitschrift für urologische Chirurgie, Berlin

13: 197-258 (Aug. 23) 1923

*Sequestrum of Bone in Bladder. L. Löffler.—p. 197.
Epithelial Tumors in Bladder. Joseph and Schwarz.—p. 203.
*Postoperative Reflex Anuria. E. Haim.—p. 227.
*Functional Tests of the Kidneys in Surgery. Rehn.—p. 230.

Bone Sequestrum in Bladder.—The sequestrum was from caries of the symphysis, and after clearing out the tuberculous bone process, removing the sequestrum, resecting the fistula, and suturing the bladder, recovery was smooth and complete. Löffler has been able to find only eight published cases of caries of the symphysis. The sequestrum in his case projected into the bladder but it plugged completely the hole it had made.

Reflex Anuria After Operations.—Haim gave a potent diuretic by the vein in the one case reported. The anuria had followed removal of a uterine cancer involving the vagina. The urine began to dribble two minutes after the intravenous injection; it had been preceded by withdrawal of 50 gm. of blood (dark colored) by venesection.

Tests of Kidney Functioning in Surgery.—Rehn argues that the functional capacity of the kidney can be estimated only by taking into account at the same time the interchanges between the blood and the tissues. Any changes in the isoionia of the blood serum (the quantitative constancy of the ions forming the urine salts) and the isotonia (the regulation of the osmotic pressure) are reflected at once in the urine. On the other hand, any changes in the kidney are reflected in the isoionia and the isotonia. To test them he gives first an acid by the mouth, and then an alkali by the vein. In the morning the fasting patient drinks 20 drops of hydrochloric acid in 300 c.c. of water, and the urine from each ureter is tested for the hydrogen ion concentration. Two hours later, 50 c.c. of a 4 per cent. solution of sodium bicarbonate is injected by the vein, and the hydrogen ion concentration is tested from the third minute at brief intervals up to seven minutes or longer. When the p_H has reached 7 or more, the Voelcker indigo carmin test can be instructively applied. Rehn's application of this double test in 170 cases has proved very instructive. Five different types of responses were obtained in kidney disease by this S U A test, as he calls it. The reagents used are not foreign to the organism, and comparison of the response from each ureter reveals disturbances in kidney function which escape the ordinary tests.

Zentralblatt für Chirurgie, Leipzig

50: 1233-1264 (Aug. 11) 1923

Peptic Ulcer After Billroth II. Breitner.—p. 1234.
*Duodenal Stenosis with Gastric Ulcer. H. Zoepffel.—p. 1235.
Gastric Peristalsis and Peptic Ulcer. F. Linde.—p. 1238.
Pendulous Mammae and Plastic Treatment. F. Lotsch.—p. 1241.
*Sacrolumbar Anesthesia. R. Rodzinski.—p. 1249.

Factors Affecting Choice of Billroth II or Billroth I.—Zoepffel discusses his personal experiences in approximately 300 resections of the stomach for ulcer, forty-five of which were carried out according to Billroth I. A peptic jejunal ulcer developing after a Billroth II operation would appear to be extremely rare, as he has not encountered a case, although he has seen several cases resulting from other operative methods. Operation on a recurring ulcer at the line of suture, following a Billroth I operation, is not easier than an operation on a peptic jejunal ulcer. Such recurrent ulcers have been observed by Wydler, Finsterer, Enderlen, Hotz and others. These factors: the greater difficulty of the operation according to Billroth I; the disturbances during the postoperative period; the possibilities of a recurrence or of stenosis due to adhesions, and the simultaneous occurrence of more or less serious duodenal stenosis from arteriomesenteric occlusion, have led Zoepffel to abandon the Billroth I for the Billroth II method of operation.

Sacrolumbar Anesthesia.—Rodzinski used sacrolumbar anesthesia for more than a year in operations on the lower extremities and lower abdomen. The method consists in the simultaneous intradural and extradural injection of small doses of procain. The extent and duration of the anesthesia are the same as when large doses are injected into only one of these spaces. In other words, they accomplish the same results as high sacral or intraspinal anesthesia, without exposing the patient to the dangers of these two methods. He injects from 4 to 5 c.c. of a 1 per cent. procain solution intradurally and from 40 to 50 c.c. extradurally. In 200 operations there were three failures, possibly due to technical error. Slight headaches occurred in 8 per cent. of the cases. It is important that the anesthetic be introduced first into the extradural space and later into the dural sac.

Zentralblatt für Gynäkologie, Leipzig

47: 1281-1312 (Aug. 11) 1923

*Uterus Duplex. H. Eymer.—p. 1281.
*Calcium in Climacteric Hemorrhages. Hornung.—p. 1285.
Hemeralopia of Pregnancy. E. Klaften.—p. 1288.
Sedimentation Test in Gynecology. Geppert.—p. 1292.
*Echinococcus of Ovary and Tube. Gross and S. Keszly.—p. 1292.

Symptomatology and Treatment of So-Called Uterus Duplex.—Eymer reports two cases in which he united the two halves, constructing a uterus of anatomically normal appearance. In one case there was a uterus bicornis unioris and in the other a uterus bicornis septus bicollis. One patient was relieved, through the operation, of her pains and the other of her hemorrhages, so that Eymer feels that, if other measures fail, his method, which he describes with more or less detail, is justifiable. Only seventeen similar cases are reported in the literature, he finds.

Calcium Medication in Climacteric Hemorrhages.—Hornung's experiments were undertaken with the idea of ascertaining whether changes in the coagulation mechanism brought about by dysfunctioning of the ovaries might be concerned in climacteric hemorrhages. He gave the patients 10 c.c. of a 10 per cent. calcium chlorid solution intravenously and noted in all cases, after twenty-four hours at the most, a diminution, frequently pronounced, of the blood platelets. The greatest drop was from 224,000 to 70,770. In 80 per cent. of the cases, after the first or second injection of calcium, the hemorrhages were completely checked. There was failure to act in only 8 per cent. of the cases.

Echinococcosis of Ovary and Tube.—Gross and Keszly report what they believe to be the first recorded case of echinococcus disease of the ovary and tube. "Ovarian cyst" was the diagnosis. As the removal of all the numerous hydatid cysts was technically impossible, the abdomen was closed. Schultze published a case of echinococcosis of the ovary and Doléris a case in which numerous cysts were found

in the tubes, but this is the first reported case in which both ovary and tube were involved.

Casopis lekaruv ceskych, Prague

62: 613-640 (June 9) 1923

*Chorio-Epithelioma. F. Horalek.—p. 613.
*Hemolytic Serum in Animals. Kabrhel and Kredba.—p. 621. Conc'n.
Clinical Calorimetry. V. Laufberger.—p. 624. Conc'n, p. 652.

Chorio-Epithelioma.—Horalek describes two cases of chorio-epithelioma. He believes that these tumors are due to a lack of resistance of the organism against chorionic cells. Abderhalden's reaction was negative. He tried infusion of 200-300 c.c. of serum from retroplacental hematomas of healthy women every three days, and attributes the necrosis of a metastatic tumor to this treatment.

Decrease of Hemolytic Titer of Serum in Immunized Animals.—Kabrhel and Kredba examined the spontaneous decrease of high hemolytic titers in rabbits immunized with sheep corpuscles. They found that the process obeys a law which can be expressed by the formula $y = a + bx^n$.

62: 641-668 (June 16) 1923

*Submucous Fissure of Palate. M. Seemann.—p. 641.
Köhler's Disease. S. Roubal.—p. 646.
Multiple Progressive Ossifying Myositis. M. Stejfa.—p. 650.

Submucous Fissure of Palate.—Seemann recommends digital examination of the hard palate in patients with rhinolalia aperta and apparently normal soft palate. The treatment consists only in vocal exercises. Removal of adenoids makes the condition worse.

62: 669-696 (June 23) 1923

*Diagnostic Importance of Smelling. J. Thomayer.—p. 669.
Deep Pustuliform Keratitis. E. Vasek.—p. 674.
Barlow's Disease. L. Kucera.—p. 677.

Diagnostic Importance of Smelling.—Thomayer deals with the importance of odors for diagnosis. In old times, some physicians were able to diagnose exanthematic diseases simply by smelling.

62: 846-868 (Aug. 11) 1923

Echinococcus in Thyroid and Gallbladder. Maydl.—p. 846.
*Hemolytic Anemia. L. Kucera.—p. 850.
*Action of Surface Tension on Regeneration. E. Vejnarova.—p. 852.
Thymus and Surgery. Rys.—p. 854.

Hemolytic Anemia.—Kucera reports the history of an atypical case of severe anemia in a child, aged 12. The anemia was of the hemolytic type, and probably of infectious origin. The child recovered on a diet containing plenty of vitamins without addition of arsenic or iron.

Action of Surface Tension on Regeneration.—Vejnarova observed the regeneration of *Triton taeniatus* kept in water with addition of sodium taurocholate, glycocholate or quinin sulphate. She found that the more the surface tension was lowered, the faster the regeneration progressed. Quinin caused in addition atypical mitosis of cells.

Acta Chirurgica Scandinavica, Stockholm

56: 103-206 (Sept. 4) 1923

*Pathogenesis of Gallstones. T. Rovsing.—p. 103.
A Case of Simultaneous Luxation of Both Ends of the Clavicle. T. Beekman.—p. 156.
Fate of Bone Transplants. E. Lexer.—p. 164.
*Volvulus of the Cecum. H. Jacobsen.—p. 181.

Pathogenesis of Cholelithiasis.—Rovsing criticizes the various theories that have been proposed to explain the production of gallstones. He has cultivated *Streptococcus pyogenes* in pure cultures in 28 cases and *Staphylococcus aureus* in 36. His experience has demonstrated that there is no infection in the majority of operative cases, and, further, that all the different kinds of gallstones seem to behave alike whether there is or is not infection. He found a single calculus in 84 operative cases; multiple gallstones were discovered in 442 cases, and gravel in 27. In 4 the gravel was alone. In 15.8 per cent. he found from 100 to 600 calculi, up to 1,000 and 4,000. He comments on the fact that multiple calculi are generally nearly all of the same size, as if they had all been produced at one time and in the same manner. The article is continued, but the data presented demolish Naunyn's theory of the indispensability of infection and stagnation in the gallbladder. Rovsing's bacteriologic study of 530 gallstone cases showed the bile sterile in 60 per cent. Only in respect to typhoid was Naunyn's theory confirmed. Typhoid bacilli are inclined to lurk in the gallbladder, and there are generally gallstones in such cases, but Rovsing believes that the irritation from the preexisting gallstone offers the typhoid bacilli a lurking place; not that the bacilli precede the formation of the stones. This has been demonstrated, he says, by the fact that merely removing the gallstones frees the subject from being a typhoid bacilli carrier. (In German.)

Volvulus of the Cecum.—Jacobsen advises appendicostomy if the intestine is slightly affected, and difficult to empty after untwisting. It may be advisable to fasten it to prevent recurrence of the volvulus. The slightest suspicion of gangrene calls for resection; if necessary, in several sittings. In the eight personal cases described, with illustrations, the volvulus returned two months later in one of his cases and in two weeks in one of Rovsing's. (In French.)

Hospitalstidende, Copenhagen

66: 541-556 (Aug. 1) 1923

*Light in Experimental Rickets. P. Schultzer and C. Sonne.—p. 541.
*Experimental Multiple Sclerosis. E. Jarløv and E. Rud.—p. 553.

Prophylactic Action of Light in Experimental Rickets.—Schultzer and Sonne present a preliminary report on their success in warding off rickets in rats by exposing them to ultraviolet rays. All the rats developed rickets on the McCollum scurvy diet No. 3,143. The rickets was manifest in three weeks, and was pronounced in four when the rats had been kept in the dark; but there were no signs of rickets in the rats that had been exposed daily for fifteen minutes to the mercury vapor lamp. The phosphorus content of the serum was normal. Exposures limited to five minutes protected to some extent, but not completely. They noted further that the protection afforded by the light was less effectual in black than in lighter colored rats. The effective ultraviolet rays seemed to be those with wave lengths between 400 and 280 millimicrons. Even exposure for one minute, daily, had some influence. Sunlight and carbon arc light have a decided action, but the mercury vapor lamp is more potent in rickets. The reverse is the case in bone and joint tuberculosis; this requires prolonged mild treatment, and sunlight and carbon arc light are more effectual. It is not certain which rays are potent in tuberculosis.

Transmission of Multiple Sclerosis to Guinea-Pigs.—Jarløv and Rud say that a "right interesting" clinical picture developed in the seventeen animals after they had been injected intraperitoneally with blood or serum or spinal fluid from a woman with typical sclerosis in patches. She had been healthy until 1920. The disease in the animals ran a more rapid and a severer course.

Hygiea, Stockholm

85: 657-704 (Aug. 31) 1923

*Sedimentation Test in Surgical Cases. K. Hallberg.—p. 675.
History of Gold in Treatment of Syphilis. J. Almkvist.—p. 682.
The American System of Diet and Insulin Treatment of Diabetes. R. Roman.—p. 689.

Speed of Sedimentation of Erythrocytes in Surgical Cases.—Hallberg applied the sedimentation test 190 times in 100 laparotomy and thyroidectomy cases. His tables show that the Fåhræus reaction is a more sensitive and reliable index of the severity of the process than the temperature. The figures were practically normal in ileus and hernia, but ran up high in infectious processes. The highest figure, 106 mm., was in a case of cancer of the jaw. In acute appendicitis it was 32 mm. in one case in which neither the temperature nor the general condition seemed grave, but the operation revealed a perforated appendix with abscess. One chart shows the decline of the figure during convalescence after operation. But there was always a rise after an operation under general anesthesia, reaching its height the second, third or fourth day, and then declining to reach the normal figure about the twenty-second day. The rise was insignificant under local anesthesia, and under general anesthesia for reduction of fractures, without cutting.

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THE FUNCTION AND PROPER FIELD OF ACTIVITY OF THE PUBLIC HEALTH OFFICER

AS COMPARED WITH THE PRIVATE PRACTITIONER

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In promoting the betterment of public health, the private practitioner and the public health official must cooperate to bring about the desired results. While special functions and fields of activities of health officers and private practitioners may differ, their objects and aims are the same—to promote positive health for all members of society and to relieve the more unfortunate persons of disease and suffering.

At the outset, it may be stated that there is one general function and one field of activity in which both health officers and private practitioners must join, and that is the function and field of active (not passive) coöperation. As in all other forms of human activity, cooperation between medical practitioners and health officials means operation together for a common object, or joint action, aid and help. It has been said that cooperation has a moral basis. If a health officer always thinks in terms of his rights and powers, and gives little consideration to his obligations and duties it is certain that he will be a misfit, unable to work with any one, be he physician or layman. If a private practitioner thinks only of his individual rights and forgets his obligations, he, too, will be a failure so far as cooperation is concerned. The ideal toward which we must work in bringing about active cooperation between private practitioners and health officers is that moral aspect which makes it possible for health officers to think chiefly of their obligations, duties and responsibilities, and to consider carefully the rights of others; and which results in a more definite consideration on the part of private practitioners of their own obligations and of the rights of others.

FUNCTIONS AND PROPER FIELDS OF ACTIVITY OF THE HEALTH OFFICER

1. *The Local Health Officer.*—The local board of health is the oldest and the most responsible public health unit. As its chosen executive officer, the local health officer should be the public health leader and educator of his community. However, he must always remember that, except in those few instances in which state laws permit a local community to do away with its local board of health and give almost autocratic power to the local health officer, the local board of health has directive power and the right to make regulations, and decide policies of administration. The local health officer acts as the agent of the board and takes such action as may be delegated to him when the board is not in session.

The powers and duties and the fields of activities of local health officers may differ somewhat in the various states, depending on the laws of such states. In general, as required in New York State, it may be stated that these are to:

1. Make an annual sanitary survey and maintain a continuous sanitary supervision over the territory within their jurisdiction.

2. Promote the spread of information as to the causes, nature and prevention of prevalent diseases, and the preservation and improvement of health.

3. Take such steps as may be necessary to secure prompt and full reports by physicians of communicable diseases, and prompt and full registration of births and deaths.

4. Enforce within their jurisdiction the provisions of the public health laws and the sanitary code.

In addition to these general duties, in certain states the local health officer also is charged with the function not only of making sanitary inspections of school buildings but of being responsible for the medical examination of school children. In New York State, the latter work is carried on under the supervision of the educational authorities through specially appointed school physicians.

In all of such work we would emphasize particularly that the public health officer should be chiefly a public health teacher and not merely a sanitary policeman.

2. *The County Health Officer.*—In those states having laws permitting the employment of county health officers or general district health officers for counties, such health officers possess all the powers and duties conferred on local health officers within their particular jurisdictions. Under such a law, the local health officers within a general health district, or county, act as deputies to the general district (or county) health officer.

3. *The State Health Officer.*—There are two forms of state health organizations, one in which the power and authority is vested in a state board of health, consisting of several part-time officials, which employs a secretary or executive officer usually on a full-time basis. Most of the states continue to maintain such an organization. Some of the more progressive states, such as New York, Massachusetts and Maine, have reorganized state health work in such a way that the chief power is vested in a commissioner who has the assistance of an advisory council.

In New York State, provision has been made for the employment of sanitary supervisors, whose chief

functions are to supervise the work of local health officers in their respective districts and to act as the agent of the state health commissioner.

The outstanding need in our entire future health program is that which has to do with rural public health and sanitation, and its adequate development throughout the state.

In general, it may be said that while there has been a gradual decline in the death rate in the cities, the death rate in country communities has remained fairly stationary. Furthermore, statistics seem to indicate that, of the men examined for military service, those from several states having a large urban population have shown a smaller percentage of rejections on account of physical defects than those from many rural sections. The reasons for this state of affairs are not entirely clear, but it would seem that one of the chief factors is the difference of public health organization and administration in the city from that of the country. The cities, especially those of large population, long ago realized the necessity for a businesslike organization to prevent disease and to conserve health; the employment of a full-time health authority with necessary assistants to formulate and administer laws and regulations for the protection of the community at large has been the result. City health work has become communal in nature; country health work has remained more or less individualistic.

Through the installation of an adequate sewage system, properly controlled, a city has been able to eradicate most of the diseases spread by discharges from the intestinal and urinary tracts; by the protection of its water supply, or by the filtration and chemical purification of a polluted supply, thousands or millions of inhabitants have been protected against water-borne diseases; by modern dairy and milk inspection, diseases spread through milk have largely disappeared; by suitable laws, properly enforced, specific prophylactic measures have been carried out, and various communicable diseases controlled by isolation and disinfection; by provision for the education of the public, school children and adults have been taught personal hygiene.

On the other hand, the individual, or at most, the family, has remained the unit in health matters in rural districts. The old well is usually looked upon as a suitable source of water supply for the farmer whose father, grandfather and great-grandfather may have used it, in spite of its pollution with intestinal bacteria; the open privy has been tolerated because of a lack of information regarding its dangers and for want of a proper substitute; the farmer himself has acted as his own dairy and milk inspector, with disastrous results in many instances; the country school child has remained in ignorance of many laws regarding personal hygiene and the value of specific prophylactic measures; the farm home has remained one of the poorest ventilated places in the world because of lack of adequate heating plants to insure comfort against cold, fresh air in the winter.

How may we do away with these adverse conditions existing in rural districts? By bringing together all of these individual or family units and placing them under the control of a community health authority.

It must be admitted that the states already mentioned have done a large amount of good work in building up their health organizations in rural districts; but in the majority of states much remains to be done. In certain Southern and Western states, in which the county is the chief political unit, the county health organization has been the agency to cooperate with state boards or departments of health in the development of rural hygiene and sanitation. In the Northern and Eastern states, the town or so-called local board of health has been the organization to carry on rural health work, in conjunction with the state department. Because of the great gap previously existing between the state department of health and the town board of health, Massachusetts, New York and Maine, and one or two other states, have wisely provided for the dividing of their respective states into health districts in charge of full-time district health officers, under the supervision of the state department of health. Probably the chief function or duty of a district health officer or sanitary supervisor is to act as a connecting link between the state department and the local town board of health or health officer; and as such his work as an adviser in matters pertaining to rural hygiene cannot be overestimated.

The whole question of rural health work resolves itself into one of demand and supply. When the rural community itself demands an efficient local health organization, and is willing to pay for it, then the supply will be forthcoming. The cities have well organized health boards because the population in the cities has demanded it; but even such a demand in large cities has been based absolutely on the education of the people regarding the value of such work. Legislation not backed up by popular opinion is difficult to initiate and even more difficult to enforce. The federal government, or the state, cannot successfully force even an efficient local health organization on any rural district or small town. The demand or invitation must come from within the small unit. Therefore, the whole problem of public health administration in rural districts comes down to a question of public health education in rural districts, and the greatest function of a state department of health should be one of education.

The New York State Department of Health, under the guidance of the late state health commissioner, Dr. Hermann M. Biggs, has done most excellent work in carrying on such a campaign of education, to the end that permissive legislation has been passed making it possible for an entire county to constitute itself as a general health district, and to appoint a board of health which has the power to appoint a full-time trained health officer for such a county unit. Cattaraugus County is the first county in New York State to constitute itself a general health district and to employ a district health officer for the county.

In addition to carrying on such educational work, state health authorities may have other important functions and fields of activity, such as: (1) investigation and research of various kinds; (2) epidemiologic and laboratory diagnostic service; (3) standardization of methods and forms; (4) fixing of professional standards for the qualifications of health officers; (5) supervision of schools or courses of instruction for health officers; (6) popular publicity work; (7) the control of communicable diseases or nuisances affecting more than one community or district; (8) the recording of vital statistics; (9) the inspection and control of foods and drugs; (10) the examination and control of public water supplies and sewage disposal plants; (11) supervision over the manufacture of antitoxins and vaccines; (12) supervision over hospitals and sanatoriums for tuberculosis; (13) supervision over maternity, infancy and child hygiene work, and (14) supervision over public health nursing service.

4. *The Federal Health Authorities.*—Authority for the administration of federal health work is divided among numerous bureaus and departments of the federal government, such as: (1) the Bureau of the Public Health Service (including the Hygienic Laboratory) in the Treasury Department; (2) the Bureaus of Chemistry and Animal Industry in the Department of Agriculture; (3) the Bureau of the Census (including the Division of Vital Statistics) in the Department of Commerce, and, (4) the Children's Bureau in the Department of Labor.

Other phases of public health work are at times covered by other federal departments, including the medical departments of the army and navy.

The chief functions of the federal health agencies are of a general advisory nature, including a vast amount of investigation. Executive functions have to do only with interstate and international problems, such as: (1) federal and maritime quarantine; (2) supervision over serums, vaccines, foods, drugs and other materials passing from one state to another; (3) supervision over sanitary matters pertaining to interstate transportation on trains and boats; (4) medical examination of immigrants, and (5) administration of the federal pure food laws.

In addition to the public health officers (local, county, state and federal) mentioned above, are numerous officers of voluntary or unofficial health organizations throughout the United States. These agencies are of great value in the promotion of health activities, and are helpful allies to all public officials. One of the important functions of health officers is an active cooperation with all such voluntary organizations.

THE PRIVATE PRACTITIONER

As indicated previously, the most essential requirement for the ultimate success of public health administration, local, state and federal, is a sympathetic cooperation between the private practitioners of medicine and surgery and the public health authorities. It may be stated without much fear of contradiction that the private practitioner of medicine is potentially the most important unit in public health work. On him at present largely rests the success or failure of such work. In the warfare against disease and premature death, the private practitioner has the function and field of activity analogous to those of the infantry on the firing line or in the trench. While much may be said in favor of the thesis that public health service is not a medical monopoly, it must be admitted that it would be more difficult to carry on successful public health work without the physician than without the other specialists who make up the public health profession. Especially is this true when we consider the "new public health," which takes account chiefly of the individual and his personal relation to the community.

If the private practitioner has failed in the past to take his proper place and to assume his true function in preventive medicine, it is because of the fact that he has thought too much of his individual rights and prerogatives and too little of his obligations and responsibilities to the public.

Without attempting to go into detail as to the functions or duties of the private practitioner in relation to public health, it may be stated that his chief obligations are:

1. Legal obligations; including: (*a*) The prompt and accurate reporting of births, (*b*) The prompt and accurate reporting of deaths, (*c*) The prompt and accurate reporting of all diseases required to be reported. 2. Professional or moral obligations, including: (*a*) Early and accurate diagnosis, (*b*) Prompt and efficient treatment, (*c*) Education of his patient as to the patient's future needs, and as to the patient's own relation to the health of the community, (*d*) Cooperation with the constituted health authorities.

In many instances, private practitioners have been on the "black list" of health officers because they have failed too frequently in their legal responsibilities. To the shame of the medical profession it may be said that far too frequently its members are haled into court for neglect of such manifestly important duties. Moreover, many private practitioners fail in fulfilling their moral obligations when they go no further than to make a diagnosis and to outline a course of treatment, and forget the necessary education of their patient on matters pertaining to personal and community hygiene.

On the other hand, the private practitioner has certain rights which must be carefully considered. First, he has a right to demand that the health officer with whom he is associated shall be scientifically trained and not a mere politician. If the health officer has not a medical degree, he should at least have a degree or certificate in public health. Although the holding of a medical degree does not fully qualify a person for the position of health officer, the public still is prone to demand a physician as health officer. While the ideal training for a health officer is one that combines a medical and a public health degree, it may be that in the future more and more nonmedical, technically trained sanitarians will be employed, at least in the subordinate positions. The practitioner, as well as the public at large, has a right to require that even the medical health officer shall have had some training in preventive medicine—at least a short course. Let it be hoped that we shall never return to the custom of employing untrained laymen for the important position of health officer.

Second, the private practitioner has the right to ask (as he is asking) the question, "What is to become of medical practice?" and he is equally entitled to a reasonable answer. In the last analysis, this answer must and will come from the public. If the public is perfectly satisfied with present-day methods of private medical practice and is certain that it is receiving the fullest possible benefit therefrom, both from curative and preventive standpoints, private medical practice will continue as it has for many generations past. If, on the other hand, the public is not satisfied that present methods of medical practice are adequate for present and future needs in the conservation of health and the prevention and cure of disease, then old systems and methods of practice must go and be replaced by others.

In the formation of public opinion as to the best methods of future medical practice, the private practitioners have as one of their chief functions and fields of activity the molding of such opinion. In other words, the practitioners must take the leadership in developing an adequate program to meet the demands of an advanced age, and of modern conditions. As some one has said, "The family physician must become more and more the family health adviser."

What is needed is not "state medicine," but organized medicine; medicine which is organized in such a way that while it remains largely in the hands of private practitioners, it will reach rich and poor, city folk and country folk, children and adults, not only after disease has gained a foothold, but before disease has become apparent, and while the individual is yet well and strong. The practitioner of the future must work and

think more in terms of physiology and less in terms of pathology. In the medical schools of the past and present. the departments of pathology have been and still are the outstanding and most popular departments, while those of preventive medicine have had to fight for existence. In the medical schools of the future, the departments of pathology must naturally fade into insignificance compared to the growing departments of physiology, hygiene and preventive medicine. Let the curriculum makers give less time to the "dead house" and cirrhotic livers and more time to the houses of the living and the principles of hygiene.

As defined by one of the present-day leaders in personal and community hygiene:

> Public health is the science and art of preventing disease, prolonging life and promoting physical health and efficiency through the organized community efforts for the sanitation of environment, the control of community infections, the education of individuals in principles of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of social machinery which will insure to every individual in the community a standard of living adequate for the maintenance of health.

The private practitioner and the health officer must become intimately associated in working out such a forward-looking program for the prevention of disease and the conservation of health. While their functions and fields of activities differ in some minor respects, in a large sense their obligations and responsibilities are one.

Exchange National Bank Building.

THE FACTOR OF DILUTION IN GASTRIC ANALYSIS *

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The great variety of "acidity curves" as obtained by the fractional method of gastric analysis, and the different acid concentrations as determined by the single aspiration method, have been interpreted mainly in the light of secretory variations. The factor of unknown dilution of the acid by the commonly used test meal has been ignored.

TABLE 1.—*Findings in Group B, Ten Medical Students Without Gastro-Intestinal Symptoms* *

Subject	P. S. P. Concentration, per Cent.	Total Acidity	Corrected Total Acidity
1. M. F.	42	28	48
2. R. E.	44	30	53
3. C. D.	36	27	42
4. E. G.	40	37	61
5. H. F.	52	32	66
6. O. E.	60	32	80
7. B. F. F.	42	30	51
8. M. D.	52	36	75
9. J. D.	58	37	88
10. B. F.	45	26	47
Average	47	31	59

* Dye concentration, total acidity as ordinarily obtained, and "corrected total acidity" of the gastric contents one-half hour after a test meal, consisting of two slices of zwieback and 400 c.c. of distilled water containing 1 c.c. of a solution of phenolsulphonephthalein.

In both the single aspiration and the fractional methods of gastric analysis, it is customary to give as part of the test meal (Ewald, Dock and Boas' oatmeal gruel) from 150 to 500 c.c. of fluid on the fasting stomach or after the removal of the fasting contents.[1] In the single aspiration method, the gastric contents are removed at forty-five minutes or one hour after the test meal, and the acidity is determined. In the fractional method, samples (from 6 to 15 c.c.) of gastric contents are taken at fifteen minute intervals for a definite period, usually two hours or until the stomach is empty. The acidity of these successive fifteen minute samples is determined, and from it the so-called "secretory curve" is charted. It is obvious that until the fluid taken with the test meal has left the stomach, the dilution of the gastric juice by the fluid of the test meal is a factor in determining the acid concentration of a given sample. This dilution is dependent on several factors, namely: (1) rate of secretion of the gastric juice; (2) the emptying rate during the examination of the particular stomach for its fluid contents; (3) the amount of fluid taken with the test meal, and (4) other diluting factors, as saliva, mucus and duodenal contents.

TABLE 2.—*Findings in Group C, Ten Medical Students Without Gastro-Intestinal Symptoms* *

Subject	P. S. P. Concentration, per Cent.	Total Acidity	Corrected Total Acidity
11. R. F. L.	44	49	87
12. F. R.	38	50	81
13. L. K. F.	44	40	71
14. M. K.	34	43	65
15. Hen.	36	34	53
16. J. G. M.	40	32	53
17. Lit.	22	49	62
18. W. M. J.	Trace	80	80
19. M. G. H.	28	22	31
20. V. T. K.	34	62	94
Average	32	40	67

* Dye concentration, total acidity as ordinarily obtained, and "corrected total acidity" of the gastric contents one hour after a test meal consisting of two slices of zwieback and 400 c.c. of distilled water containing 1 c.c. of a solution of phenolsulphonephthalein.

In this work it was the purpose to establish the importance of dilution of the gastric juice by the fluid of the test meals, both in determining the "height of acidity" and the character of the so-called "secretory curve" as obtained by fractional analysis, and in determining "gastric acidity" by the single aspiration method.

PROCEDURE

In the subjects without gastro-intestinal symptoms (fifty-one medical students) the class, having undergone a fast of fourteen hours, was divided into five groups. Group A (twelve) had the fasting contents of the stomach removed. The remaining groups B (eleven), C (ten), D (ten) and E (eight) were given a test meal consisting of two pieces of zwieback (approximately 20 gm.) and 400 c.c. of distilled water containing exactly 1 c.c. of a solution of phenolsulphonephthalein [2] (1 c.c. = 0.006 gm. of substance). The gastric contents of Group B were removed at one-half hour, of group C at one hour, of group D at one and one-half hours, and of group E at two hours after the meal had been finished. In the patients with digestive symptoms (sixty-seven), the majority of whom were from the gastro-intestinal division of the medical clinic of the Washington University dispensary, both the single aspiration and the fractional methods were employed. The Rehfuss type of soft stomach tube was

* Read before the Washington University Medical Society, April 9, 1923.

* From the Departments of Medicine and Biological Chemistry of Washington University Medical School.

1. Knapp, V.: Standardization of Test Meals, New York M. J. **115**: 695-698 (June 7) 1922.

2. This solution of phenolsulphonephthalein, as prepared by Hynson, Westcott & Dunning, was suggested for use in these experiments by Dr. A. P. Briggs.

used in all experiments. The subjects on whom the single aspiration method was employed were given a test meal consisting of one shredded wheat biscuit (approximately 20 gm.) and 400 c.c. of tap water containing 1 c.c. of a solution of phenolsulphonephthalein. The gastric contents were aspirated at forty-five minutes after the meal had been finished. In the fractional method, from 10 to 15 c.c. of the gastric chyme was removed at fifteen minute intervals by the syringe method, care being taken to empty the tube after each aspiration by introducing a syringeful of air through the tube. Samples containing excess of bile and mucus were not used.

Determining the Total Acidity of the Gastric Contents.—The total acidity was determined by titrating against tenth normal sodium hydroxid, phenolsulphonephthalein being used as an indicator if the dye was present in sufficient concentration; otherwise a few drops of phenolphthalein were used (there is a very slight difference of the p_H at which the color change occurs with the two indicators, but no appreciable difference in the total acidity titration). Of the subjects without gastro-intestinal symptoms, each group was in charge of an instructor of the department of biologic chemistry, who personally made the titration for total acidity. The acidity was expressed in terms of the number of cubic centimeters of tenth normal sodium hydroxid required to neutralize 100 c.c. of gastric contents.

Estimating the Dilution of a Given Sample by the Fluid Taken with the Test Meal: "Corrected Total Acidity."—It was assumed that phenolsulphonephthalein remains in solution while in the stomach, and is progressively carried with the fluid of the test meal through the pylorus into the duodenum. It is the opinion of physiologists that practically no water is absorbed from the stomach.[3] Therefore the dye concentration of a given sample of the gastric contents is indirectly an index to the dilution of the gastric juice by the fluid taken with the test meal. The dye concentration was determined in the following manner: Two cubic centimeters of a filtrate of the sample examined was placed in a cup of the Hellige colorimeter and made alkaline by the addition of 2 or 3 drops of 40 per cent. sodium hydroxid, and the color compared against a standard solution of phenolsulphonephthalein of the original concentration taken with the test meal (400 c.c. of water containing 1 c.c. of a solution of phenolsulphonephthalein and 3 drops of 40 per cent. sodium hydroxid). The colorimetric reading of the dye concentration of the sample was interpreted to represent the approximate percentage of dilution of the gastric juice by the fluid of the test meal still remaining in the stomach. By corrected total acidity is meant the acidity of the gastric contents, at a given phase of digestion, after the removal of the factor of dilution by the fluid of the test meal. For example (forty-five minute specimen, Table 5), the dye concentration of the sample of gastric contents was 44 per cent. of the dye concentration of the fluid taken with the test meal. It is obvious that, in 100 c.c. of gastric contents, 44 c.c. consisted of water taken with the test meal and only 56 c.c. was directly related to gastric secretion; and as 58 was the total acidity of the diluted sample as ordinarily obtained, then the corrected total acidity would be 103:

$$\frac{58 \text{ (acidity as ordinarily obtained)} \times 100}{100 - 44 \text{ (percentage of dilution)}} = 103$$

TABLE 3.—*Findings in Group D, Ten Medical Students Without Gastro-Intestinal Symptoms* *

	Subject	P. S. P. Concentration, per Cent.	Total Acidity	Corrected Total Acidity
21.	W. W. R.	14	35	41
22.	Sie.	18	25	30
23.	J. McC.	24	60	79
24.	C. A. S.	0	25	25
25.	R. M. M.	12	70	80
26.	H. P. R.	42	46	79
27.	W. R. P.	24	66	87
28.	E. P. S.	Trace	38	38
29.	Sap.	10	49	54
30.	N. W. S.	36	4	6
	Average	18	42	52

* Dye concentration, the total acidity as ordinarily obtained and the "corrected total acidity" of the gastric contents one and one-half hours after a test meal consisting of two slices of zwieback and 400 c.c. of distilled water containing 1 c.c. of a solution of phenolsulphonephthalein in ten medical students without gastro-intestinal symptoms.

3. Howell's Text Book of Physiology, Ed. 7, p. 791.

TABLE 4.—*Findings in Group E, Eight Medical Students Without Gastro-Intestinal Symptoms* *

	Subject	Starch	P. S. P. Concentration, per Cent.	Total Acidity	Corrected Total Acidity
31.	W. G. W.	Present	34	19	29
32.	F. S.	0	Trace	7	7
33.	R. G. V.	Present	Trace	18	18
34.	G. M. B.	Present	Trace	54	54
35.	Ste.	Present	0	51	51
36.	K. Z.	Present	0	34	34
37.	G. D. W.	Present	24	47	62
38.	E. H. T.	Present	Trace	40	40
	Average		7	34	37

* Dye concentration, total acidity as ordinarily obtained, and "corrected total acidity" of the gastric contents two hours after a test meal consisting of two slices of zwieback and 400 c.c. of distilled water containing 1 c.c. of a solution of phenolsulphonephthalein.

RESULTS OF EXPERIMENTS

Subjects Without Gastro-Intestinal Symptoms.—From a study of Tables 1, 2, 3 and 4, it is possible to ascertain the variable relation of the fluid taken with the test meal to the remaining gastric contents at half, one, one and one-half and two hours after a test meal consisting of two pieces of zwieback and 400 c.c. of distilled water. At half hour (Table 1), the dye concentration, which may be interpreted to mean percentage dilution of the sample by the water, varied from 36 to 60 per cent., with an average dilution of 47 per cent., and the total acidity as ordinarily obtained varied from 26 to 37, with an average of 31, while the corrected total acidity varied from 42 to 88, with an average of 59. The minimum variation between the total acidity and the corrected total acidity in any one individual was 15, with a maximum variation of fifty-one degrees.

At one hour (Table 2) the dye concentration of the gastric contents varied from a trace to 44 per cent., with an average of 32 per cent. The total acidity, as ordinarily obtained, varied from 22 to 80, with an average of 46. The corrected total acidity for this group varied from 31 to 94, with an average acidity of 67. The minimum variation between the total acidity, as usually obtained, and the corrected total acidity in the same individual was 0, while the maximum variation in any one individual was 38.

At one and one-half hours (Table 3) the dye concentration of the gastric contents varied from 0 to 42 per cent., with an average of 18 per cent. The total acidity, as ordinarily obtained, varied from 4 to 70, with an average of 42. The corrected total acidity

varied from 6 to 87, with an average of 52. The minimum variation between the total acidity, as ordinarily obtained, and the corrected total acidity was 0, and the maximum 33.

At two hours (Table 4) the dye concentration of the gastric contents varied from 0 to 34 per cent., with an average of 7 per cent. The total acidity, as ordinarily obtained, varied from 7 to 54, with an average of 34. The corrected total acidity varied from 7 to 62, with an average of 37. The minimum variation between the total acidity, as ordinarily obtained, and the corrected total acidity in any one individual was 0; the maximum was 15.



Fig. 1 (from Table 5).—Relation of the fluid (400 c.c.) taken with the test meal to the remaining gastric contents in successive fifteen minute samples obtained by the fractional method of gastric analysis in a case of duodenal ulcer with pyloric obstruction.

Subjects with Gastro-Intestinal Symptoms.—From a study of Tables 5 and 6, and Figures 1 and 2, it is possible to ascertain the variable relation of the fluid taken with the test meal to the remaining gastric contents, and the influence of this dilution on the acid concentration of successive fifteen minute samples as obtained by fractional analysis.

TABLE 5.—*Findings by Rehfuss Fractional Method in a Case of Duodenal Ulcer with Pyloric Obstruction* *

Time, Minutes	Amount Recovered, C.c.	P. S. P. Concentration, Starch	per Cent.	Total Acidity	Corrected Total Acidity
15	14	Plus	62	36	99
30	18	Plus	48	45	86
45	15	Plus	44	58	103
60	14	Plus	28	63	88
75	16	Plus	20	78	97
90	14	Plus	Trace	100	100
105	15	Plus	Trace	104	104

* Dye concentration, total acidity as ordinarily obtained, and "corrected total acidity" in successive fifteen minute samples obtained by fractional analysis after a test meal consisting of 400 c.c. of oatmeal gruel containing 1 c.c. of a solution of phenolsulphonephthalein.

In a case of duodenal ulcer with obstruction (Table 5, Figs. 1 and 2), 62 per cent. of the first fifteen minute sample was fluid taken with the test meal, only 38 per cent. being directly related to gastric secretion. Figure 2 shows diagrammatically the influence of this dilution on the "acidity curve" as ordinarily obtained by fractional analysis.

Table 6 and Figure 3 show the relative proportion of the fluid taken with the test meal to the remaining gastric contents in successive fifteen minute samples of gastric chyme, in a case of duodenal ulcer with hypermotility. Thirty-eight per cent. of the first fifteen minute sample was fluid taken with the test meal, while at forty-five minutes, owing to the rapid emptying rate, the fluid taken with the test meal had completely disappeared from the stomach. Figure 4 shows diagrammatically the influence of this rapid emptying rate and diminished dilution on the character of the "acidity curve" as obtained by fractional analysis.

TABLE 6.—*Findings by Rehfuss Fractional Method in a Case of Duodenal Ulcer with Hypermotility of the Stomach* *

Time, Minutes	Amount Recovered, C.c.	P. S. P. Concentration, Starch	per Cent.	Total Acidity	Corrected Total Acidity
15	12	Plus	38	30	48
30	13	Plus	20	70	87
45	16	Plus	Trace	80	80
60	12	0	0	88	88

* Dye concentration, total acidity as ordinarily obtained, and "corrected total acidity" in successive fifteen minute samples obtained by fractional analysis after a test meal consisting of 400 c.c. of oatmeal gruel containing 1 c.c. of a solution of phenolsulphonephthalein.

Figures 5 and 6 show diagrammatically the variable dilution of the gastric contents by the fluid taken with the test meal, and its influence on the acid concentration at forty-five minutes after a test meal (400 c.c. of water, 1 c.c. of phenolsulphonephthalein and one shredded wheat biscuit) as obtained by the single aspiration method. In sixty-seven miscellaneous cases, the maximum dilution was 62 per cent., and the minimum dilution was 0, with an average dilution of 35 per cent. The average total acidity as ordinarily obtained was 51, and the average corrected total acidity, 79.

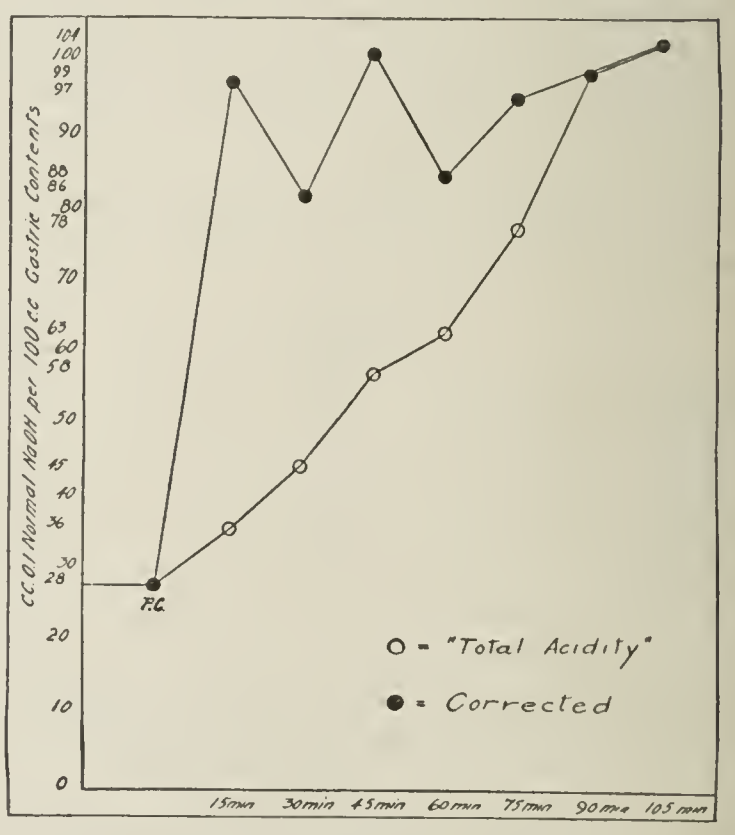


Fig. 2 (from Table 5).—The "total acidity" as ordinarily obtained by fractional analysis and the "corrected total acidity" after the removal of the factor of dilution by the fluid of the test meal. It is obvious that in this instance the character of the "acidity curve" as ordinarily obtained is largely dependent on the emptying rate of this particular stomach for fluid.

COMMENT

In this work it has been shown that when fluids form a part of the test meal given on a presumably empty stomach, the dilution of the gastric juice by the fluid

taken with the test meal is a factor of considerable importance in determining the "height of acidity" at a given phase of digestion, and the character of the "acidity curve" as obtained by fractional analysis. This factor of variable dilution may also be important in determining the "acidity" as obtained in the single aspiration method.



Fig. 3 (from Table 6).—Relation of the fluid of the test meal (400 c.c.) to the remaining gastric contents in successive fifteen minute samples, as obtained by fractional analysis in a case of duodenal ulcer with hypermotility of the stomach.

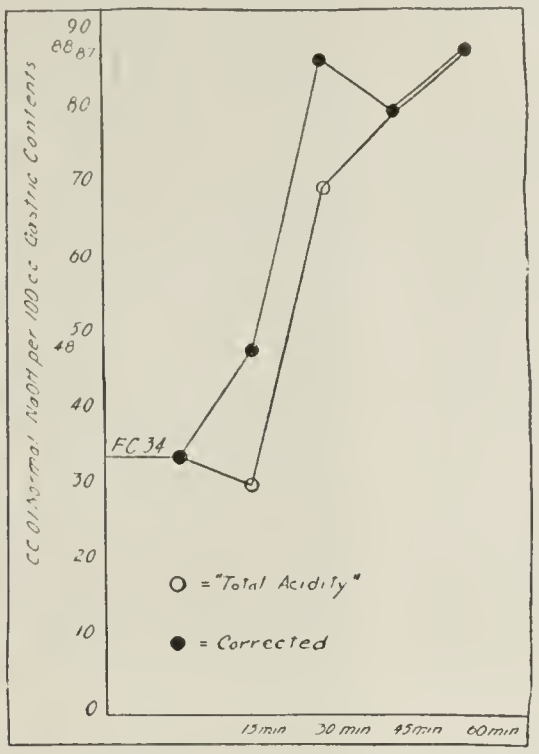


Fig. 4 (from Table 6).—The "total acidity" as ordinarily obtained by fractional analysis, and the "corrected total acidity" after the removal of the factor of dilution by the fluid test meal. The relation between the rapid evacuation of the fluid from the stomach and the character of the "acidity curve" should be noticed particularly.

Bennett and Ryle,[4] in discussing the different factors producing the "curves of gastric acidity" as obtained by the fractional method of gastric analysis, mention the secretion of hydrochloric acid as the most important acid factor, while saliva, regurgitation of duodenal contents, and the secretion of the pyloric mucous membrane are, according to these authors, the most important alkaline factors. They further state that "a recognition of these principles gives the explanation of the phases usually seen in the chart obtained from a fractional gastric analysis." Although Bennett and Ryle used a fluid test meal (500 c.c. of oatmeal gruel), given on a presumably empty stomach, and obtained 10 c.c. samples of the gastric contents at fifteen minute intervals, they made no mention of the factor of variable dilution of the acid in the successive specimens by the fluid test meal, and also apparently ignored the factor of variations in acid concentration of different portions of gastric chyme.[5]

Carlson,[6] in discussing gastric secretion, states that "actual hyperacidity in the sense of a gastric juice of greater than normal acidity (0.45-60 per cent.) has not been demonstrated in any disease and probably does not exist." This should not be confused with "clinical hyperacidity," which is a relative term. From clinical experience we have learned to expect, using the Ewald test meal, that the total acidity of the chyme at forty-five minutes normally varies from 30 to 60 in terms of tenth normal sodium hydroxid, which is probably about half the acidity of the gastric juice as secreted. However, this acidity as obtained by gastric analysis is not generally recognized to be the resultant of several factors, acid, alkali and especially dilution, and so far as I am aware no successful method has been formulated for determining which of these factors is at fault in a given case. In certain abnormal conditions, especially in nonmalignant lesions about the pylorus, as duodenal ulcer, a relative hyperacidity, as determined by clinical methods, is frequently found and attributed to hypersecretion. The importance of such a discrimination as mentioned above is well illustrated in Table 2, in the case of W. M. J., who had a total acidity of 80 (hyperacidity) at one hour, which can be explained by the rapid evacuation of the diluting fluid from the stomach. Other students at the same period with a so-called normal acidity as usually determined had a higher acidity after the removal of the factor of dilution. It is especially interesting to note that in a group of sixty-seven miscellaneous cases in which there were gastro-intestinal symptoms, the single aspiration method being used, the factor of dilution, which varied from 0 to 62 per cent., with an average dilution of 35 per cent. at forty-five minutes, was in itself sufficient to change the average total acidity of 51 (considered normal) as usually obtained to 79 (relative hyperacidity). On the other hand, in the normal cases none of the corrected acidities were higher than 100, while figures as high as 136



Fig. 5.—Maximum, minimum and average dilution at forty-five minutes after a test meal (one shredded wheat biscuit, and 400 c.c. of water containing 1 c.c. of a solution of phenolsulphonephthalein) of the gastric contents by the fluid taken with the test meal, in a group of sixty-seven miscellaneous cases in which there were gastro-intestinal symptoms.

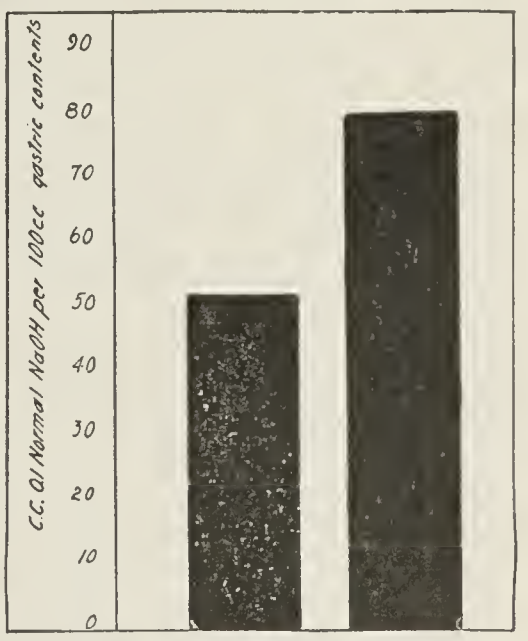


Fig. 6.—The left hand column shows the average total acidity as ordinarily obtained, and the right hand column shows the corrected total acidity of the gastric contents, forty-five minutes after a test meal (one shredded wheat biscuit, and 400 c.c. of water containing 1 c.c. of a solution of phenolsulphonephthalein), in sixty-seven miscellaneous cases in which there where gastro-intestinal symptoms.

corrected total acidity were repeatedly found in abnormal conditions; therefore the factor of dilution is apparently only one of the factors that may be disturbed in a given case. I would emphasize that gastric hypersecretion and gastric hyperacidity, as determined

4. Bennett, T. I., and Ryle, J. A.: Studies in Gastric Secretion and Study of Normal Gastric Function, Based upon Investigation of One Hundred Healthy Men by Means of the Fractional Method of Gastric Analysis, Guy's Hosp. Rep. **71**: 286-318 (July) 1921.

5. Gorham, F. D.: Variations in Acid Concentration in Different Portions of the Gastric Chyme and Its Relation to Clinical Methods of Gastric Analysis, Arch. Int. Med. **28**: 434-440 (April) 1921.

6. Carlson, A. J.: Physiol. Rev. **3**: 32 (Feb. 6) 1923.

by clinical methods, are not always synonymous, and that the "acidity curve," as ordinarily obtained by fractional analysis, is not necessarily a "secretory curve." In the future it will be necessary to measure and correlate more accurately these several factors, acid, alkali and dilution, in order to speak quantitatively of gastric acidity.

CONCLUSIONS

1. The emptying rate of the stomach for fluids is variable in different individuals without gastro-intestinal symptoms.

2. When 400 c.c. of fluid is given as part of a test meal, it may act as a diluent of the gastric juice for more than two hours.

3. In fractional gastric analysis, variations in dilution of the successive fifteen minute samples by the fluid of the test meal are of fundamental importance in determining the "height of acidity" and the character of the so-called "secretory curve."

4. The variable dilution of the gastric juice by the fluid taken with the test meal is a factor of importance in determining the "acidity" as ordinarily obtained in the single aspiration or one hour method of gastric analysis.

THE TREATMENT OF NEUROSYPHILIS*

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In considering the possibility of treatment of syphilis of the central nervous system, there are certain factors that must be given particular attention. Among these may be mentioned the potency of our antisyphilitic drugs, the varying virulence of the spirochetes in each case, the peculiarities of the central nervous system, whereby it is more or less separated from the viscera, the localization of the spirochetes within the central nervous system, and the pathologic processes produced.

It must be admitted that our present-day antisyphilitic remedies, especially arsphenamin, mercury and the iodids, are far from ideally satisfactory in the treatment of syphilis, no matter what the stage of the disease. Even in the early primary stage of syphilis, it takes quite a large amount of treatment with these drugs to produce what is considered a cure, and there is a certain amount of evidence that leads one to doubt whether an actual cure is ever obtained. At any rate, it often takes a number of months to obtain consistently negative serologic findings.

When treatment is begun somewhat later, that is, in the secondary period, the time necessary to effect reasonably satisfactory results is greatly lengthened. In the later stages, even when there are no evidences of active lesions, it may take months or years of treatment to produce a consistently negative Wassermann reaction in the blood. This is true of cases receiving early treatment that has not been entirely effective, as well as of cases coming under treatment for the first time when in the tertiary stages. Indeed, there are many cases which are said to be "Wassermann fast," meaning thereby that it is apparently impossible to produce a negative Wassermann reaction even after years of vigorous treatment. In patients having evidence of definite cardiovascular lesions, it is doubtful whether any one would expect to get a complete sterilization of the spirochetes in the body, no matter what the type of treatment given.

In reviewing the life history of persons affected with syphilis, it seems to me that patients may be divided into three groups according to their reaction to the disease. There is one group of patients who, even without treatment, apparently suffer no particularly bad results from the spirochetal infection. They go through a long life with practically no symptoms. It is by no means infrequent to see patients 60 years of age and older who give a history of a syphilitic infection thirty or forty years before, whose blood Wassermann reaction is positive and who, despite the fact that no antisyphilitic treatment was ever given them, are in vigorous health and show no definite syphilitic manifestations. On the other hand, there is a group of patients who from the time they obtain their infection suffer from one variety of lesion after another, and for whom antisyphilitic treatment does not give good results. These patients, despite what is done for them, seem doomed from the moment they have received their infection. There is a third group of patients who, without treatment, suffer from syphilitic manifestations, but for whom antisyphilitic therapy produces most satisfactory results.

How large each of these groups may be is a matter of conjecture. Whether the difference in results is due to the difference in type or virulence of the infecting organism, or whether it is the effect of certain immunity responses on the part of the patient, or a combination of these factors, or a matter of accidental localization of the lesions, are further questions for which we have no adequate answers.

However, with these three groups in mind, we have a working hypothesis which allows us to understand that some patients will react favorably to a very small amount of treatment. These are patients who approach Group 1 in their reaction to the disease. There are other patients on whom fairly satisfactory results are obtained only after a great deal of treatment. This group approaches the second, or recalcitrant, type.

SEPARATION OF CENTRAL NERVOUS SYSTEM

If this is a fair presentation of the problem of systemic syphilis, it would likewise hold for neurosyphilis. Here, in addition, there are certain factors dependent on the anatomy and physiology of the nervous system which need particular consideration. The central nervous system differs from the other systems of the body in that it seems to be separated off. Substances circulating in the blood system rarely enter into the central nervous structure. This may be shown most strikingly in cases of jaundice. In severe cases of jaundice, practically every tissue of the body with the exception of the central nervous system may be colored by the icteric pigments. This is a common phenomenon. Thus, in a case of acute yellow atrophy in which I recently performed necropsy, there was a marked yellow discoloration of all the tissues and fluids, including the pericardial, pleural and peritoneal fluids, but the cerebrospinal fluid and the tissues of the nervous system were entirely free from any evidence of this yellow discoloration. In other words, there was an adequate and efficient filter which kept the pigment from the nervous tissue.

* Read before the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Dermatology and Syphilology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

What is true of the icteric pigment is true, to a great extent, of various drugs. Most drugs have only a slight power of penetration into the central nervous system. Unfortunately, antisyphilitic drugs, such as arsenic, mercury and bismuth, are all heavy metals with large molecules that have great difficulty in making their way into the nervous tissue. While there is evidence that they do reach this tissue in many cases, it is nevertheless true that they penetrate only in very small amounts, as compared with their presence in the rest of the body. This definite walling off or separation of the central nervous system from the rest of the body is well illustrated in cases of syphilis. For instance, in many cases of syphilis in which there is a fairly generalized infection involving a large part of the bodily structure, the central nervous system may practically escape. The Wassermann reaction is frequently positive in the blood and negative in the spinal fluid. On the other hand, in many cases of syphilis of the nervous system, there is little evidence of any visceral syphilis, while the spinal fluid Wassermann reaction may be strongly positive, and the blood Wassermann reaction may be negative. This is the serologic status in approximately 40 per cent. of the cases of tabes and meningovascular syphilis.

In the stage of generalization of the infection, the central nervous system is involved in a high percentage of cases. As a rule, the immunity reactions of the body and the central nervous system itself are sufficient to sterilize this process, and no subsequent symptoms or evidence of disease results. There are many cases, however, in which the process continues in the central nervous system, producing pathologic lesions and abnormal spinal fluids. In a certain number of cases, this process of pathologic change in the central nervous system goes on despite our usual methods of antisyphilitic treatment. Thus, even though a patient is placed under antisyphilitic treatment during the early primary period of the disease, a positive cerebrospinal fluid may be found some months later, despite continued systemic treatment.[1]

CASE 1.—J. S., a man, in the early twenties, who developed a primary lesion, immediately underwent treatment, receiving six injections of arsphenamin and thirty injections of mercury. Six months after the appearance of the chancre, and while still under treatment, he developed a ptosis of the eyelid. A year later, a hemiplegia developed. Fourteen intravenous injections of arsphenamin were given, but despite this, the spinal fluid was positive.

In cases such as this one, the blood Wassermann reaction may never become positive,[2] or, if it does become positive, it may be made negative by treatment and no bodily symptoms ensue, despite which the cerebrospinal fluid remains positive as evidence that an active syphilitic process continues in the central nervous system.

Similarly, in later stages of the disease, antisyphilitic treatment may clear up all evidence of visceral infection without giving the slightest evidence of effect on the nervous system lesions either symptomatically or serologically. Not only is this the case with patients who have evidence of central nervous system involvement at the time treatment is begun, but also patients who are first seen with negative spinal fluids may develop central nervous system involvement with a positive fluid while undergoing systemic treatment.

CASE 2.—In July, 1914, Mr. G. was suffering from pain in the chest, gastric distress, and symptoms which he referred to his heart. The Wassermann reaction in the blood was strongly positive at this time, but the spinal fluid was entirely negative. His general symptoms improved under antisyphilitic treatment consisting of arsphenamin, mercury and iodid. This treatment was continued from July, 1914, to July, 1920. The blood Wassermann reaction remained positive all this time. In July, 1920, because of complaint of severe headache, a lumbar puncture was performed; the fluid showed 220 cells per cubic millimeter, a positive Wassermann reaction, and a very strong gold reaction. At the time treatment was started in 1914, the spinal fluid was negative, but after six years of continuous systemic treatment, the spinal fluid had become positive, and clinical symptoms relating to the nervous system appeared.

It is a common observation that patients are apparently made to have severe central nervous system reactions through the exhibition of antisyphilitic remedies. This is the so-called "neurorelapse." The majority of such neurorelapses are improved by the continuation of general treatment, but there are a few that are not improved.

This line of reasoning leads us to several conclusions:

1. Our antisyphilitic drugs are only relatively satisfactory even for cases of syphilis not of the nervous system.

2. The central nervous system is walled off from the general bodily structure both as regards the spirochete itself and the entrance of drugs from the blood stream into the nervous structure.

3. Cases in which antisyphilitic drugs might be potent if they reached the spirochete receive no benefit from systemic treatment.

4. The central nervous system involvement may be increased rather than favorably influenced by such therapy.

THE CENTRAL NERVOUS SYSTEM

It is necessary to consider more fully the structure of the central nervous system and its reactions to the spirochete before discussing the possibilities of the treatment of neurosyphilis. The central nervous system is surrounded by the meninges, dura and pia-arachnoid, which are nonnervous structures composed of mesodermal tissues, that is, connective tissue, mesothelium and blood vessels. This is a true mesenchymal tissue and reacts to the spirochetes as mesenchymal tissues do in other parts of the body; that is, there is an inflammatory reaction produced, with an infiltration of lymphocytes, and, in some instances, of plasma cells. The brain and cord are true nervous structures consisting of nerve cells and their processes, separated by neuroglia tissue. Degeneration is the only type of reaction possible for the true parenchyma, namely, the nerve cells. This is what occurs when the tissue is invaded by the spirochetes having pathogenic properties. The neuroglia tissue reacts by proliferation.

The pia, which is closely applied to the surface of the brain and cord, dips down into the sulci and sends prolongations into the nervous structure, carrying blood vessels with it. However, it is outside the nervous system; that is, separated from the nervous tissue by a neuroglia membrane. The blood vessels which run through the nervous system are also separated from the nerve tissue by a neuroglia lining. Various sclerotic and endarteritic changes occur, and inflammatory cells,

1. Scott, G. O., and Pearson, G. H.: Some Observations on Syphilis of the Central Nervous System, Am. J. Syphilis **4**: 201 (April) 1920. Larkin, J. H., and Cornwall, L. H.: Value of Laboratory Diagnosis in Neurosyphilis, Am. J. Syphilis **3**: 76 (Jan.) 1919. Gennerich, W.: Syphilis des Zentralnervensystems; ihre Ursachen und Behandlung, Berlin, 1921.

2. Nicolau: Recherches sur le liquide céphalo-rachidien dans le période primaire de la syphilis, Ann. de dermat. et de syph. **7**: 200, 1919.

lymphocytes and plasma cells make their way into the coats of the vessels and into the perivascular spaces surrounding the vessels; these very rarely make their way into the nervous structure, but remain for the most part in the perivascular spaces, which are surrounded by the neuroglia envelop.

REACTION TO SPIROCHETE

From the histo-anatomic standpoint, the cases of neurosyphilis may be divided according to the type of tissue invaded and the response that must necessarily follow. Thus, there occurs a simple meningeal reaction in which the spirochete apparently localizes in the meninges. This mesenchymal tissue reacts in an inflammatory manner, becoming infiltrated with white blood cells. This type of reaction may be diffuse, taking in a large part of the meninges of either the cord, brain or both, or the lesion may be quite localized in a very small portion of the meninges, with variations between the very diffuse and very localized types of reaction. Gummatous formation occurs in the meninges. The important point is that such a location may be, and not infrequently is, purely meningeal, not taking in the true nervous structure, although there may be symptoms suggesting nervous tissue involvement due to the pressure of the thickened and inflamed pia. In such a process the prolongation of the pia into the sulci of the nervous system reacts in a similar fashion. This represents the true meningeal syphilis. Very frequently there is a reaction about the blood vessels so that there are vascular changes, in addition to the meningeal involvement. This combination represents a meningovascular syphilis. This type of lesion, namely, the true meningeal or meningovascular, includes the cases which, from the clinical standpoint, are called cerebrospinal, spinal or cerebral syphilis, depending on the localization of the lesion. On the other hand, the spirochete may affect the blood vessels almost exclusively. Lesions of this type produce various forms of vessel sclerosis, leading most frequently to the formation of thrombi, but also to aneurysm and hemorrhage. As a rule, there is considerable perivascular infiltration, but not infrequently the process is largely sclerotic and obliterating, without much inflammatory reaction. When the involvement is almost entirely in the blood vessels of the nervous system, one speaks of a true vascular neurosyphilis.

But the spirochetes may invade the true nervous tissue itself. When this occurs, the response is in the form of degeneration of the parenchyma; that is, the nerve cells or their prolongations are killed. The neuroglia tissue proliferates. This is the essential feature of parenchymatous syphilis, and the clinical forms of this type of reaction include general paresis, tabes dorsalis, muscular atrophy due to death of the anterior horn cells, certain forms of epilepsy, etc. In the case of parenchymatous neurosyphilis, there is usually an associated meningeal and vascular disorder, so that in most cases of paresis and tabes, in addition to the changes in the nerve tissue, there occurs also some meningovascular disorder. This may be considered as a secondary, associated or complicating feature, although it may be responsible for many of the symptoms.

What has been said about the separation of the nervous structure from the soma and the filtration of substances circulating in the blood holds especially for the true nervous structure and, to a lesser degree, for the meningeal and vascular tissue, which, as has been stated, is really extranervous.

POSSIBILITIES OF TREATMENT

The problem of therapy for meningovascular syphilis is therefore essentially different from that of parenchymatous neurosyphilis. Meningovascular neurosyphilis, or, as it is frequently called, cerebrospinal syphilis, has always been recognized as rather favorable for antisyphilitic treatment. In the past, many cases have been found to react quite satisfactorily to mercury and the iodids. On the contrary, the cases of parenchymatous syphilis react quite unsatisfactorily to mercury and the iodids. From this fact arose the idea of parasyphilis, which includes general paralysis and tabes, as these cases were found to be quite recalcitrant to ordinary antisyphilitic treatment. With the introduction of arsphenamin, a more potent antisyphilitic drug, renewed attention was given to the treatment of syphilis of the nervous system, including the so-called parasyphilitic diseases.

The demonstration, by Noguchi and Moore [3] and by many others since,[4] that spirochetes often are present in large numbers in the nervous tissue in general paralysis and also in cases of tabes, has led to more and more attempts to treat all forms of syphilis of the nervous system. Especially important has been the invention of various forms of intrathecal treatments.

Bearing in mind the anatomic differences that exist in cases of neurosyphilis, the cases may be studied according to their response to various forms of therapy.

When one remembers the difficulty of effecting symptomatic and serologic improvement in some cases of dermatologic syphilis, it is to be expected that even more difficulty will be encountered in obtaining results in the treatment of neurosyphilis. Nevertheless, it is true that one may encounter a group of cases of neurosyphilis in which, with a relatively small amount of general treatment, symptomatic improvement and serologic cure results. Mercurial rubs or injections may be quite sufficient to accomplish satisfactory results.

Case 3.—Mr. C. S. was brought into the hospital in a confused psychotic state. The neurologic examination showed dilated pupils, which, however, reacted well. The tendon reflexes were normal. There was considerable tremor and ataxia. The Wassermann reaction was positive in the blood and spinal fluid, and there were 80 cells per cubic millimeter, marked excess of albumin and globulin, and a strong general paralytic gold curve. Twenty injections of mercuric salicylate were sufficient to produce complete clinical remission, and the blood and spinal fluid became negative. The spinal fluid examined five months after the first test gave a negative Wassermann reaction, 4 cells per cubic millimeter; no globulin; normal albumin, and an entirely negative gold curve.

The type of case that responds satisfactorily to this mild treatment is in most instances a mild meningeal inflammation.

Case 4.—Mr. A R., after suffering for a short time with severe frontal headache, suddenly developed a strabismus and ptosis. A history of syphilis acquired thirty years previously was obtained. The patient had hypertension, aortitis and chronic nephritis. The spinal fluid gave a positive reaction, suggesting the meningovascular type of neurosyphilis. With five injections of arsphenamin, the headache entirely disappeared; the strabismus and ptosis, which had been present for several months, cleared up immediately. With very little

3. Noguchi and Moore: A Demonstration of Treponema Pallidum in the Brain in Cases of General Paralysis, J. Exper. M. **17**: 232, 1913.

4. Jahnel F.: Die Spirochäten in Zentralnervensystem bei der Paralyse, Ztschr. f. d. ges. Neurol. u. Psychiatrie **73**: 370, 1921. Forster and Tomasczewski: Nachweis von lebenden Spirochäten in Gehirn von Paralytikern, Deutsch. med. Wchnschr. **39**: 1237, 1913. Wile, U. J.: Experimental Syphilis in Rabbit Produced by the Brain Substance of the Living Paretic, J. Exper. M. **23**: 199 (Feb.) 1916. Hauptmann: Ueber herdartige Spirochäten-Verteilung in der Hirnrinde bei Paralyse, Monatschr. f. Psychiat. u. Neurol. **45**: 59, 165, 1919.

treatment, the patient has had no recurrence of neurologic symptoms for the last seven years.

It does not follow, however, that all cases of apparently mild meningeal syphilis are so satisfactorily treated. The important point to bear in mind is that there is a group of cases showing clinical evidence of the involvement of the central nervous system and having characteristic spinal fluid changes which react promptly and satisfactorily to the type of ordinary routine treatment accorded to the simple cases of systemic syphilis.

The majority of cases of neurosyphilis will not react satisfactorily, however, to this mild form of therapy. Having eliminated from consideration those cases in which the patients recover promptly with mild systemic treatment, we find that among the remainder there is a group of cases which, when treated much more intensively but by exactly the same methods, that is, by the administration of mercury, the iodids and arsphenamin intravenously, improve symptomatically and serologically. These cases, no matter what the state of the disease, may develop signs or symptoms of neurosyphilis, and show very little tendency toward improvement when given arsphenamin in doses of approximately 0.3 gm. once a week, assisted by mercury and iodid, but will show relatively prompt improvement if the dose of arsphenamin is increased and the frequency of administration doubled.

CASE 5.—F. C. developed a primary lesion in July, 1915, when 49 years of age. He was treated by an experienced colleague, who gave him a number of injections of mercury, potassium iodid by mouth, and four injections of arsphenamin. Five months after his primary lesion, he developed convulsions and became confused. The blood and spinal fluid Wassermann reactions were both strongly positive; there were 4 cells per cubic millimeter; globulin was 3 plus, albumin 4 plus, and the colloidal gold reaction 5555555310. The patient was then put on more intensive treatment, receiving two injections of arsphenamin a week, the average dose being 0.6 gm. At the end of four weeks, that is, after about eight injections of arsphenamin, the spinal fluid was essentially negative, and he had symptomatically recovered.

The cases that follow this rule are, in the majority of instances, cases of meningovascular syphilis occurring in any stage of the disease, early or late. Some will show very mild symptoms and quite weak spinal fluid changes, whereas others of this group will have very severe symptoms, presenting all the features of grave prognostic significance, and have spinal fluid giving the reactions characteristic of cases of general paralysis. A good many cases of tabes dorsalis will respond quite well to relatively intensive systemic treatment. Often the irritative symptoms, such as excruciating pains, bladder trouble and crises, will disappear quite promptly, and the spinal fluid will return to normal reactions.

CASE 6.—Miss O. I., aged 37, was suffering from severe lancinating pains of eight years' duration. Neurologic examination showed diminished hearing in the left ear, and slight tremor of the hands and tongue; knee jerks and ankle jerks were absent, the gait was ataxic, and there was a marked Romberg sign. The pupils were unequal, both reacting but little to light. The spinal fluid and blood were positive. The clinical picture of tabes was complete. After a few injections of arsphenamin, given at weekly intervals, the patient became free from pain and her gait improved a great deal. Improvement has continued over a period of four years, during which time she has had no pain and is able to carry on her work. The very marked symptomatic improvement was obtained solely by the administration, intravenously, of arsphenamin in small doses given at intervals.

Occasionally, cases having all the clinical and laboratory symptoms of general paralysis may likewise respond in a most surprising manner, leading to a complete and long-continued remission, with essentially negative serologic findings.

CASE 7.—In September, 1920, Mr. N. H. developed a marked psychosis which, from the clinical and serologic point of view, was diagnosed as general paralysis. The Wassermann reaction was positive in the blood and strongly positive in the spinal fluid. There were 6 cells per cubic millimeter; globulin and albumin were increased, and there was a general paralytic gold reaction. There were Argyll Robertson pupils, a speech defect, a tremor of the tongue and facial muscles, and considerable ataxia. The patient was given arsphenamin twice a week, with a dosage of 0.3 gm. With this treatment, he made a rapid clinical improvement, and at the end of four months the spinal fluid became entirely negative; with the continuation of intravenous injections, he has remained symptom-free, with negative serologic findings to the present.

Thus, despite all the theoretical and practical difficulties encountered in the treatment of neurosyphilis, it is seen from a practical standpoint that almost all varieties of cases, namely, mild and severe meningovascular syphilis, tabes and general paralysis, will be found to improve to a degree that may be considered a clinical recovery through the ordinary forms of antisyphilitic treatment when this treatment is given intensively enough.

While intensive systemic treatment will improve some cases that appear to be of the severest type of neurosyphilis, other cases similar from the clinical standpoint, or even apparently of a much milder variety of meningeal syphilis, seem to derive no real benefit from such treatment. It is therefore necessary to regard each case on its own merits. It would seem reasonable to suppose that the most satisfactory effects are obtained in those cases in which the meningitic and perivascular reactions are fairly marked and of an acute character. Such changes are to be found in a certain number of cases of parenchymatous syphilis as associated or concomitant phenomena, and may be the cause of most of the symptomatology. However this may be, there are numerous cases both with indications of the meningovascular type of neurosyphilis and of the parenchymatous type which do not react satisfactorily to intensive systemic treatment. Some of these cases will be improved symptomatically and serologically by the use of intrathecal methods.

SERUM INJECTION

There are a number of special technics for the application of medicaments directly into the cerebrospinal fluid with the intention of getting the drugs into contact with the nervous tissue. The first method to be introduced into this country, and the one that is most largely used, is the Swift-Ellis method of lumbar subarachnoid injection of arsphenaminized serum. Mercurialized serum is sometimes substituted for the arsphenaminized serum. Abroad, the arsphenamin is frequently added directly to the cerebrospinal fluid, which is reinjected into the subarachnoid space. Other loci are used for the introduction of the serum. Injections into the lateral ventricles have been used for a number of years, especially for cases of cerebral syphilis; that is, general paralysis. More recently, Ayer [5] has introduced the cistern route whereby the serum can be placed directly in contact with the base of the brain. Spinal drainage, that is, the withdrawal of a

5. Ayer, J. B.: Puncture of the Cisterna Magna, Arch. Neurol. & Psychiat. 4: 529 (Nov.) 1920.

large percentage of the cerebrospinal fluid in order to increase the penetration of intravenous arsphenamin into the nerve structure, is advocated by Gilpin and Early [6] and Dercum.[7]

All of these methods have the object of bringing the drug into close relation with the central nervous system, and of overcoming the resistance offered by the various filtering devices of the body. In my experience, and in that of probably the majority of contributors to the literature of the treatment of neurosyphilis, there is a group of cases which show no results from a mild or intensive systemic treatment, but which do react quite well to one or another of these special methods. There are a certain number of men who feel that nothing is to be gained by such methods, and who, therefore, oppose it. Most notable among these is probably the Mount Sinai group of neurologists, including Sachs,[8] and Kaliski and Strauss.[9]

My point of view is based on an experience with cases that have been treated rather intensively by the systemic route for periods of months or years without satisfactory results, and then have showed good results when another technic was used. There seems to be no question that from the serologic standpoint, at least, more satisfactory results can be obtained by these methods. The serologic check has the advantage of being more objective than the clinical or symptomatologic evidence. The group of cases that seem to react more satisfactorily to the subarachnoid or ventricular injections than to the systemic methods include cases of meningovascular syphilis, tabes and general paralysis. There are many cases of so-called asymptomatic neurosyphilis,[10] that is, patients free from definite symptoms but with positive spinal fluid reactions, whose serologic findings are not improved by months and years of systemic treatment, only to be successfully cleared up by these other methods.

Case 8.—Mr. A. K. came under attention in October, 1917, because of insomnia. There were no physical findings suggestive of syphilis, but the blood was positive, as was also the spinal fluid. There were 77 cells per cubic millimeter, increased globulin and albumin, and a general paralytic gold curve. During the next two and a half years, he received fifty-seven intravenous injections of arsphenamin, with an average dose of 0.3 gm., mercury intramuscularly, and iodid by mouth. There was no improvement in the spinal fluid findings, nor did the symptoms improve. He was then given four intraspinal injections of arsphenaminized serum. After the first injection, there was marked improvement in the insomnia, and after the four injections, the spinal fluid became entirely negative.

In some experiments reported at the last session of the American Medical Association, my collaborators and I [11] attempted to show that the serum injected into the subarachnoid space does not travel far from the point of introduction. During the last year, more evidence of this has been obtained. It therefore seems rational to attempt to put the serum as near to the point of activity as possible. In cases of lumbar tabes and spinal syphilis, introduction into the lower spinal subarachnoid space seems reasonable. However, in cases of cerebral involvement, the serum should be introduced higher up. When the lesion is at the base of the brain, the route of election would seem to be the cisterna magna.

Case 9.—Mrs. G. M., because of failing vision, reported to a local hospital. An examination showed optic atrophy, Argyll Robertson pupils, and absent knee jerks and ankle jerks. In a period of two years, 1920-1922, she received fifty-eight injections of arsphenamin and forty-two intramuscular injections of mercury. The vision continued to fail, and in April, 1922, she came under our observation. The blood Wassermann reaction was positive; the spinal fluid Wassermann reaction was positive with 0.5 c.c. There were 26 cells per cubic millimeter; globulin and albumin were increased, and there was a syphilitic gold curve. After two cistern injections and two spinal drainages, the spinal fluid became negative and has continued to be negative under treatment for more than a year. The Wassermann reaction in the blood, which remained positive despite the two years of systemic treatment, became negative shortly after the subarachnoid treatment

In other cases of cerebral involvement, this route, or the ventricular route, is indicated.

Case 10.—Mr. A. G. had his primary infection in 1901. He was given the usual mercurial treatments of that time by one of our most noted syphilologists. Everything went well. In 1916, desiring to get married, he had a Wassermann test performed on his blood serum, which was negative. A year later, in 1917, he began to have symptoms suggestive of neurosyphilis—chills, sweats and tremors. He was given intravenous injections of arsphenamin and mercury, but he continued to grow worse. By November, 1919, he had a full-blown picture of the tabetic type of general paralysis. He was confused, his memory was poor, he was unable to care for himself, and his knee jerks and ankle jerks were absent. At this time the blood and spinal fluid reactions were strongly positive. He received some intravenous arsphenamin and several intraspinal injections, but failed rapidly. In the middle of December, 1919, he was trephined and given an injection of arsphenaminized serum. The ventricular fluid at this time was essentially negative, although the spinal fluid was strongly positive. Following the first intraventricular injection, he became excited and difficult to control. However, this treatment was continued, and improvement began. Interestingly enough, coincident with improvement, the ventricular fluid became positive. Improvement continued and the spinal fluid became almost negative, and for three years the patient has been employed by a municipality as a civil engineer.

DOSAGE

In attempting to secure the best results, the dosage and the frequency of treatment must, of course, play a large rôle. No standardization is possible. Reference has already been made to the fact that many cases of visceral or skin syphilis require long and intensive treatment, whereas others react entirely well to a relatively small amount. The same principle unquestionably holds for the treatment of nervous system cases by intrathecal methods. Some cases which apparently are not helped by these methods, when treatment is given at infrequent intervals such as once in two, three or four weeks, react better when treatment is given at much shorter intervals. Further, it often takes many months of treatment to obtain the results desired. The only way to determine the type of treatment or the amount necessary is by trial.

6. Gilpin, S. F., and Earley, T. B.: Drainage of Cerebrospinal Fluid as a Factor in the Treatment of Nervous Syphilis, J. A. M. A. **66**: 260-262 (Jan. 22) 1916.

7. Dercum, F. X.: Functions of the Cerebrospinal Fluid with Especial Cosideration of Spinal Drainage and of Intraspinal Injections of Arsphenaminized Serum, Arch. Neurol. & Psychiat. **3**: 230 (March) 1920.

8. Sachs, Bernard: Truth About Intraspinal Injections in Treatment of Syphilis of Nervous System, J. A. M. A. **69**: 681-683 (Sept. 1) 1917; On the Intravenous, Not the Intraspinal, Use of Arsphenamin in Syphilis of the Nervous System, Arch. Neurol. & Psychiat. **1**: 277-284 (March) 1919.

9. Kaliski, D. J., and Strauss, Isadore: The Significance of Biologic Reactions in Syphilis of the Central Nervous System, with Notes on Treatment, Especially Intraspinal, Arch. Neurol. & Psychiat. **7**: 98-114 (Jan.) 1922.

10. Keidel, A., and Moore, J. E.: Studies in Asymptomatic Neurosyphilis, Arch. Neurol. & Psychiat. **6**: 286 (Sept.) 1921.

11. Solomon, H. C.; Thompson, L. J., and Pfeiffer, H. M.: Circulation of Phenolsulphonephthalein in the Cerebrospinal System, J. A. M. A. **79**: 1014 (Sept. 23) 1922.

Despite the most active and prolonged treatment that we have attempted, there remains a fairly large group of cases that do not respond to our therapeutic endeavors. Thus, we have patients who have received arsphenamin intravenously twice a week for a period of many months, along with intraspinal, intracisternal and intraventricular injections of arsphenaminized serum and spinal drainage, given in rotation twice a week for months and then a little less frequently for a period of one or two years, without any favorable results. A number of cases of tabes have received long continued intravenous and intraspinal treatment without obtaining the desired effect, either clinically or serologically; from the serologic standpoint, the same is true of quite a number of cases of asymptomatic neurosyphilis.

CASE 11.—P. McG. came under our care in 1919, complaining of severe girdle pains, and pains in his legs. There were ataxia, Romberg's sign, and the absence of knee jerks and ankle jerks. He gave a history of syphilis acquired in 1898. The clinical picture was that of tabes. The blood and spinal fluid showed a positive Wassermann reaction; there were 134 cells per cubic millimeter and a general paralytic gold curve. Since that time, the patient has received 103 injections of arsphenamin, 0.3 gm. dosage, twelve intraspinal injections of arsphenaminized serum, four cistern injections and thirty-four spinal drainages, as well as mercury and the iodids. Despite this large amount of treatment, the Wassermann reaction in the blood has not become consistently negative. The spinal fluid Wassermann reaction is still strongly positive, but cell count and globulin, albumin and colloidal gold tests have become negative. We have not been able to produce a completely satisfactory serologic result or adequate clinical improvement. This is in contrast to most cases of tabes.

The foregoing portrayal leads us to conclude that in the specific treatment of cases of neurosyphilis there are some cases that do well with very mild systemic treatment, others that require more intensive systemic treatment, still others that need some form of intrathecal therapy, while there still remains a group which are resistant to any form or any combination of arsphenamin, mercury, the iodids or serum that has yet been tried by us. Cases may thus be considered according to their reaction to treatment. Such a division does not follow absolutely the older concept of parasyphilis as distinguished from tertiary syphilis of the nervous system. It is found that some cases which, from the clinical and serologic standpoint, would fall in the group of parasyphilis, namely, tabes and paresis, react quite well to antisyphilitic treatment, whereas, on the contrary, cases of meningovascular syphilis falling in the group of the tertiary variety could not be satisfactorily modified.

It still remains true, however, that general paralytic and tabetic patients are, on the whole, more unsatisfactory in their reaction to treatment than the simple meningeal cases.

We are therefore forced to accept the point of view that there are certain definite limitations of our present therapeutic agents. That this is rather generally accepted for systemic syphilis as well as neurosyphilis is shown by the amount of work in process in attempting to find more satisfactory drugs. Thus, constant attempts are being made to produce new chemicals for the treatment of syphilis, as, for instance, silver arsphenamin, sulpharsphenamin, bismuth compounds, new varieties of mercurials, and tryparsamid. Very favorable results have been reported by Lorenz and others in the treatment of neurosyphilis by the drug tryparsamid. This drug, which is an arsenic derivative, is said by Voegtlin [12] to have a much greater power of permeating the nervous tissue than has arsphenamin, neoarsphenamin or silver arsphenamin.

IMMUNITY OF PATIENT

The foregoing account deals entirely with the treatment of neurosyphilis by antisyphilitic medication. It is essential to consider at the same time the reaction of the patient himself to the disease. The general immunity reactions have been briefly mentioned. These probably play an important part. Those patients who have a high resistance or the power of producing immune bodies are the ones who can be helped the most. It is therefore necessary to strive constantly to improve the patient's general condition in the hopes of increasing his bodily defense. General hygiene is an essential factor in the treatment of all cases of syphilis, and especially of neurosyphilis. Improvement in nutrition, fresh air, massage and hydrotherapy are important adjuvants and are usually insufficiently considered. The removal of all excessive stresses and strains, either physical or mental, is likewise important.

In the attempt to raise the resistance or induce immunity, a number of methods have been instituted. This is the so-called nonspecific therapy. For many years the Germans, especially, have tried a number of devices along the line of nonspecific protein therapy, most of them designed to cause a hyperleukocytosis. Tuberculin, typhoid vaccine, sodium nucleinate and a number of other similar substances have been used for this purpose.

More recently, patients with general paralysis have been inoculated with relapsing fever or malaria in order to produce a general bodily reaction in the form of chills, fever and leukocytosis. The reports of malarial therapy particularly have been most optimistic. Whatever the final conclusion for this type of therapy may be, the attempt emphasizes the desire to improve on our usual methods and to take into account the need of the patient's own immunity reactions.

This all shows that we are not satisfied with our treatment of neurosyphilis, and that we have not reached a static situation, but that continued efforts are indicated and are being made for the improvement in our methods of procedure. The chemist, the pharmacologist, the immunologist, the clinical syphilologist and the neurologist must all work together for the improvement of drugs and methods of administration and general care of the patient, in order that the future may duplicate the advances of the recent past.

SUMMARY

The problem of the treatment of neurosyphilis is to destroy the spirochetes that are present in the nervous system. The nervous tissue is walled off from the general body structures, and this leads to a relative impermeability of drugs placed in the general circulation. However, some penetration takes place, the amount apparently varying in different individuals. There is a group of neurosyphilitic cases that react well to mild systemic treatment. Others require more intensive systemic treatment. There are many, however, that are not improved to any extent by systemic treatment with arsphenamin, mercury or iodid. Some of these cases do well, however, when medicaments are

12. Voegtlin, Carl; Smith, M. I., and Dyer, Helen: Penetration of Arsenic Into the Cerebrospinal Fluid, with Particular Reference to the Treatment of Protozoal Infections of the Central Nervous System, Pub. Health Rep. **38**: 1003 (May 11) 1923.

given directly into the cerebrospinal fluid or when spinal drainage is used. Theoretically and practically, it seems advisable to place the medicament as near to the site of pathologic change as possible, utilizing the lumbar subarachnoid space, the region of the cisterna magna and the ventricles as conditions indicate.

No definite rules can be laid down as to which type of treatment will produce the best results in a given case. A classification based on the reaction to treatment does not coincide with the older ideas of tertiary syphilis of the nervous system as contrasted with parasyphilis, because some cases of tabes and paresis react quite well to relatively mild systemic treatment, whereas some cases of the meningovascular group do poorly on the same type of therapy. It is more difficult, on the whole, to get satisfactory results in cases of tabes and general paralysis than in the meningovascular type, and the former usually require quite intensive treatment, making use of the cerebrospinal fluid pathway. There still remains a group of cases that cannot be satisfactorily modified by treatment with arsphenamin, mercury, the iodids and blood serum.

The immunity of the patient plays a large rôle in the results obtained, and various procedures that may increase the immunity responses have a place in the treatment of neurosyphilis. Of great importance are all hygienic procedures that improve the general condition of the patient. Some favorable reports have been made from inducing febrile reactions by inoculations with malaria and relapsing fever. The hope for the future rests either in the method of inducing greater immunity on the part of the patient or in developing drugs with greater power of permeation into the nervous tissue.

THE PHARMACOLOGY OF MERCURY

A REVIEW OF SOME LITERATURE *

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The most ancient of present-day therapeutic procedures is probably the use of mercury against syphilis. In 2637 B. C., the Chinese Emperor Hoang-Ty collected the medical literature of his day, and in these books the use of mercury by friction for a disease, which it is not difficult to believe was syphilis, is described as even then a procedure of some antiquity. Hippocrates did not mention it, but his pupil Aristotle knew of it and anticipated "protoplasmic poison" when he said it killed all living things. It was used by the Arabs, perhaps from the Chinese through the Hindus, as an ointment in skin diseases during the first thousand years of the Christian Era. An Arabian physician, Avicenna, in 1000 A. D., was using it continually, principally for its laxative action. Hugh of Lucca and his pupil Theodoric used it internally as well as externally in the thirteenth century, but its use by physicians generally was prevented by the survival of the galenic prejudice against drugs of mineral origin.

However, when the great epidemic of syphilis swept over Europe, at the end of the fifteenth and during the early years of the sixteenth centuries, the great rebel, Paracelsus, Fracastor and others succeeded in routing this prejudice, and its use became general in the scourge. No less distinguished a victim than Francis the First was said to have been cured by its use; but in spite of its firm establishment at this time, it has continued until now to be the subject of violent medical controversies. It has been dropped from use and lauded to the skies as a universal panacea. The famous Dr. Dover, who rescued Alexander Selkirk from the Isle of Juan Fernandez, wrote so ably in its behalf that it became the fashion for all the ladies of London of his day to take courses of mercury. In order to demonstrate to his critics its utter innocuousness, he had a certain patient take two pounds at a single dose.

The use of mercury for many diseases other than syphilis became so general and so poorly supervised during the eighteenth century that calomel became a household drug, and the "mercurial disease," with all the symptoms of chronic poisoning, appeared and became the subject of considerable writing. Dr. Chisholm,[1] and his colleague, Dr. Rusk, in America, wrote enthusiastically of its value in yellow fever and other tropical diseases during the early part of the nineteenth century. After some reaction, traceable to its misuse, Ricord, Hebra and others placed it once more on a firm basis. In 1892 another advance in its use was marked by the introduction of the injection of mercury by Baccelli. The discovery of arsphenamin by Ehrlich threatened once more to remove it from the pharmacopeia, but its use has persisted. At present, the most interesting work is being done in connection with synthetic mercury compounds, which are intended to take advantage of the beneficial while avoiding the toxic effects. This work, while very new, has already produced mercurophen, mercurochrome-220 soluble and flumerin, and more and better drugs in the near future are promised.

The pharmacology of mercury is still in an unsatisfactory state. The mechanism of its action is not understood. Its use is still on an empiric basis. The fundamental facts as to its absorption, circulation and excretion are not agreed on. This is due to the lack of accurate methods for its quantitative determination. Collins, working under Hanzlik, reviewed this phase of the question, but found no method entirely satisfactory for the very small amounts that are involved. Lomholt,[2] however, has recently described an electrolytic method, which, in his hands, seemed to give sufficiently accurate results. In addition to this difficulty, there are often encountered unexplained variations between individual animals and patients in the way in which they react to mercury. Similar variations have often been encountered clinically.

While the use of mercury in syphilis has the sanction of the greatest antiquity and the soundest clinical observation, no better explanation for its action can be offered now than that offered by Fracastor in 1530, when he said:

> The action on the scourge is marvelous, either because its natural affinity for heat and cold renders it proper to absorb the devastating fire of the disease, or because its surprising density permits it to dissolve and divide the humors, or that its mobile and penetrating molecules, apt to infiltrate themselves

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1. Chisholm: Fevers.

2. Lomholt, S.: Circulation of Mercury in the Body, Arch. f. Dermat. u. Syph. **19**: 126, 1918; Absorption and Elimination of Mercury in the Different Methods Used in Treatment of Syphilis, Brit. J. Dermat. **32**: 353 (Dec.) 1920.

in the ways of the tissues, have power of pursuing and consuming the impure yeasts of the disease, or finally that its magic virtues are derived from some occult force whose mystery escapes us.

Modern authorities suggest that it stimulates antibody formation, that it breaks down scar tissue and renders the spirochetes accessible, and that it acts directly as a trypanosomicidal agent. In respect to this last, Lomholt maintains that spirochetes grow readily in serum which contains a considerably higher concentration of mercury than that ever attained in the blood of a treated patient. It is apparent from his work and the work of others that mercury is not spirocheticidal in the body in the sense, or at least to the degree, that arsphenamin may be said to be. How its beneficial results are achieved is not known.

ABSORPTION

Mercury is absorbed from all surfaces, from the skin, the alimentary tract, the lungs, the rectum, the vagina, the surfaces of wounds, and from subcutaneous, subdural, intramuscular and intravenous injections. Its characteristic effects have been demonstrated after administration by all these routes. Metallic mercury organic compounds, and mercuric and mercurous salts have all been used successfully. It is usually stated that the action depends on the mercury ion, and that the various salts are active to the degree in which they can be converted into this form. Certainly, the mercuric salts exhibit the typical mercury actions sooner and in smaller dosage than do the others. The absorption from the gastro-intestinal tract is uncertain, and quantitative experiments on it have been few. Metallic mercury and mercuric sulphid are very slightly absorbed when given by mouth. A small proportion of calomel given for its laxative, diuretic or antisyphilitic action is absorbed, the greater part being swept out. The soluble salts, such as mercuric chlorid, which can form an albuminate with the mucous membrane of the intestinal tract, are almost completely absorbed. Surprisingly complete absorption of calomel sometimes occurs, giving rise to unexpected poisoning, but this is rare. Fistula experiments seem to show that most of the absorption takes place in the ileum, but mercurialism has been produced by rectal administration.

Through the Lungs.—Workers exposed to metallic mercury have been poisoned by inhaling the fumes; 200 of the sailors on the British ship *Triumph* were poisoned in 1810, and three of them died, when casks of mercury broke in the hold and the fumes penetrated the forecastle. Mercury can be shown in the urine of men and dogs two hours after they have been exposed to its fumes. It has been suggested that it is absorbed from the alveolar air, by virtue of its gaseous tension; but the explanation that it is deposited on the mucous membrane of the bronchi seems more plausible, especially in view of the marked irritation of this membrane which takes place when mercury is administered in this way. The uncertainty of the dosage, the bronchial irritation and the danger of poisoning have properly made this method of administering mercury obsolete. What rôle, if any, pulmonary absorption plays when mercury is given by inunction has been the subject of much discussion. Wellander and others have asserted that it plays the major rôle. But the recent work of Jenkins [3] in England, and of Schamberg [4] and others in this country, should terminate this discussion, because they showed that the greater absorption is through the skin, and not through the lungs.

From Wounds.—Absorption from the surfaces of wounds occurs with great facility when those salts capable of forming albuminates are used. This is possibly of some importance in the treatment of extensive syphilitic ulcerations.

Through the Skin.—This occurs even when the surface is intact, probably by way of the hair follicles and ducts of the sweat glands. Metallic mercury in an oily vehicle is the drug usually used. Schamberg states that calomel, if used in sufficient dosage, is just as effective and much cleaner. Cole [5] has denied that it is absorbed to any appreciable extent. It is likely that the mercury is oxidized as it passes through the skin, but it is possible that it is picked up by the leukocytes as metallic mercury. Only a small part of the mercury that is rubbed on the skin is absorbed, and, according to Cole, just as much if the excess ointment is washed off with soap and water after rubbing for a half hour as if it is left on, as is the general practice. Soap has been used as a base for the mercury ointment. Absorption after inunction, as judged by the appearance time in the urine, is fairly prompt; and, judged by the amount excreted, which will be discussed later, amounts comparable to those given by injection can be introduced by inunction.

After Injection.—Injection is becoming the most popular method for mercury administration, and much work has been done on the quantitative absorption after it is given in this way. The speed of absorption, the percentage absorbed and the locally irritating effects depend on the form used, on the vehicle with which it is given and, to some extent, on the concentration of the salt. Lomholt investigated the absorption directly by injecting known amounts of various preparations into dogs and subsequently analyzing the sites of injection at varying intervals to determine the quantity left in situ, and, by the difference, the amount absorbed. With soluble salts, using the benzoate, he showed almost complete absorption in fourteen days, but with half left unabsorbed in seven days. With salicylate, the absorption was more rapid, four fifths being absorbed in four days, and all of it in ten days. The absorption of calomel was very much slower, less than one half being absorbed in ten days. Mercurial (gray) oil was very slowly absorbed, less than one third being absorbed in three weeks. In the case of salicylate, Lomholt found that the absorption was a good deal more rapid and complete when a vegetable or animal oil was used instead of the more commonly employed liquid petrolatum. Cole, Littmann and Sollmann,[6] following the absorption of the insoluble salts with the roentgen ray, arrived at similar conclusions as to the relative speed of absorption of salicylate, mercurial oil and calomel.

3. Jenkins, C. E.: Some Experiments in the Volatilization and Absorption of Mercury, Brit. J. Dermat. **33**: 135 (April) 1921.

4. Schamberg, J. F., and Kolmer, J. A.: The Germicidal Activity of Calomel, J. A. M. A. **62**: 1950 (June 20) 1914. Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: A New and Superior Mercurial Germicide, J. A. M. A. **68**: 1458 (May 19) 1917. Schamberg, J. F.; Kolmer, J. A.; Raiziss, G. W., and First: Sodium Oxy-Mercury-Ortho-Nitrophenolate, J. Infect. Dis. **24**: 547 (June) 1919.

5. Cole, H. N., and Littmann, Sidney: A Clinical Study on Calomel Inunctions in Syphilis, J. A. M. A. **73**: 1409 (Nov. 8) 1919. Cole, H. N.; Gericke, A. J., and Sollmann, Torald: The Clean Inunction Treatment of Syphilis with Mercury, J. A. M. A. **77**: 2022 (Dec. 24) 1921. Cole, Driver and Hutton: Mercurosal in Treatment of Syphilis. Cole, H. N.; Gericke, A. J., and Sollmann, Torald: Treatment of Syphilis by Mercury Inhalations, Arch. Dermat. & Syph. **5**: 18 (Jan.) 1922. Cole, H. N., and Littmann, S.: A Clinical Study of the Use of Calomel Inunctions in Syphilis, J. A. M. A. **73**: 1409 (Nov. 8) 1919.

6. Cole, H. N.; Littmann, Sydney; and Sollmann, Torald: A Study of Mercury Injections by Means of the Roentgen Ray, J. A. M. A. **75**: 1559 (Dec. 4) 1920.

The absorption, after intravenous administration, is, of course, practically immediate. Usually soluble salts are used in this way, but certain colloidal salts have been recommended. Dr. Hanzlik [7] has shown that these are not devoid of danger. Metallic mercury itself in a fine colloidal state has been exploited by interested manufacturers as a possible drug for intravenous use without, however, sufficient proof as to the safety of the method.

DISTRIBUTION AFTER ABSORPTION

The form in which mercury circulates and its distribution after absorption have been the subjects of a great deal of speculation and some experiment. Most workers affirm that it circulates as an albuminate, an organic compound, which is formed when mercuric ions are brought in contact with proteins or protoplasm. There are those who think that metallic mercury is carried by leukocytes, mechanically, so to speak. It seems more likely that it is oxidized at the site of administration. In the blood, mercury is present, according to Lomholt's experiments, both in the plasma and in the corpuscles, and in about equal amounts in each. There is some evidence that certain mercury compounds, the salicylates particularly, are not completely broken down; that mercury given in this form does not exert to the fullest extent the action of the mercury ion, but that the drug circulates and is excreted as the salicylate. This may apply to other un-ionized organic compounds.

The distribution of mercury in the body has been studied after fatal poisoning, and in a few cases in which death has occurred while a patient was taking treatment. There is an agreement in general between these two methods in the matter of the relative amounts the various organs contain. In treated cases, Lomholt found a maximum of 3 mg. per liter in the blood. Rosenbloom,[8] in a poisoned patient, found 12 mg. per liter. The bile shows relatively high concentrations, i. e., 7.5 to 16.5 mg. per liter.[2] Traces are often found in the spinal fluid of treated cases (0.04 mg. per liter). According to Lomholt, the kidneys contain the highest concentration, namely, 1.6 mg. per hundred grams of substance in a treated case, and 17 mg. per hundred grams in a poisoned patient. (Rosenbloom found 2.8 mg. per hundred grams in his case.) The liver was next in percentage content and first in actual content among the internal organs. The walls of the bowel contain the next highest amount in point of percentage. The muscles form the reservoir for the great bulk of the retained mercury, but the percentage content here is not high.

In the early part of the treatment, there is usually more mercury absorbed than is excreted. Then there comes a time when excretion becomes about equal to absorption. This is thought to occur when a certain saturation point is reached. Precisely what this saturation point is is not known, although it is a matter of some considerable interest. On the basis of careful estimations, Lomholt figures that the tissues will hold from 90 to 120 mg. without showing toxic signs. Rosenbloom found a total of 175 mg. in the body of a fatally poisoned person.

The biochemistry of mercury appears to be about as follows: After absorption, the metallic forms and the mercurous forms are oxidized to the mercuric form, and an albuminate is formed. A portion of this is left in every tissue of the body. A larger portion is caught in the kidney, and excretion is immediately begun, while a still larger portion is fixed by the cells of the liver. This portion is excreted into the bowel through the bile, and a part of it escapes with the stool, but another part is reabsorbed and goes through the same cycle. As this process goes on, the saturation point of the tissues is approached and, as it is approached, the excretion rises. However, there is a limit to the maximum amount that can be excreted by all available routes in one day, and when in a saturated individual more is given than can be excreted by all available routes in one day, various symptoms of poisoning appear. It would perhaps be ideal to reach the saturation point and then so grade the dose as to keep absorption and excretion equal. Unfortunately, this is not possible at present.

There are really three forms of mercurial poisoning. The very acute form is due to the local precipitation of tissue proteins by the mercuric ion. The chronic form is due to the tolerated saturation point being exceeded. The indirect poisoning is dependent on injury to the kidney. The local action is one of corrosion, and is exhibited principally in the gastritis and enteritis of persons poisoned by mercuric chlorid. The injuries may be sufficient to cause acute death, but, if the first short period is survived, death rarely occurs from this cause. The chronic form is seen typically in the salivated patient, though there are changes in many organs as well as the usual salivation. The local process may go on to necrosis of the jaws. The mechanism of this necrosis has been fully reviewed by Bessesen.[9] The salivation is probably not in all cases an index that the saturation point in other organs has been reached, since there is reason to believe that it depends to a considerable extent on the condition of the teeth locally. Caries, etc., favor its early appearance. It is not, therefore, always proof that a patient has been thoroughly treated.

The microscopic changes produced in all organs by mercury have been carefully studied by Kolmer and Lucke [10] and by Raiziss, Kolmer and Gavron.[11] The changes in the brain consist of perivascular, round cell infiltrations, which have always been associated with syphilitic changes. Salant [12] has investigated the pharmacologically toxic actions and has shown marked depressant effects of mercury on the heart, causing irregularities and drop in blood pressure when mercury is given in fairly large doses intravenously (I believe). This effect can be fatal. It may be a factor in the early deaths from acute poisoning. The principal anatomic changes caused by mercury are the changes in the kidneys, in which destruction of the convoluted tubules takes place. Some damage was demonstrated by extremely small doses by Menten,[13] even as little

7. Hanzlik: Personal communication to the author.
8. Rosenbloom: Distribution of Mercury in Body in a Case of Acute Poisoning by Bichloride of Mercury, J. Biol. Chem. **20**: 123, 1915.
9. Bessesen, D. H.: Pathogenesis of Mercurial Stomatitis, Arch. Dermat. & Syph. **7**: 332 (March) 1923.
10. Kolmer, J. A., and Lucke, B.: A Study of the Histologic Changes Produced Experimentally in Rabbits by the Mercurial Compounds, Arch. Dermat. & Syph. **3**: 531 (April, Pt. 2) 1921.
11. Raiziss, G. W.; Kolmer, J. A., and Gavron, J. L.: Chemotherapeutic Studies on Organic Compounds Containing Mercury and Arsenic, J. Biol. Chem. **40**: 533 (Dec.) 1919. Kolmer, J. A., and Mastin, E. V.: Globules of Metallic Mercury in the Tissues, J. A. M. A. **70**: 1290 (May 4) 1918. Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. W.: Chemotherapy of Mercurial Compounds, Am. J. Syphilis **1**: 1 (Jan.) 1917; A Study of Comparative Toxicity of Various Preparations of Mercury, J. Cutan. Dis. **33**: 819-840, 1915; Experimental Study of Mode of Absorption of Mercury When Applied to the Skin, J. A. M. A. **70**: 142 (Jan. 19) 1918.
12. Salant, W.: Pharmacology of Mercury, J. A. M. A. **79**: 2071 (Dec. 16) 1922.
13. Menten, M. L.: Pathological Lesions Produced in Kidney by Small Doses of Mercuric Chloride, J. M. Res. **43**: 315 (June-July) 1922.

as 0.01 mg. per kilogram producing demonstrable changes in the kidney and liver. MacNider [14] investigated the toxic effects from a functional point of view. He showed that acidosis accompanied the kidney destruction. He also pointed out that animals whose kidneys were already damaged reacted much more severely to mercurial poisoning than those with healthy kidneys.

A great deal has been written about the treatment of mercuric chlorid poisoning. This cannot be considered in detail here. Sansom showed that if in dogs a dose of 4 mg. per kilogram was absorbed, none of the recommended antidotal treatments were of any avail. The success of all treatments probably depends more on preventing absorption of mercury and removing it from the alimentary tract than on any direct antidotal action that may be achieved after the mercury is absorbed. This is accomplished by precipitation of the mercury in the stomach by albuminous materials or by chemical agents designed to form the insoluble sulphid, with subsequent removal by catharsis and lavage.

EXCRETION

Mercury is excreted mainly by the kidneys and the bowel. Trivial amounts are excreted by the sweat glands. The proportion between the amounts excreted in the urine and in the feces varies, the averages being about 55 and 45 per cent., respectively. Nothing is known as to the form in which mercury is excreted. It seems probable that the inactive sulphid is formed in the bowel, and that the mercuric sulphid is excreted as such, in part, at least; but this is not certain. There is usually a diuresis accompanying the excretion of mercury, but it is not in proportion to the amount contained in the urine. This is made use of in cases of cardiac dropsy. Excretion parallels absorption to a certain degree, but while there is no limit to the amount that may be absorbed, there is a distinct maximum limit for excretion. The limit for the kidneys, without serious damage to these organs, seems to be up to about 9 mg. daily.[2] The maximum excretion does not appear as soon as the mercury is absorbed. The curve rises to a plateau during the first few weeks of treatment. Excretion begins, however, very soon after the mercury is administered, especially after the salicylate and the soluble salts, mercury often appearing in the urine within two hours after an injection. With calomel and mercurial oil, the time of appearance and the attainment of the maximum are both delayed, as might be expected from their slow absorption.

Mercury is sometimes found in the urine long after mercury medication has been discontinued. This is seen after all methods of administration, indicating the gradual excretion of the residual mercury, but it is most marked after the use of mercurial oil, mercury having been found in the urine a year after the last dose. As to the actual daily amounts found, there is a fairly good agreement. These usually run from 1 mg. to 3 mg. daily in the urine, with the usual methods of treatment.

Next to the kidneys in importance as an avenue for mercury excretion is the bowel. Whether all the mercury comes into the bowel through the bile, or whether part is excreted directly through the bowel wall, is doubtful. Probably both channels are utilized. The daily excretion in the bowel is fairly constant, except when the drug is given by mouth. It does not vary much with variations in the quantity of feces.

Generally speaking, the excretion, both by the kidneys and by the bowel, follows the absorption. There is a gradually increasing amount excreted for a time; then the daily excretion becomes constant. There is a distinct maximum to the amount that can be excreted daily without marked damage to the kidneys. There is some evidence that even the most minute amounts cause some slight injury. Kidneys already diseased are far more susceptible to injury than are normal kidneys.

Holdewizn stated, in 1910, that mercury is not excreted in cow's milk; but Legales and Duperoy,[15] in 1900, stated that it could be found in the milk of women who were being treated with mercury, and in amounts sufficient to be of importance in the treatment of congenital syphilis.

THERAPEUTICS OF MERCURY

While a study of the pharmacology of mercury clears up certain propositions, it does not furnish the definite guides for therapeutic usage that one might desire. Mercury finds its principal use in the treatment of syphilis. Next in importance are the laxative and diuretic actions of calomel. Formerly, mercury was much used in the treatment of many other diseases, especially yellow fever and other tropical diseases. Recently, Vecki [16] and others have again recommended it for influenza and other acute conditions. In view of the favorable results that were formerly obtained by it in these diseases, it may be possible that the modern therapeutist is overlooking something in the comparative neglect into which mercury has fallen for diseases other than syphilis.

Although the mechanism of action is not known, certain facts are known about certain forms of mercury and about methods of administration that are important additions to the empiric lore of mercury. Administration by mouth, as judged by excretion curves, etc., is an uncertain method. Usually very little is absorbed with most of the preparations used. In order to reach really effective dosage by the oral route, the patient is exposed to the sudden and inexplicable absorption with subsequent poisoning, which sometimes occurs. Inunction provides a steady and fairly reliable, although somewhat slow, method of administering mercury. The excretion curve often is slow to rise, but can be kept fairly constant from day to day when a level is reached. Absorption can be quickly stopped when the first symptoms of mercurialism appear.

Treatment by intramuscular injection is, of course, more accurate and reliable, but the choice of the preparation to be used is of the utmost importance. The use of calomel and mercurial oil injections seems illogical and dangerous. The depots established by the lack of absorption of these drugs may, it is true, be a long continued source of mercury; but they constitute both a theoretical and a real danger by reason of sudden massive absorption, which may take place under trauma, etc. Cole reports that seventy-eight out of 108 fatalities due to mercury administration since 1883 were due

14. MacNider, W. D.: Study of Acute Mercuric Chloride Intoxication in Day, Reference to Kidney Injury, J. Exper. Med. **27**: 519 (April) 1918; The Susceptibility of Naturally Nephropathic Animals to Acute Mercuric Chlorid Intoxication, J. M. Res. **39**: 461 (March) 1919; Elimination of Phenolsulphonephthalein in Acute Mercuric Chloride Intoxication, Proc. Soc. Exper. Biol. & Med. **18**: 73. 1920.

15. Legales and Duperoy: Sur l'elimination du mercure par la glande mammaire, Tr. XIII Internat. Cong. Med., Paris, 1900, p. 393.

16. Vecki, V. G.: The Use of Intravenous Injections of Mercuric Chlorid in the Treatment of Suppurating and Infectious Diseases, J. A. M. A. **72**: 1596 (May 31) 1919.

to insoluble drugs, thirty-one of the fatalities being due to mercurial oil. Salicylate is quickly absorbed and is excreted with great rapidity, and probably a large part of it is never broken down to give mercury action. This drug appears to be only a feeble mercurial. The soluble salts are quickly absorbed and easily controlled, but painful when given by intramuscular injection.

Intravenous administration suggests itself as a method of eliminating some of the objections to the other methods. However, it presents some danger perhaps from embolism, although many thousands of injections of the cyanid are reported to have been given in the French army without serious accidents. The mercuric salts are very prone to obliterate the vein used for injection. Nixon [17] has suggested that this can be avoided by withdrawing blood into the syringe in which the mercuric chlorid solution is contained, causing thereby a precipitation of the albuminate, which, being soluble in an excess of serum, is redissolved when more blood is withdrawn and mixed with it. Then the whole amount may be injected without causing any obliteration of the vein.

Various protected colloidal compounds have also been recommended for intravenous use. However, Dr. Hanzlik [7] has expressed himself as not being convinced that the claims of their proponents for utter innocuousness and high effectiveness are altogether justified. Colloidal metallic mercury itself has been recommended for intravenous use. There would seem to be some dangers attached to it from possible embolism, etc.

CHEMOTHERAPY OF MERCURIAL COMPOUNDS

The most interesting recent work with mercury has had to do with the development of new synthetic compounds, designed to reduce the toxicity and preserve the desired effect, in the manner in which arsphenamin was brought out. This work has already resulted in the production of a number of useful drugs, among which may be mentioned mercurophen, mercurochrome-220 soluble and flumerin. The method used by Hill and Young [18] in testing these new mercurials, and incidentally all the old compounds, is a highly commendable one, and more drugs should be subjected to it. It consists in determining the amount and dosage of a drug that is necessary to render the regional lymph nodes in a syphilitic rabbit noninfectious, and is correlated with observations on the course of the testicular lesions that are produced experimentally. It is possible that the next great advances will be along the lines of these synthetics.

17. Nixon, P. I.: The Administration of Mercuric Chlorid, J. A. M. A. **66**: 1622 (May 20) 1916.

18. Hill, J. H., and Young, H. H.: Experimental Studies with Mercurials in Experimental Syphilis, Especially as to Flumerin, J. A. M. A. **80**: 1365 (May 12) 1923. Young, H. H.; White, E. C., and Swartz, E. O.: A New Germicide for Use in Genito-Urinary Tract: "Mercurochrome-220," J. A. M. A. **73**: 1483 (Nov. 15) 1919.

EFFECTS OF TREATMENT ON BONE LESIONS IN CONGENITAL SYPHILIS *

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The most common and characteristic bone change found in the syphilitic fetus and in the new-born infant is osteochondritis syphilitica, first described by Wegner [1] in 1870. The findings of Wegner were later confirmed by Waldeyer and Köbner, Parrot, Birch-Hirschfeld and others.

The frequency with which this change is found by various observers varies from 70 per cent. (Awsitidijski) to 93.4 per cent.[2] In roentgenographic examination of 100 supposedly normal infants, Shipley [3] and his co-workers found fifteen with advanced syphilitic osteochondritis, ten with less marked signs of syphilitic involvement, and twenty-one with changes from the normal which strongly suggested syphilis.



Fig. 1 (Case 2).—Appearance of bone lesions at age of 2 months, before treatment.

Thoenes,[4] in a series of forty cases of congenital syphilis, found some signs of osteochondritis in thirty. In two of the cases there were, in addition, periosteal changes.

Osteochondritis has always been regarded as of intra-uterine origin. Taylor's contention that it might occur in very early acquired syphilis has not been accepted. It is essentially a disorder of the long bones, but it may be found in any bone having endochondral development, although in the flat bones it is rare. It is best seen in the fetus or in the infant under 3 months of age. After three months it begins to disappear, even in the absence of treatment. The ephemeral character of osteochondritis suggests that it is a secondary syphilitic process rather than a tertiary one. The lesions undergo complete healing and leave scarcely a trace. Periostitis and gummatous processes occur later in life, although Orth described a gummatous lesion in the diaphysis of a 3 months old infant, and Ahrens [5] found total necrosis in the tibia of an infant 3 weeks old. These changes are essentially tertiary in character, and are much more lasting in their effects and are much more resistant to therapy.

According to Frangenheim,[6] Wegner originally described three stages in the process of formation of

* Read before the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Dermatology and Syphilology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Wegner: Virchows Arch. f. path. Anat. **50**, 1870.
2. Orth: Unna's Festschrift, Dermatologische Studien **20**: 1-12, 1910.
3. Shipley, Pearson, Weech and Green: Bull. Johns Hopkins Hosp. **32**: 160 (May) 1921.
4. Thoenes: Arch. f. Kinderh. **70**: 252, 1922.
5. Ahrens: Berl. klin. Wehnschr. **47**: 2032, 1910.
6. Frangenheim: Die Krankheiten des Knochensystems im Kindesalter, Stuttgart, Enke.

osteochondritis. In the first stage the calcified zone between the epiphysis and the diaphysis becomes widened to a breadth of 2 mm. as a white or pink line. In the second stage this may become increased to 4 mm. Necrosis of the bony trabeculae occurs, owing to ingrowth of tongues of calcification. In the third stage the periosteum and the perichondrium become thickened in the epiphyseal region in a manner suggesting the findings in rickets. Separation of the epiphysis from the diaphysis, as first described by Parrot, frequently takes place along the line of necrosis, and pathologic fracture may result.

According to Shipley, the bones most commonly affected are, in the order of frequency, the lower end of the femur, the distal and proximal ends of the tibia, the distal ends of the radius and ulna, the extremities of the metacarpals, the proximal ends of the phalanges, and the proximal ends of the ulna and radius. Thoenes in the main agreed with these findings, except that in his series the distal epiphyses of the radius and ulna were more frequently involved than were the distal ends of the tibia and fibula.

Our material consists of roentgenograms of the long bones of eighteen congenital syphilitic infants. In all of these there were characteristic changes, chiefly of osteochondritis. Owing to lack of funds, we were unable to carry out more extensive roentgenographic studies. Nine of the infants had symptoms referable to bone disease, such as swelling of a joint of an arm or leg, tenderness of the shaft, pseudoparalysis of Parrot, or pain on handling.



Fig. 2 (Case 2).—Appearance of bone lesions at age of 4½ months, after treatment.

The usual course of treatment consisted of from six to eight weekly injections of neo-arsphenamin, intravenously or intramuscularly, in doses up to 0.15 gm., followed by eight to ten weekly intramuscular injections of mercuric salicylate in oil, in doses of from one-fifth to one-third grain (0.013 to 0.02 gm.). This course was followed by a rest from treatment for from three to five weeks, and then the Wassermann test was made and the course was repeated.

The symptoms of the bone lesions decreased after the first injection of neo-arsphenamin, and usually disappeared within a month. The pseudoparalysis, when of the true Parrot type, cleared up quickly; but when complicated by rickets, the recovery of normal use of the extremities was much slower.

As the roentgen-ray findings disappear in the absence of treatment, it is difficult to determine whether or not the improvement is more rapid with treatment. To do this would require a larger series of cases than we have followed. However, the improvement both in symptoms and in roentgen-ray findings dates from the beginning of antisyphilitic treatment, whether the child is 2 months or 6 months of age.

Under the treatment given, the roentgen-ray changes show a return toward normal. The shadow at the epiphyseal line becomes broader and less intense. Trabeculae reappear and become more dense in the area of decreased density on the narrow side of the epiphyseal shadow. Thus, the irregular density at the end of the bone gradually becomes more regular, and normal bone growth continues. The periosteal changes are slower to return to normal. However, within a few weeks the narrow, clear area between the cortex and the periosteum becomes less distinct. The longitudinal striations in the thickened periosteum become decreased in intensity and, last of all, the periosteal shadow becomes narrower. The finer trabeculation of these bones sometimes persists for several months. This may be due to an associated rickets. Mild rachitic symptoms were frequent in these cases of congenital syphilis and also more resistant than in nonsyphilitic infants to the usual methods of antirachitic treatment.

In older children, ranging in age from 3 to 15 years, the bone process noted is more often a periostitis with or without a definite gummatous osteitis. This is usually most prominent in the tibia, and results in deformities of the "saber tibia" type. This we consider a tertiary process, and the periostitis results in a bone sclerosis which we could not hope to modify much by antisyphilitic treatment. The symptoms, which consist of more or less definite "growing pains" or "rheumatic pains," mostly at night, and local tenderness, are promptly relieved by arsphenamin and sometimes by potassium iodid. When an active gummatous process is going on, antisyphilitic treatment can heal this process, but not to the point of producing a normal roentgen-ray picture, so far as our experience has gone.

REPORT OF CASES

The case histories here recorded serve to illustrate the symptomatology and the course of the early and later cases.

CASE 1.—P. W., a boy, aged 3 months, had had a swelling of the left leg and a maculopapular rash over the trunk since 3 weeks of age. The child was a well nourished infant with snuffles, enlarged spleen, left inguinal adenopathy and resulting edema of the left leg and scrotum. Incision was made into a fluctuating area in the left iliac region, and several ounces of staphylococcus pus was drained out, after which the inflammation and edema quickly subsided. The Wassermann reac-

tion was + + + on the infant and + on the mother. Roentgenograms showed a very distinct periostitis of the femur and tibia and a distinct line of increased density at the lower end of the tibia and fibula. The usual course of antisyphilitic treatment was given. After the first course at 7½ months, the Wassermann reaction was negative. At 9 months the roentgen ray disclosed a very slight periostitis, and the ends of the tibia and fibula were practically normal. At 1 year of age, after the second course of treatment, the Wassermann reaction was again negative, and the general condition was excellent except for mild rickets.



Fig. 3 (Case 3).—Appearance of bone lesions at age of 1½ months, before treatment.

CASE 2.—M. S., aged 2 months, cried when handled, and used the hands very little and the legs less than normal. Nursing was difficult on account of the snuffles. The spleen was enlarged; there was a fading pink maculopapular eruption with slight scaling on the extremities. The Wassermann reaction was + + + on the infant and on the mother. Roentgenograms showed a very marked osteochondritis and periostitis. After two weeks of antisyphilitic treatment the arms and legs were used much more freely. At 4½ months of age, the osteochondritis showed distinct changes toward normal, and the periosteal line was more definite and narrower. At 7 months, the Wassermann reaction was negative, and at 16 months was still negative after three and a half months without treatment. The general condition and development were excellent.

CASE 3.—J. T., aged 1½ months, had swelling and tenderness of the left elbow, and cried when handled, and especially at night. Examination showed snuffles, swelling and tenderness of the left elbow, with pseudoparalysis of Parrot. The other extremities were tender. On the soles of the feet there were copper colored macules, slightly papular, with fine scales in the center. The spleen and epitrochlear glands were palpable. The temperature was 101.6 F. (rectal). The Wassermann reaction was + + +; of the mother, + + +; of the father, negative. The roentgen ray showed very marked periostitis of the upper end of the radius and a line of increased density at the distal end of the radius and the ulna. Antisyphilitic treatment was started as outlined. In one week the left arm was being used more and the crying was less when the infant was handled, and in one month the left arm was being used almost as freely as the right. At 3½ months of age, the density of the lines at the epiphyseal junction was decreased. At 6 months, the Wassermann reaction was negative. At 1 year, the osteochondritic changes had disappeared and only slight periosteal thickening of the radius still persisted. At 18 months, the Wassermann reaction was still negative.

CASE 4.—M. H., aged 6 months, seemed to have pain on handling, especially if the arms and legs were handled. This had been present since 2 months of age. At the onset the joints were swollen and tender. There was a generalized rash soon after birth. At the time of examination there was a palpable spleen; the epitrochlear glands were palpable, and there was a scar of a large, recently healed lesion on the buttocks, 3 or 4 inches in diameter, which had been ulcerated. The ankles and the right elbow were enlarged and slightly tender. The Wassermann reaction was + + + on the infant and on the mother. The roentgen ray showed very marked osteochondritis and some periostitis. Antisyphilitic treatment was started. At 9 months the child was much stronger; the osteochondritis was much improved, and the periostitis was somewhat improved. At the end of the first course of treatment, which was very irregular, at the age of 16 months, the Wassermann reaction was negative.

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CASE 5.—D. E., aged 13 months, had had antisyphilitic treatment previously in the clinic for two years, and the Wassermann reaction changed from + + + to +. At the end of a course of mercury treatment, the patient complained of occasional pains and tenderness along the tibias. Roentgenograms showed some periosteal and cortical thickening of the tibias. Potassium iodid, 10 grains (0.65 gm.), three times a day, was given, and the pain and tenderness were relieved within a few days.

CASE 6.—B. B., aged 18 years, had had pains in the legs since 9 years of age. Swelling over the tibias was noticed for five or six years. The tibias were very irregular and tender. Roentgenograms disclosed gummatous osteitis and periostitis of the tibia and fibula and less of bones of the forearm. The Wassermann reaction was + + +; the mother had previously had treatment. Mercury rubs that were given to the patient a year before did not affect the pains. Neoarsphenamin and potassium iodid were started. In one week there were no more pains; and there was no more tenderness after three weeks. Some swelling of the soft tissues decreased, but the roentgenograms show slight, if any, change after one course of treatment. The Wassermann reaction is still + + +.



Fig. 4 (Case 3).—Appearance of bone lesions at age of 3½ months, under treatment.

CASE 7.—P. D., aged 11 years, had had pain and swelling of the left tibia for seven months. The epitrochlears were palpable. There was anterior bowing of the tibia in the middle third, and more of the left leg. A roentgenogram disclosed anterior bowing and thickening of the cortex of both tibias. The Wassermann reaction was + + +. One neo-arsphenamin injection was given, and potassium iodid was started. One week later the pain had practically ceased. A second injection of neoarsphenamin was given, and a week later there was no more complaint of pain and no tenderness on pressure.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SOLOMON, LEE, AND SUTHERLAND AND MITCHELL

DR. HARRY E. ALDERSON, San Francisco: Drs. Mitchell and Sutherland's visualization of the bone changes produced by the disease and by therapy makes it evident that routine roentgen-ray examination should be made in all these cases.



Fig. 5 (Case 4).—Appearance of bone lesions at age of 6 months, before treatment.

Dr. Lee's presentation of authoritative information on a very old subject is most interesting, instructive and timely, for there is probably no other subject concerning which there are more false and unfounded ideas. As a member of the California State Board of Medical Examiners, I am well aware of this. We have made it a practice to ask questions on syphilis at each oral examination. After hearing a few hundred candidates answer these questions one is not surprised that there are so many cases of visceral syphilis that go unrecognized and untreated until serious complications develop. As Dr. Solomon stated in his paper, central nervous system complications may arise at any stage. He brings up most interesting questions concerning the patient's resistance and means of increasing it. The danger of overwhelming this by too intensive treatment must not be forgotten. At the same time, it must be remembered that central nervous system involvement is very apt to be a result of inefficient early treatment, so that the best treatment of central nervous system syphilis is prompt, judicious therapy instituted at the time of recognition of the primary lesion. Although methods differ, the kind of early intensive treatment administered varying with the specialist, I believe that the end-results are about the same, provided that the active therapy extends over two years, in early cases, and one is guided by the results of careful examinations at frequent intervals. It should be our aim to give several courses of arsphenamin and mercury, together or alternately, during the first year, the size and frequency of the dose being determined by the patient's tolerance or by complications. No set schedule of dosage should be outlined, for the treatment should be individualized.

DR. ERNEST DWIGHT CHIPMAN, San Francisco: I feel very strongly on the question of congenital syphilis because in our textbooks there is a deplorable lack of matter concerning this phase of the disease. Among the recent books, that of Hazen has a comprehensive chapter, and Stoll of Hartford two or three years ago published an article on late hereditary stigmas which should stimulate further investigation.

DR. L. G. ROWNTREE, Rochester, Minn.: A great service can be done to medicine, as a whole, through the work of the syphilologists if they will give attention to the action of drugs in cases of neurosyphilis and publish their findings. In many instances it is difficult to be certain whether or not the condition that arises is the result of syphilis or of treatment. Dr. McFarland, in Dr. Stokes' department in Rochester, has recently carried out what I believe to be the most practical investigation in this regard, and has shown that in the majority of cases the danger to the kidney in the use of mercury has been overestimated. Dr. McFarland has studied this problem, using hundreds of controls, and has found that only rarely, and then when treatment has not been employed advisedly, has any danger been encountered. This I believe to be a very important consideration. In the same general connection, I think we should have more information in regard to hepatitis. Many cases of jaundice are arising throughout the country and in case any treatment for syphilis is being administered the jaundice is frequently ascribed to the arsphenamin. Dr. Stokes has proved that in many instances



Fig. 6 (Case 4).—Appearance of bone lesions at age of 9 months, under treatment.

this jaundice is an expression of infectious hepatitis rather than of toxic hepatitis. We should all study the effect of endocrine therapy in the treatment of syphilis. We have had two very interesting cases this spring, one a case of Addison's disease in which every treatment was followed by distinct exacerbation of all the symptoms, and this could be prevented absolutely by the simultaneous administration of epinephrin.

DR. CHARLES L. RYBKE, Portland, Ore.: Dr. Solomon has called attention to the cases in which a positive Wassermann reaction occurs for thirty or forty years, in fact during the lifetime of the patient. Would he treat them with no syphilis evident?

DR. WALTER V. BREM, Los Angeles: As to the value of the quantitative Wassermann reaction as a guide to treatment, the diagnostic test is made with a 1:5 dilution of the serum. If no quantitative test is made, the patient may be treated for several months and the serum reexamined and still give a 4 plus reaction, and the patient is said to be "Wassermann-fast." If the serum had been titrated it might have given a reaction in a 1:100 dilution or even more. In a later test the titer may have been reduced to a 1:20 dilution, and still the routine (diagnostic) test would show no change. However, the actual condition would be that the Wassermann reaction is reduced in strength approximately 80 per cent., and we believe that that means that the treatment has been effective to a great degree. If we find that the Wassermann reaction is not decreased in intensity, then we can vary our method of attack. I feel that this is a very important point in the guidance of treatment, and it is one on which Dr. Kolmer has laid stress in the description of his new test.

DR. SOLOMON SOLIS-COHEN, Philadelphia: Regarding the question of the use of mercury, we do not know how mercury cures in cases of syphilis, but it does, and it did before Ehrlich or any of the rest of us were born. When arsphenamin was discovered it was supposed that one injection would effect a cure in every case of syphilis, but very soon we found that this led to disaster. That disaster was overcome by the association of the old mercurial treatment with the new arsenical treatment, and that is the only method of attacking this disease.

DR. FRANK W. CREGOR, Indianapolis: If we take into consideration the vast capillary dilatation that results from physical exercise, we should put our patients at the greatest possible physical rest at that stage of the disease when the spirochetes are being distributed to every part of the body. At that time we are employing our most intensive treatment, and we can limit distribution by rest. I protest against the use of the words "potassium iodid." I am a free user of the iodids and especially of sodium iodid. If we follow the teaching that potassium salts are irritating to the kidneys and depressing to the myocardium and that the sodium salts are just as efficient, why would any one employ potassium salts in preference to sodium salts?

DR. HAROLD N. COLE, Cleveland: The work recently done by Finger and some of the German dermatologists last year is very important. Finger has been trying to show just when the central nervous system of the patient is invaded by syphilis and he has been collecting a series of cases in which they have done lumbar puncture over a period of five years. He found in a series of 3,000 cases that invasion of the central nervous system took place in most cases within the first year of the disease. If that is true, and I am inclined to think that it is, routine lumbar puncture should be done, just the same as we make a Wassermann test, and if these patients exhibit no involvement of the central nervous system we can be fairly sure that they will not develop tabes or general paralysis in the future.

DR. ARTHUR M. ROGERS, Los Angeles: Clinicians who depend somewhat on the laboratory for guidance in treatment have many problems, and some better method of reporting the findings of the laboratories should be devised. We want a report that is definite in meaning and findings. If they tell me that my report after six months' treatment of the patient is exactly the same as at the beginning of the treatment I wish to know whether they mean that or whether they mean, as Dr. Brem said that it is 90 per cent. better.

DR. PAUL J. HANZLIK, San Francisco: Dr. Lee mentioned some of the preparations of mercury tested by Dr. Karsner and myself. These were colloidal preparations. The proteins used as protectives had definite effects when injected systemically. It was found that those compounds which were protected by lysalbinate prolonged the coagulation time of the blood. There were injurious effects on the tissues as indicated by the presence of congestion, hemorrhages and thrombi or emboli, even after the administration of subfatal doses. Some of the preparations were more toxic than the protective envelop itself, indicating that the mercury compound was responsible. These preparations are not altogether devoid of toxicity, and they should be used cautiously, if at all.

DR. W. J. WALLACE, Oklahoma City: Will Dr. Lee tell us of his experience with mercury in cases of neurosyphilis? Will Dr. Solomon tell his dosage and describe the method he uses in giving mercury intraspinally?

DR. CARY EGGLESTON, New York: The question has been brought up as to the choice between sodium and potassium iodid. I believe this is a considerably more difficult problem than merely whether we should select the cheaper salt or the one that is theoretically best borne by the host, sodium iodid. It has been shown in work from the Mayo Clinic that when potassium iodid is given by mouth it inaugurates some definite chemical change which results in the formation in the blood of a sodium-protein compound which is quite different from that formed in the blood by the oral administration of sodium iodid. The statement is often repeated that since potassium salts are depressing to the heart we should give preference to sodium salts. There can be no question about the depressing action of potassium salts on the heart in perfusion experiments, but the important fact which is overlooked is that potassium is so extremely rapidly eliminated from the human body that it is almost impossible to poison the heart by its salts administered orally. We have lost sight of the fact that fifteen years ago it was not uncommon to see patients who were consuming as much as 400 or 500 grains of potassium iodid daily without cardiac depression. We now think that that was an unnecessary waste of potassium iodid; that if results are not secured with 60 or 90 grains a day we had better give up the drug.

DR. SAMUEL AYRES, JR., Los Angeles: I should like to know whether any one has had any experience with tryparsamid.

DR. JEFFREY C. MICHAEL, Houston, Texas: Dr. Cole brought up an important point. Will Dr. Solomon tell us, as nearly as he can, what we are justified in telling our patients about the prognosis of neurosyphilis from the spinal fluid findings? That is, if a patient at the end of the first year of the disease has negative spinal fluid findings, what can we tell him as to the possibility of his developing neurosyphilis later?

DR. JAMES HERBERT MITCHELL, Chicago: The work of Shipley and his co-workers on osteochrondritis syphilitica started us on our work. It is well known that the Wassermann reaction is frequently negative in the patient with congenital syphilis in the first few weeks. Osteochrondritis syphilitica, however, is best seen in the fetus or immediately after birth. The bone changes in rickets are somewhat similar but they do not develop until some months after birth. Therefore, the roentgen-ray examination of the long bones is probably the most valuable method of diagnosis of congenital syphilis at the present time.

DR. R. V. A. LEE, San Francisco: We have used mercury intradurally in a large number of cases with results which have been very good in general. Simultaneous use of mercury and arsenic does not cause irritation of the kidneys when they are not diseased, when the drugs are used in the ordinary clinical way. Drs. Hugh Young and Justine Hill have tested the curability of syphilis by the use of mercury by producing chancres in rabbits and determining with what doses regional lymph nodes could be made noninfectious. In the matter of polydrug treatment, in general many diseases are cured more rapidly when two drugs are used simultaneously than when one is used alone. There is no reasonable basis on general grounds why mercury and arsenic should not be used simultaneously.

DR. ALBERT KEIDEL, Baltimore: About the differentiation of jaundice in treated cases: We have no means of differentiating jaundice occurring during treatment because until recently methods of studying the effect of arsphenamin and mercury on the liver have not been available. Dr. Rosenthal, in the

department of pharmacology, has been investigating some of our cases with a kidney-liver test. It is too early to say anything definite, but in some instances the liver has been damaged to as high as 25 per cent., and in one such case treatment was continued without interruption with no untoward symptoms. Referring to what Dr. Brem said about the high titrate or the low titrate, I wish to say that it is still a positive Wassermann reaction, and we are not saying anything about the degree of titer. In my opinion, a positive Wassermann reaction, whether high or low titer, means virtually the same thing. It is my observation that when patients receive treatment at repeated intervals every week and a Wassermann test is made it is possible to note that early in the treatment in early syphilis there is a very profound diminution in the titer in the positive Wassermann reaction. In some instances this will occur throughout 75 points in the titer. I was pleased to hear Dr. Cohen say that we should treat syphilis in the patient because I do think there are certain general dicta which we can express in regard to the treatment of syphilis. One is that it must be continuous and it must be effective. It must be continued over a considerable period of time, but I cannot agree with Dr. Cohen as to the length of time. I think it would be unwise to subject these patients to the drudgery of routine treatment throughout their lives. I have no doubt that there are cases that are never cured but I think they are apparently in the minority. In reviewing our cases we are convinced that those patients that are adequately treated are cured within one or two years of the treatment. I mean by that that the Wassermann reaction has been reversed and that there is nothing to indicate that they are still syphilitic. Dr. Cregor spoke of exercise at the time of the general dissemination of the infection. I had not thought of that before, but the only thought that occurs to me now is that the general dissemination of the infection is accomplished at the time we recognize the disease, or make the diagnosis. It has not, of course, reached its peak but it has occurred. I agree with what Dr. Cole said about routine lumbar punctures. We have made a puncture in every case in our clinic, and in practice and in this way can show that in 20 per cent. there are abnormalities in the cerebrospinal fluid. It has been shown by other workers that all spinal fluids that are free of these abnormalities are not infectious. Animal inoculation has proved that they are not. Some one spoke of tryparsamid. It is of no value in early syphilis, as it has no influence on the blood or Wassermann reaction. For some reason it does have a very beneficial effect in late neurosyphilis. As to prognosis, in a patient whose fluid was negative after treatment lasting a year I think we might answer in this way: We were unsatisfied on that point and so made repeated examination of patients who had been treated and almost always those cases that were negative when treatment was begun were still negative, except two cases, and those had bone lesions of the skull and we had reason to believe that the nerve centers had been reached in that way. It is fair to believe that those patients with negative spinal fluid before treatment will be negative afterward. We have given a great many doses of flumerin, and have proved that it does kill spirochetes.

DR. HARRY G. IRVINE, Minneapolis: About the quantitative test, we have recently studied several thousand tests with the Kolmer reaction and at the same time have taken blood from the same patient daily for a period and tested the same blood over periods of time. The quantitative test and the routine test both show a certain amount of variation. It is not possible to draw too definite conclusions from a single positive Wassermann reaction one way or another. I agree with Dr. Keidel that a positive Wassermann reaction means positive syphilis, but we should be sure that it is a positive Wassermann reaction, and that can only be done with very careful technic. Our work showed a great deal more reliability in the Kolmer test than in the test with cholesterolized antigen. The Kolmer antigen and the cholesterolized antigen showed a disappearance of the positive reaction much more slowly than the routine test. The Kolmer test shows an early infection much sooner than the routine test and it is an important contribution to our work.

DR. H. C. SOLOMON, Boston: The positive Wassermann reaction is an indication that the patient has syphilis, but it needs a good deal of clinical checking. If a patient has no evidence of syphilis except the positive Wassermann reaction, then the question as to whether to treat that syphilis depends on the patient. If he is in the twenties or thirties, and it is reasonable to believe that he has syphilis, and if one can treat that patient for a certain period of time, I believe that patient should be treated. There is good evidence if there is a positive Wassermann reaction that the patient has syphilis, and in a young person there is a good chance of developing syphilis. A little treatment is dangerous, and unless a patient can be treated sufficiently I think he should be left alone. If a man is 50 or 60 and has had syphilis for thirty or forty years let us assume that he can go another thirty or forty without treatment, and that is long enough. I think we have to consider the individual, as has been indicated. About the quantitative Wassermann reaction, when we have one test it is not very satisfactory, but if we do as Dr. Keidel has indicated—take a test every time an intravenous injection is given, once or twice a week, it is very important to have this test. If one is going to pay any attention to a Wassermann test, why take a test once in six weeks or six months and be excecdingly depressed when one finds it is positive or elated when it is negative? One does see a variation in the course of months and if one sees that, it is encouraging. In the spinal fluid examination also, titration is very helpful. If we start with a postive Wassermann reaction in 5 : 100 and begin to get it negative in 0.2 c.c., we know we are getting to where we can prognosticate that things are going on well, whereas if there is no change in several months we had better follow another method. In the spinal fluid this is very helpful. Dr. Cole struck the keynote of what is one of the most important things in neurosyphilis, and that is lumbar puncture. About 20 per cent. of these patients suffer with neurosyphilis; and if that 20 per cent. had treatment from a physician who should be capable of treating syphilis, much should be accomplished, yet they develop central nervous system syphilis. The symptoms appear late, but the spinal fluid in the majority of cases is positive early. If one will do a Wassermann test on the cerebrospinal fluid, the treatment can be checked by the examination of the fluid just as we check the systemic treatment by the blood Wassermann reaction. If at the end of six months or a year it is still positive when it was positive in the beginning, that patient is not getting the proper treatment, no matter what it is. In the majority of instances the most intensive treatment has not been given. I think there is no question about the fact that in the majority of instances in which at the end of six months the spinal fluid is negative, that patient will not develop severe central nervous system syphilis. There are exceptions. In one case that I recall in which the cerebrospinal fluid was negative at the end of one year, six years later it was positive. I believe, however, that if we see a patient with a negative cerebrospinal fluid and it still remains negative after six months, the chances for the development of central nervous system syphilis are remote, and then we can follow up the case.

Edema.—While the significance of salts in the development of edema has attracted the attention of investigators for a considerable number of years, the conception that hormones may also play a part in this process is of more recent origin and it is mainly to the investigations of Eppinger that we owe this addition to our knowledge. Eppinger found that in many cases of edema, especially in edema due to the so-called myodegeneration of the heart, to nephrosis, acute and subacute nephritis and chronic nephritis—provided in the latter cardiac symptoms are not yet threatening, and the nonprotein nitrogen in the blood is still relatively low—the administration of thyroid gland may lead to the discharge of edematous fluid even in cases in which other modes of treatment are ineffective. In normal individuals thyroid does not act as a diuretic, neither does it strengthen the effect of caffein, but following oral or subcutaneous injection of water or sodium chloride solution thyroid administration causes a more rapid elimination of both of these substances.—Leo Loeb.

THE TRIGON SURGICALLY CONSIDERED

ITS PATHOLOGY, A NEW METHOD OF DIAGNOSIS, AND ITS OPERATIVE MANAGEMENT *

ERNEST M. WATSON, A.M., M.D.
BUFFALO

Changes in the trigon, while they have been observed from time to time, have not received the careful study that is due a condition of such functional importance.



Fig. 1.—Necropsy specimen of greatly hypertrophied trigon secondary to an enlarged prostate and a thickened bladder: *A*, hypertrophied and greatly elevated trigon (interureteric ridge, or Mercier's bar); *B*, *B*, lateral prostatic lobes greatly enlarged etiologically responsible for the secondary trigonal hypertrophy; *C*, middle lobe of prostate.

The fundamental work of Wesson [1] has done much to clarify our views regarding the development and function of the trigonal muscle. More recently, Young and Wesson [2] have given us the only study in English of the clinical pictures and operative management of trigonal obstruction.

A search of the literature has failed to give any information regarding the detailed pathology of these so-called obstructive or hypertrophied trigons, yet the rather infrequent enlargement of the subtrigonal or Holmes group of glands, while of only occasional clinical interest, is now rather generally recognized on cystoscopy and its operative removal well understood. The condition of the trigon to be considered here is that form of trigonal enlargement giving a greatly hypertrophied and elevated interureteric ligament, or Mercier's bar, which enlargement produces a bas-fond beyond it containing a varying amount of residual urine—a condition amenable only to surgical treatment. Trigonal changes of this character are, I believe, more frequent than is generally recognized. From our present knowledge, we must look on them as a condition secondary to obstructive lesions along the lower urinary tract; namely, urethral strictures, median bar formation, and prostatic hypertrophy. Corbus and O'Conor [3] have reported a similar condition in certain cases of tabetic bladder, though such a lesion usually gives a trigon and interureteric ligament of normal size, or one that is atrophic. Superimposed infection seems to be a definite augmenting factor in these cases prone to undergo trigonal hypertrophy. The presence of the primary obstructive lesion can usually be demonstrated at the time the secondary change in the trigon is recognized. However, in one case studied the patient had a residual urine of 150 c.c. contained in a bas-fond beyond the trigon, and symptoms of dysuria and frequency persisting for ten years after a punch operation for median bar obstruction, with no sign of median prostatic obstruction existing at the present time. One other case presented an appreciable residual urine with its associated clinical symptoms after prostatectomy, which residual urine was found to lie in the bas-fond beyond a trigonal bridge.

From the material studied, it has been possible to group the pathologic changes of trigonal obstruction in three divisions: (1) a simple muscular hypertrophy; (2) a muscular hypertrophy associated with hypertrophy of the subtrigonal gland tubules, and (3) a type of "dissecting trigon" without hypertrophy of any sort, either muscular or glandular.



Fig. 2.—Dorsal surface of middle portion of trigon and interureteric ligament; hypertrophy of Type 1 (operative specimen): *A*, upper portion of trigon (hypertrophied interureteric ridge); *B*, apex of trigon.

In the simple hypertrophy type, the trigon grossly is everywhere thickened. Its surface is usually somewhat puffy and edematous, but smooth, and over it there is a generalized process of hyperemia. The interureteric ligament, or Mercier's bar, is especially prominent. It stands up like a dividing ridge, and may measure 2.5 cm. in height and 2 cm. in thickness, as in one specimen studied. This dividing ridge, or bar, is seen to originate from each upper extremity of the trigon, and on its distal portions are situated the openings of the ureters, which are usually more puffy and edematous than normal. The microscopic study of sections of this type of trigon removed at operation shows that the mucosa is somewhat thickened and its surface thrown into numerous fine folds. Beneath the mucosa there is encountered a varying degree of round cell infiltration denoting a definite reaction to infection, and this would appear to be of rather

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* Read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Wesson, M. B.: Anatomical, Embryological and Physiological Studies of the Trigon and Neck of the Bladder, J. Urol. **4**: 279-316 (June) 1920.

2. Young, H. H., and Wesson, M. B.: The Anatomy and Surgery of the Trigon, Arch. Surg. **3**: 1-37 (July) 1921.

3. Corbus, B. C., and O'Conor, V. J.: The Tabetic Bladder from the Standpoint of the Urologist, J. A. M. A. **79**: 1750 (Nov. 18) 1922.

long standing. The round cell invasion is usually quite superficial. The blood vessels are fairly numerous, especially as the region of the lower fourth of the trigon is reached. Some of the more superficial vessels have about them considerable round cell infiltration. Beneath the barrier of round cell infiltration, there is considerable loosely placed fibrous tissue, which is distributed well down to the base of the trigon or the beginning of the true bladder muscle. In the upper portion of the trigon, in the region of Mercier's bar, there are numerous hypertrophied muscle bundles, which run transversely or nearly so; while, as the central and apical portions are reached, the muscle bundles are more longitudinal and less given to hypertrophy.

The second type of trigonal enlargement is one of a muscular hypertrophy associated with an increase in the size and number of the subtrigonal gland tubules and those accessory to them. In the gross, the trigon of this type is similar to that in the first group, but its surface is a little more irregular and it is less likely to

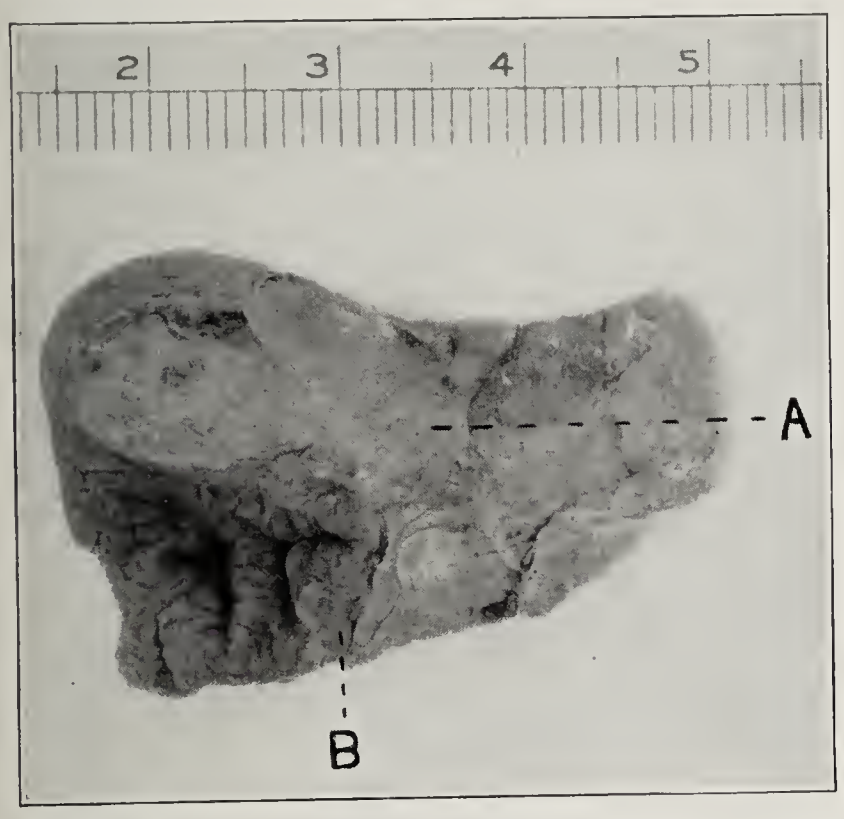


Fig. 3.—Lateral view of specimen in Figure 2: *A*, cut surface of thickened muscle; *B*, mucous membrane extending far beneath the trigon into a true bas-fond.

be an asymmetrical organ. The glandular elements, however, do not appear to reach the size and shape characteristic of the subtrigonal hypertrophy usually attributed to the Holmes group, and never do they become definite lobes projecting into the bladder. In the specimens studied, the glandular hypertrophies have occupied the upper third of the trigon usually far beneath the interureteric ligament, and situated almost on the true bladder musculature. In their location thus described, the tubules appear to have a different site than the typical Holmes group, which are usually encountered in the lower third of the trigon just within the vesical orifice. In this group, also, a thickening of the mucosa with round cell infiltration usually in the superficial areas is encountered. Trigons of the two types just described have been encountered secondary to urethral stricture and median prostatic bar formation, and in such cases there has been a long existent cystitis with pus and organisms present in the bladder urine.

The third type of obstructing trigon, the mechanically dissecting trigon, may be without appreciable muscular hypertrophy, with no glandular elements present and with no evidence of round cell infiltration. It would appear that this type is less common, less prone to assume the large dimensions of the two preceding, and without a very great increase in its size. In the gross, this type of trigon exists as a thin ridge. The organ is not puffy or edematous, and it appears in the bladder as a thin membrane, which is more undermined than the two groups just described. Trigons of this type have been encountered in cases of prostatic hypertrophy of long standing, but without infection present in the bladder urine for any length of time.

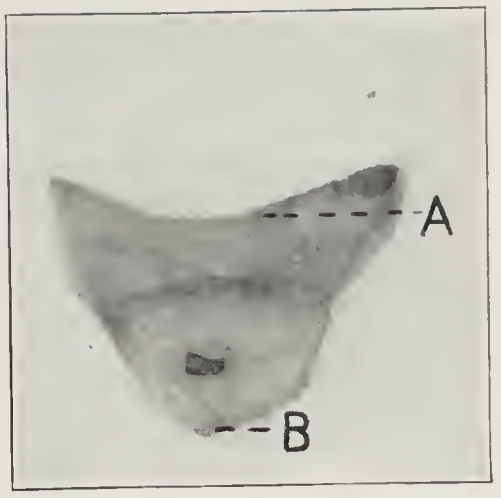


Fig. 4.—Dorsal surface of middle portion of trigon and interureteric ligament, dissecting trigon (operative specimen): *A*, upper surface in the region of the interureteric ligament not appreciably hypertrophied; *B*, apex of trigon.

The diagnosis of the true hypertrophied type of obstructing trigon is not always an easy matter. On cystoscopy, the greatly enlarged interureteric ligament can readily be seen; but often on a little further observation this obstructing bar not infrequently may change in its shape and prominence, depending on any straining by the patient. Often the straining may not be observed by the examiner, and the more or less involuntary resistance of the patient is noted only by this changing prominence of the interureteric ligament. On observing this interureteric pull further, it is seen that the sides of the bladder may be drawn in toward the median line. The morphology of the bladder then suggests somewhat the hour glass outline, which observation has been noted by Young and Wesson;[2] and, as has been further stated by Young, in one case in which a diverticulum was present associated with what appeared to be a hypertrophied and obstructing trigon on cystoscopy, it was planned to divide this trigon at operation. At operation, however, the diverticulum

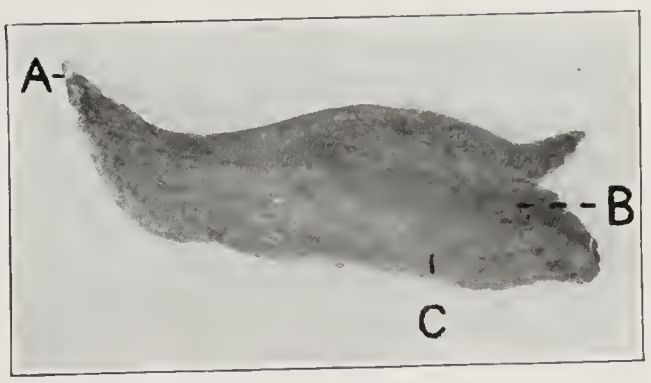


Fig. 5.—Lateral view of specimen in Figure 2: *A*, apex of trigon; *B*, region of interureteric ligament; *C*, cut edges of muscle fibers (not hypertrophied).

was removed, but the trigon on palpation appeared only moderately enlarged, and the interureteric bar was not an actual obstructing element. Reference is made to this observation to make us realize the difficulty of making an accurate diagnosis. It shows that an apparent obstructing interureteric ligament should be established as a real pathologic obstruction before any operative therapy is instituted.

The somewhat suggestive hour glass outline can be noted on cystoscopy in cases of true trigonal obstruction. It has been found that this form is present, however, only when the bladder is partially filled with fluid and the interureteric bar is not in this way put on a



Fig. 6.—Transverse section through the trigon; Type 1 hypertrophy (operative specimen): *A*, floor of bladder beyond the trigon (bas-fond); *B*, apex of trigon; *C*, elevated trigonal ridge (interureteric ligament, "Mercier's bar"); *D*, hypertrophied muscle bundles.

stretch. In these cases it has been further noted that this trigonal pull from either side is overcome entirely when the fluid is allowed to run into the bladder through the irrigating cystoscope until the bladder is filled to its capacity. The disappearance of the somewhat characteristic hour glass outline on distention suggested that a cystographic study of this condition should be of value. Corroborating the cystoscopic impression in these cases of true obstructing trigons, we have been able to demonstrate the suggestive hour glass form when the bladder is only partially filled with a shadow-casting fluid. In accomplishing this, we have first determined the bladder capacity with sterile water, then filled the bladder two thirds full of sodium iodid, and taken a cystogram. As a further step in the verification of our cystoscopic findings, we have filled the

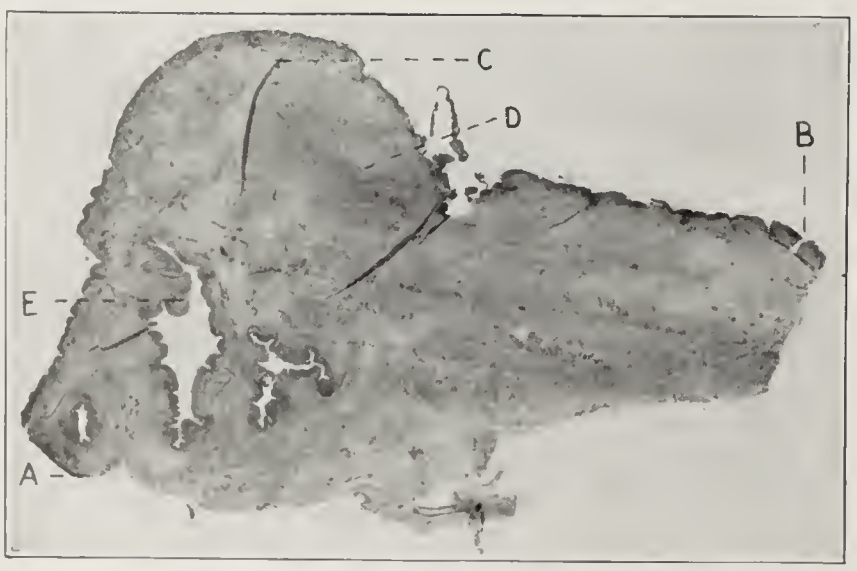


Fig. 7.—Transverse section through the trigon; Type 2 hypertrophy (operative specimen): *A*, floor of bladder beyond the trigon (bas-fond); *B*, apex of trigon; *C*, elevated trigonal ridge (interureteric ligament, "Mercier's bar"); *D*, hypertrophied muscle bundles; *E*, hypertrophied gland tubules—probably accessory to those of the Holmes group (true Holmes tubules are situated much nearer the apex of the trigon).

bladder to its capacity and taken a second cystogram. The second view shows that the bladder outline is then spherical, and the lateral pull of the hypertrophied bar is obliterated. In the cases in which operation has been performed, a subsequent cystogram with the bladder two thirds full shows the bladder outline to be normal.

The method of management of the true obstructive trigon is entirely surgical. As the study of Young and Wesson points out, the trigon may be divided by suitable instruments entirely through the urethra, or may be similarly divided or partially excised through a perineal urethrotomy in the membranous urethra. Thirdly, it may be approached suprapubically, and either divided or excised. The last procedure is, to my mind, the method of choice. It insures perfect exposure, complete hemostasis (and the bleeding is considerable), and the sides of the trigon (Bell's muscle) need never be injured. It has been my practice to remove a wedge-shaped piece of tissue comprising about the middle third of the trigon, thus making the trigon remaining flat and on a level with the bladder floor. The cut edges on either side are always closed



Fig. 8.—Transverse section through the trigon; Type 3; dissecting trigon: *A*, elevated trigonal ridge (interureteric ligament not hypertrophied); *B*, apex of trigon; *C*, base of bladder beyond the trigon, site of a deep but narrow bas-fond (specimen partly broken in embedding and cutting).

by a continuous plain catgut suture to control bleeding, and the bladder closed about a drainage tube, which remains in place for a week or ten days.

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ABSTRACT OF DISCUSSION

DR. M. B. WESSON, San Francisco: It is generally accepted that trigonal hypertrophy is a clinical entity, and Dr. Watson has clearly shown that there is a pathologic basis for such a view. The only phase of the question on which there is any difference of opinion is the method of surgical treatment. After the cause of the urethral obstruction has been eliminated, the pouch beneath the trigon must be removed. Young's method is to cut Mercier's bar and extend the incision to the vesical orifice, leaving intact Bell's muscles. Last year we found in the clinic an hypertrophied trigon and beneath it an anomalous septum, which was removed along with the redundant mucous membrane, and the cut edges of the trigon were then reapproximated so as to restore Mercier's bar. I think this is the operation of choice as the pouch is removed, and the trigon restored to its original condition. The ideal striven for is to restore the base of the bladder to its normal condition.

Dr. C. E. Burford, St. Louis: I was anxious to see some pictures following operation to know whether after full dissection and reuniting there was still pull on the trigon, or whether that was done away with. This is something absolutely new. While we have recognized these things with the cystoscope, we have not seen any pathologic specimens presented before.

Dr. Terry M. Townsend, New York: Dr. Watson's paper strikes most forcibly all who deal with urinary obstruction. He clarifies a pathologic condition that undoubtedly may be and has been confused with the median bar, but the relief of which cannot be accomplished with any punch operation with which I am familiar. I have now in mind patients on whom I have performed multiple operations in the endeavor to relieve their urinary obstruction but who are still carrying residual urine, so far as I know. I believe they suffered from a surgical condition of the trigon and could have been cured by the operative measures outlined by Dr. Watson.

Dr. Oliver Lyons, Denver: I had occasion to operate on a rather large diverticulum of the bladder. There was something



Fig. 9.—Plain roentgenogram of bladder region showing the ureteral catheter coiled in the bladder beyond the enlarged trigon: *A*, loop of the ureteral catheter in the bas-fond beyond the hypertrophied and obstructing trigonal ridge.

like 17 or 18 ounces of residual urine at the time of operation, and the same amount persisted after operation. I did a cystoscopy. The man was in his early thirties. I repeated the examination several times before I could make myself believe that the condition Dr. Watson presented was the cause of the residual urine. That was soon after the operation. I thought I would try some milder means of treatment, and so I used fulguration. After two fulgurations the man was able to empty the bladder completely. I am sorry to say that the cystogram did not show anything, either before or after operation, except a large diverticulum.

Dr. W. J. Wallace, Oklahoma: The point I am most interested in is the end-result, and when Dr. Watson closes I hope he will touch specifically on that feature.

Dr. Herman L. Kretschmer, Chicago: The point I am particularly interested in and one on which I think we should dwell particularly in the discussion is the question of other associated lesions. One illustration showed hypertrophy of the trigon in the presence of median lobe enlargemen. and a small lateral lobe. I think that, in our enthusiasm, we may get away from fundamental principles. Hypertrophy of the trigon means obstruction just the same as hypertrophy elsewhere, and it seems to me that we should get down to determining the cause of the obstruction. We should not do a trigon resection and stop there, but should search for obstruct-



Fig. 10.—Cystogram of patient in Figure 9, showing bladder partially filled with 10 per cent. sodium iodid solution: *A*, site of extremities of hypertrophied trigon exerting a lateral pull sufficient to distort the bladder outline characteristically.



Fig. 11.—Cystogram of patient in Figure 10, showing bladder completely filled with 10 per cent. sodium iodid solution. By filling the bladder to capacity, the lateral pull of the hypertrophied trigon is for the moment overcome and the bladder outline is normal.

ing lesions. It seems to me that some of them may be attributed to the presence of small lobe hypertrophies, which we must remove at the time we excise the trigon. It seems that the end-results are what we are looking for, and if we

excise the trigon and do not relieve the obstruction it is evident that we have overlooked something. The big thing is to look for the obstruction that causes the hypertrophy of the trigon. Dr. Watson said that one patient had had a prostatectomy. I should like to know what, if any, operations had been done in the other two cases before he saw them.

Dr. E. M. Watson, Buffalo: The lesion that causes the hypertrophy is important, but we do not see it very often. My present experience is with only a few cases; I have two patients at present that have not come to operation, but I can recall others that unquestionably had something of this sort. While our arguments are based on only four cases, it is a start, and in the future we can all look for them and in that way accumulate more reliable data. The question of end-results is, of course, the main thing. The question of the mechanism of urination is still a little obscure, but the work of Wesson and Young makes us feel that if we can preserve the sides of the trigon—if we have that little muscle (Bell's muscle) extending down along the trigon—it does much to preserve the function of urination. Two of my patients emptied their bladder down to 2 c.c. from a large residuum, and the others to 10 c.c. from 100 c.c. The thing of importance is to leave the muscle of Bell, the extreme lateral margin of the trigon, and take out only the little ridge that runs between the ureteral orifices, leaving the muscle on either side. The little ridge on the side is only a potential thing, and becomes less as time passes. I think that the end-results have been very satisfactory. We have not done anything to interfere with urination, but to relieve something higher up than the vesical orifice. Dr. Kretschmer's remarks about the presence of the obstructions in the urethra are very important. To my mind the enlargement of the trigon is secondary to some obstructive lesion toward the outside, beyond the trigon. That must be removed first to relieve these patients; and when we do this, the hypertrophied trigon must also be removed because it has become an obstructing lesion. When we have a definite pathologic entity forming a bridge across there it does not disappear of itself. One of these patients had a successful prostatectomy, but the frequency of urination persisted as well as the obstruction, and until we removed the little bridge he was not relieved. Two of the patients had strictures, but a No. 20 sound could be passed into the bladder. Another patient had a punch operation ten years before, but the obstruction still persisted. I think that we must look on this condition as a secondary obstruction.



Fig. 1.—Typical second type arthritis of the spine: spurring and lipping of vertebral bodies.

The Unmarried.—In the "great unmarried" there are numerous hoboes, vagrants, fallen women, and human derelicts of all sorts. There is also an alarmingly high percentage of female college graduates, and numerous other women of high intelligence and character who have qualified themselves to earn a comfortable independent living.—Holmes: Studies in Evolution and Eugenics, New York, 1923.

THE SECOND GREAT TYPE OF CHRONIC ARTHRITIS

FOURTH STUDY *

LEONARD W. ELY, M.D.
SAN FRANCISCO

In several papers I have set forth the results of investigations into the second great type of chronic arthritis,[1] which may be thus recapitulated:

It is a chronic form of arthritis recognized roentgenographically and post mortem by the presence of cartilaginous and bony outgrowths at the margins of the articular cartilages, at or about the lines of attachment of the capsule. It is very frequent in its occurrence, wide in its distribution, and of ancient origin. Skeletons unearthed in Egypt by archeologists show its characteristic changes. It is known under various names. The Germans, who in modern times first established its clinical identity, call it arthritis deformans; the English call it osteo-arthritis; Goldthwait called it hypertrophic arthritis; Nichols and Richardson called it degenerative arthritis. This is the senile arthritis of some writers, the "chronic rheumatism" of the elderly. When it occurs in the terminal interphalangeal joints of the hands, it is known as Heberden's nodes, and is often mistaken for gout. It is known by many other names by other writers.

No cause of the disease ever has been established. It is usually ascribed to trauma, either to one severe trauma, or to the habitual trauma of laborious occupation, but I have tried to show that trauma could not possibly be the cause. Infection has been advanced as a cause, but never has been demonstrated. Many observers think that emotional and digestive disturbances, while not directly the cause, nevertheless bear some causal relationship to the exacerbations of the disease. In 1920, 1921 and 1922 I showed that the disease occurred almost exclusively in persons who had infection in the

* From the Stanford University School of Medicine.
* Read before the Section on Orthopedic Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

*Owing to lack of space this article is abbreviated in The Journal by the omission of a table. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Ely, L. W.: The Great Second Type of Chronic Arthritis, Arch. Surg. **1**: 158 (July) 1920; Further Studies: California State J. M. **19**: 415 (Oct.) 1921; Third Study: ibid **20**: 329 (Oct.) 1922. Ely, L. W.; Reed, A. C., and Wyckoff, H. A.: The Amoeba as the Cause of the Second Great Type of Chronic Arthritis, ibid. **20**: 59 (Feb.) 1922.

alveolar processes of their jaws. In 1922, Kofoid and Swezy found *Ameba histolytica* in the marrow of one of my specimens, and Barrow found it in the stools of one of my patients.

The disease is essentially one of middle and advanced age. It occurs occasionally in the third decade. As observed clinically, it is most frequent in the fifth, sixth and seventh decades. It never occurs in childhood. Arthritis deformans juvenilis is a misnomer. It is found in persons of most diverse occupations, and in those of all walks of life, rich and poor. It is sometimes seen in one joint only, sometimes in many joints. Often it gives symptoms in one joint alone, though existing in many joints. In other words, it may exist indefinitely without giving symptoms. In the orthopedic clinic at Stanford it is by far the most frequent disease with which we have to deal. Established always with the roentgen rays, its diagnosis comprises more than one tenth of the diagnoses in our clinic. A heavy proportion of bones from the dissecting room show the characteristic changes.[2]

The gross pathologic changes, those on which the diagnosis is made, have been known for many years. They are, in brief, bony and cartilaginous outgrowths at the margin of the articular cartilages—spurring, lipping, border exostoses—wearing away of the joint cartilage, leaving the underlying bone bare, eburnation and grooving of this bone in the line of joint motion, and thickening and villous proliferation of the synovial membrane. As a result of these changes, the joint becomes deformed and distorted, but no union of the articulating bones, whether by bone or by fibrous tissue, practically ever occurs, except in the spine. The appearance of these joints is entirely different from that of a joint invaded by a bacterial organism. The two can be distinguished easily by the naked eye.

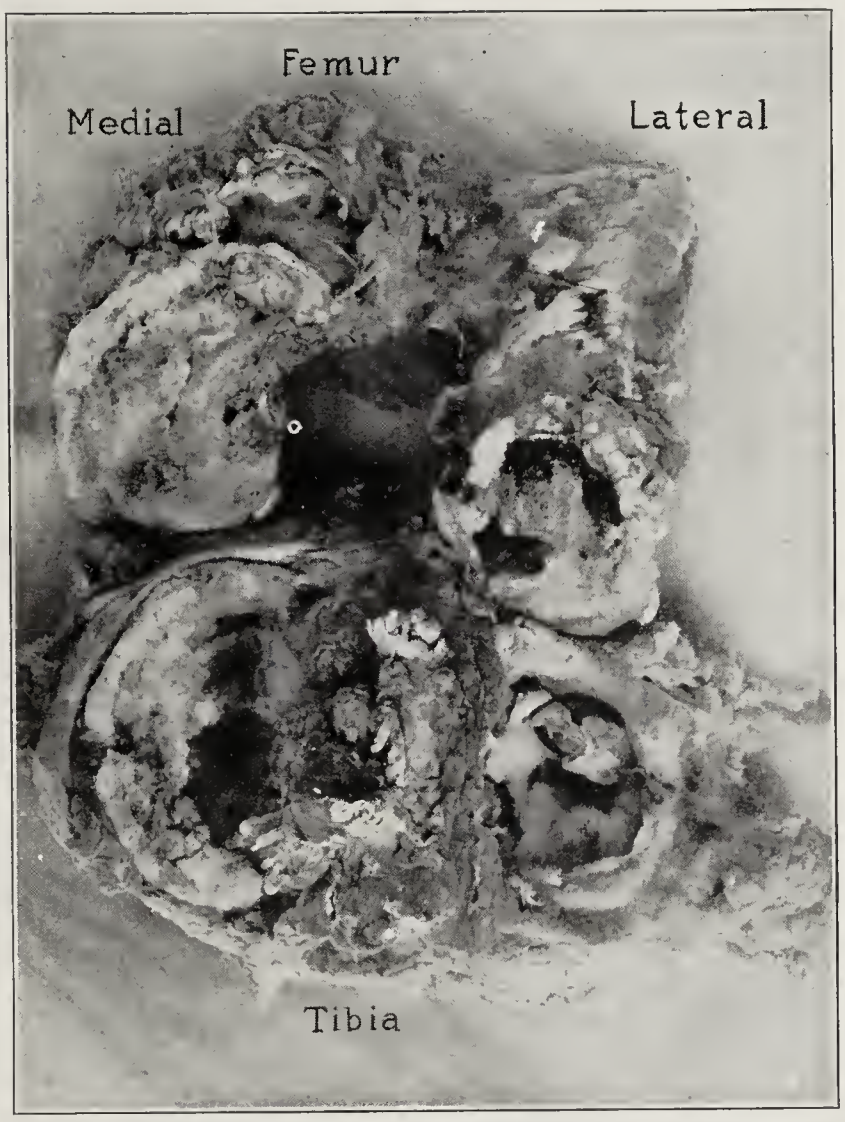


Fig. 2.—Resected specimen of second type arthritis of the knee: new bone and cartilage at circumference of joint; irregularity of articular surfaces; proliferation and villous formations of synovial membrane.

A few investigators have described the histologic changes. Nichols and Richardson's [3] description is classic. The joint cartilage is irregular in thickness, and markedly so in structure. It is fibrillated and calcified. Its cells are swollen. Parts of the cartilage may be ossified. The underlying bone is thickened and dense. The marrow is fatty and fibrous. The synovial membrane is thickened, fibrous, and is thrown into villi. Several observers have noted cyst formation in the bone in the region of the joint.

The baffling thing about all these pathologic features was the absence of a key to them. No one could say why they occurred. Given the original tubercle in the bone marrow, for instance, one can easily trace the entire sequence of events in a tuberculous joint, but in this type of arthritis the case was entirely different.

Three years ago I called attention to the areas of aseptic necrosis in the bone marrow in the vicinity of the joint, and attributed to them the prime rôle in the pathology. Further investigations have confirmed this view. The problem then was to find the organism responsible for these areas of necrosis, and Barrow, Kofoid and Swezy have indicated the direction which the path to the solution would take. To these areas of aseptic necrosis is probably due the fracture of the femoral neck in the elderly, as well as the frequency of nonunion following it. The stiff, ankylosed, painful joints following intra-articular fractures in the elderly are probably caused by the same thing.

The symptoms are those of a low grade chronic inflammation; namely, stiffness, limitation of motion, and often swelling and deformity. Pain may be absent or present. As a rule, it is not severe, unless aggravated by injury. The joint is to be viewed as a damaged machine. It is easily sprained or strained, and then is wont to become painful. When the spine is affected, the pain is referred out along the spinal nerves, and is usually diagnosed as myalgia, neuralgia, neuritis, radiculitis, myositis or fibrositis. A very large proportion of the so-called sciaticas owe their origin to spinal arthritis. Roentgen films show the characteristic lesions in the spine, and the symptoms yield to appropriate treatment.

The diagnosis can be made with almost complete certainty with the aid of the roentgen rays. These show spurring and lipping at the circumference of the joint cartilage. This spurring and lipping is practically never seen in other forms of arthritis except occasionally in arthritis of the first type that has been very chronic and has lasted a long time, especially in the feet, and once in a while in tuberculosis of the spine.

Before I take up the subject of treatment, it may be well to give an analysis of the cases seen at the Stanford clinic during the past year. The diagnosis was made in every instance with the roentgen ray. When doubt existed, the case was thrown out. There were 109 patients, fifty-four of whom were men and fifty-five women. This proportion differs from the three preceding series, in which the men outnumbered the women about two to one. The youngest patient was 30, the

2. Ely, L. W. A Study of One Hundred Dry Bones Sawn in the Laboratory: Bone and Joint Studies, I, Stanford University, California, 1916, published by the university.

3. Nichols, E. H., and Richardson, F. L.: Arthritis Deformans, Jour. M. Res. **21**: 149, 1909.

oldest, 76. Ten were in the fourth decade, thirty in the fifth, forty in the sixth, twenty-two in the seventh, and seven in the eighth. Infection in the alveolar processes of the jaws was present in sixty-one, and probably present in twenty-three. In three it was not noted. Twenty of the patients were edentulous; in one of them, alveolar infection had been demonstrated previously in the clinic. Two had lost almost all their teeth, but had no infection about the remainder. The dental part of the problem has been in the hands of Dr. John L. Campbell, head of the dental department of the Stanford clinics, to whose skill and interest much of our results are due. The presence of infection was determined with the roentgen rays. Many of the patients refused to have roentgenograms taken. Then the infection could be noted only as probable. In the edentulous patients and in those who had lost most of their teeth, previous infection is almost certain.

During the past year an attempt has been made to consider the problem of this disease in relation to intestinal parasites. Dr. Harry Wyckoff and I have made the study a common one. Dr. Wyckoff has been in charge of the laboratory work. The attempt has not been altogether successful. Many of the patients would not submit to the examination, and many would not see it through.

Dr. Wyckoff, who conducted the search for intestinal parasites, reported that although he was able to induce only thirty-six patients of the series to submit stools for examination, and although many of these brought but one specimen, nevertheless in fourteen of the thirty-six, or 38.9 per cent., intestinal parasites were demonstrated. The positive findings were protozoa in all cases. *Giardia intestinalis* was found once, *Chilomastix mesnili* once. The rest were amebas of various species, *Ameba coli* predominating. The percentage of

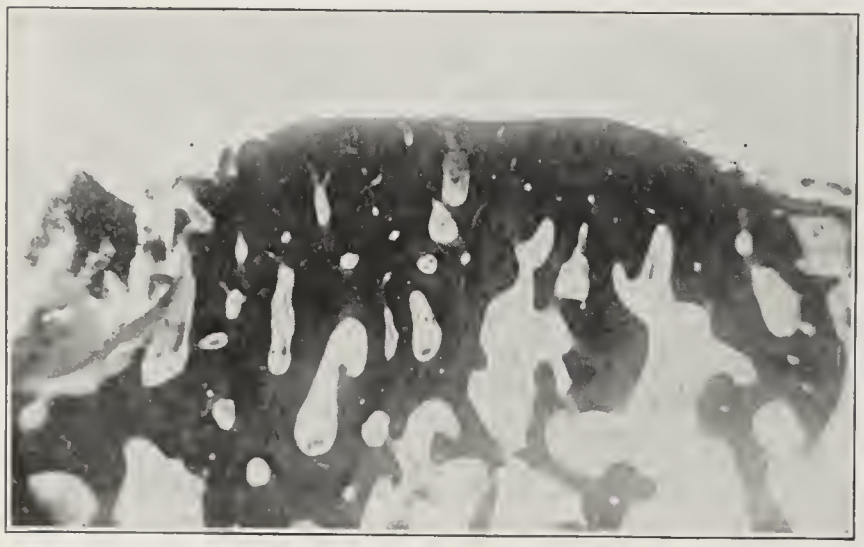


Fig. 3.—Stained slide of a section of the end of a bone, under low power: the cartilage is gone, and the thickened, "eburnated" bone itself forms the articular surface; the joint is hopelessly damaged, for no treatment will ever restore the articular cartilage.

positive findings increased as the search progressed. This is in accord with the statement of other parasitologists, to the effect that the more carefully and thoroughly the search is made, the more often will parasites be found. In 50 per cent. of the positive cases more than one stool examination was necessary before parasites were found, while in nearly 50 per cent. of the negative cases but one stool was submitted for examination. Over 73 per cent. of the negative cases had not more than two stool examinations. It is not uncommon to examine four or more stools from one patient before parasites are found. With better cooperation on the part of patients, the percentage of positive findings in the stools would probably be far higher.

I have had one operative case during the year, that of Patient 236, a porter, aged 60 years. This was a severe case of arthritis of the ankle with painful ankylosis, following a Pott's fracture. I resected the talus in the presence of Drs. Swezy, Wyckoff and Gunn, and submitted the specimen to them for examination immediately after the operation. It contained

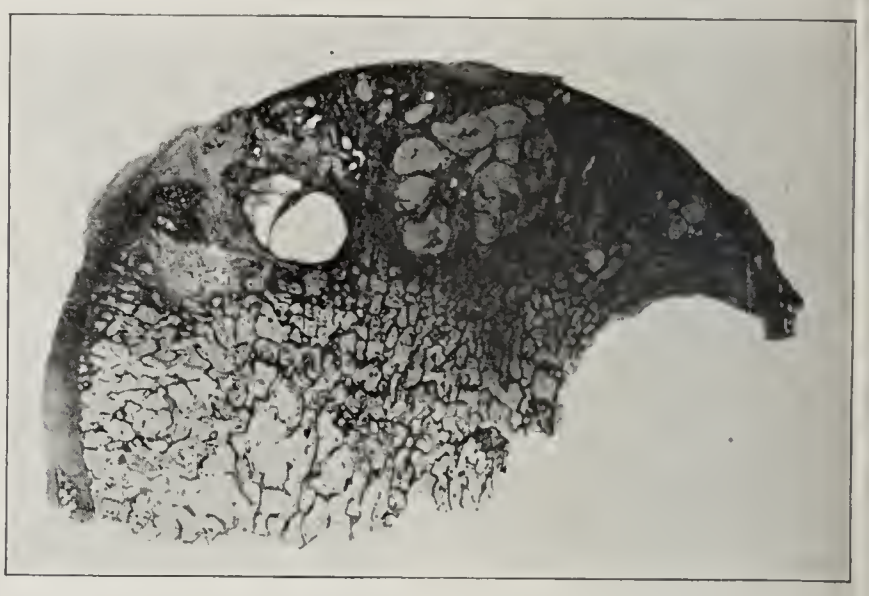


Fig. 4.—Stained slide of a section through the head of the femur: The joint surface is rough, and the cartilage has disappeared from most of it; at the left the articular cartilage persists, but its ossification evidently has begun; some of the cavities in the femur head are cysts, some are filled with fibrous tissue; bone destruction predominates here, rather than bone production; this, contrary to the prevailing idea, is the rule in this type of arthritis; these cavities can usually be distinguished in the roentgen film, if they are sought.

the usual necrotic cavity in the bone, but no parasites were found in it. My experimental work has been inconclusive.

CONCLUSION

Chronic arthritis of the great second type is caused by some form of nonbacterial organism, probably a protozoon, which, domiciled in the gastro-intestinal tract, gains access to the system through the foci of osteomyelitis about the roots of the teeth, and causes an aseptic necrosis in the marrow in the region of the joints. As the result of this necrosis, marked bony and cartilaginous changes take place, which distinguish the disease clinically, roentgenographically, and in the laboratory. The disease is more frequent in men than in women as clinically observed, is essentially one of middle and late life, never occurs before the third decade, is widely distributed in its occurrence, and occurs in persons of all occupations and walks of life. It is usually multiple, though it may give symptoms in one joint alone, and may exist indefinitely without symptoms. It is probably responsible for fracture of the neck of the femur in the elderly, and for the stiff, painful arthritis that often follows their intra-articular fractures. It deforms the joints so that they are easily sprained, but practically never causes a bony ankylosis except in the spine. It is responsible for most of the cases of so-called neuritis, sciatica, myalgia, myositis, fibrositis, radiculitis and lumbago. Rest, heat and appropriate diet usually improve the symptoms, but the disease itself is best treated by the removal of dead teeth, and by the eradication of intestinal parasites. The search for parasites should be conducted by a skilled parasitologist. If not, its results will be disappointing. Our results indicate that no one protozoon is responsible. It may be any one of a number.

ABSTRACT OF DISCUSSION

DR. JOHN V. BARROW, Los Angeles: These arthritis cases all harbor intestinal protozoa of some form: amebas, *Chilomastix, Giardia,* trichomonads, etc. The pathologist's efficiency in finding protozoa can be checked by his ability to demonstrate the presence of these organisms in these cases, for they are 100 per cent. present. In treating these cases, the first effort is to stop the forward process of the disease. When this is done, the orthopedist can accomplish lasting and excellent results. The work of ridding the patient of intestinal infestation comes first; and, as this is accomplished, the patient improves. The therapeutic test thereby strengthens the laboratory presumption. The medical as well as the surgical management is chronic. A few doses of ipecac, no matter how efficacious, will not cure. Persistence and clinical grit will win.

DR. LEONARD W. ELY, San Francisco: We have opened up a problem here whose solution will require a great amount of work and patience, and will demand the efforts, not of one man alone, but of a team. I would not have it thought for a moment that I regard my case as proved. What I do want recognized is, first, that this disease is entirely different from all the bacterial arthritides. This conclusion will be forced on any one who will take the trouble to cut up his material in the laboratory, and not throw it away because no money is to be made by its examination. Clinical experience rarely solves the hard problems in medicine. The second point I wish to make is that the tonsils and the deep urethra have nothing to do with this type of arthritis, and that the teeth have nothing to do with the first great type of arthritis—the bacterial type. This will save our patients from ruthless extraction of their teeth. The third point is not to attempt to have stool examinations done indifferently by a novice. We owe what advancement we are making at Stanford to the skill and interest of our laboratory chief—Dr. Wyckoff. The search for intestinal parasites is something that requires special training and great patience. I think that in this work we have struck a very important trail, and hope to follow it through to the end. The solution of the problem is probably tied up with that of Paget's deforming osteomyelitis, osteitis fibrosa, bone cysts, and possibly new growths. The chief thing, of course, is to find the organisms in the bone marrow.

OCULAR PHENOMENA PRODUCED BY INTRACRANIAL LESIONS INVOLVING OPTIC TRACTS NEAR THE CHIASM*

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ROCHESTER, MINN.

Cases of intracranial lesions affecting the chiasm have been studied in order to ascertain whether some ophthalmologic method of examination could be found to enable the ophthalmologist to determine more definitely the origin or position of the lesion.

The cases reported here have been classified into four groups, according to the origin of the lesion, in order to show the striking similarity in the ocular phenomena and the changes in the sella turcica as revealed by the roentgenogram. The four groups are:

Group 1. Pituitary tumors: (a) without glandular disturbances; (*b*) with acromegaly, and (*c*) with diabetes insipidus.

Group 2. Intracranial tumors, not of pituitary origin, affecting the chiasm.

Group 3. Nasopharyngeal tumors affecting the chiasm.

Group 4. Syphilitic basal meningitis affecting the chiasm.

In the series of forty-six cases of pituitary tumors, twenty-seven did not show glandular disturbances (Group 1 *a,* Fig. 1); seventeen were definitely acromegalic (Group 1 *b,* Figs. 2 and 3), and in two diabetes insipidus was found (Group 1 *c,* Figs. 4 and 5).

It is difficult to classify intracranial tumors not of pituitary origin, as there are so many types of lesions

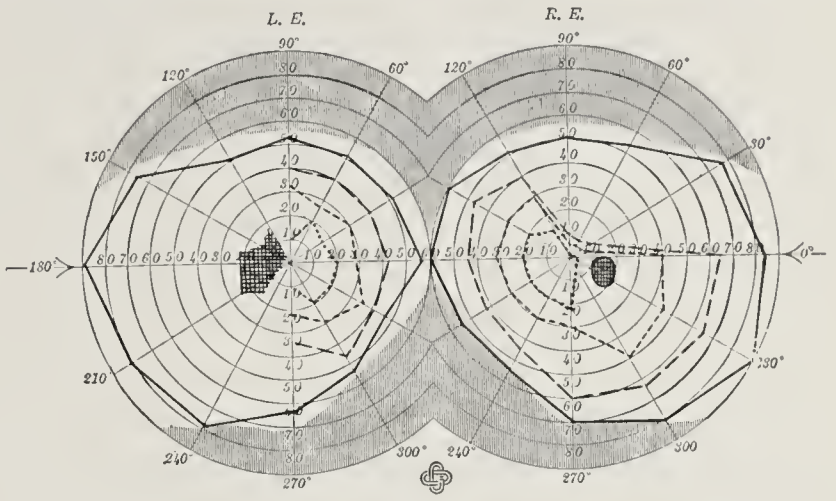


Fig. 1.—Normal form fields in both eyes with a 2 millimeter test object. Upper temporal quadrant defect for all colors in the right eye. Enlargement of the physiologic blind spot. Definite temporal hemianopia in the left eye for all colors. Marked enlargement of the physiologic blind spot.

and so many locations; yet all produce more or less typical changes in the chiasmal field. In the series of twelve cases, six of which have been previously reported,[1] the ophthalmologic changes were practically the same as those found in pituitary tumors (Figs. 6 and 7).

In all of the four cases of nasopharyngeal tumors, certain typical chiasmal field changes were present (Figs. 8 and 9).

In the two cases of syphilitic basal meningitis affecting the chiasm, the field changes were also typical of a chiasmal involvement (Figs. 10 and 11).

OPHTHALMOSCOPIC CHANGES

The ophthalmoscopic changes can be divided readily into four main divisions: (1) changes in visual acuity; (2) changes in the optic disk; (3) changes in the perimetric field, and (4) ocular motor changes.

Changes in Visual Acuity.—Practically all the patients in this series, regardless of the exact cause or location of the lesion, came to the clinic because of failing or loss of vision in one or both eyes. The duration of the visual changes did not vary to any great extent in the different types of lesions. At least there was not enough difference in the duration of the changes to make it pathognomonic of any one group. The loss of vision is usually slow, as shown by the histories obtained from reliable sources, except perhaps in the scotomatous types of field changes, which early encroach on the macular area. The gradual loss of vision is probably the reason so many patients do not consult a physician until definite hemianopia has developed, as usually a temporal quadrant still remains intact, or islands of temporal vision are still present. When the temporal fields are lost, the changes usually have encroached on a portion of the macular area, so

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* From the Section on Ophthalmology, Mayo Clinic.

* Abstract of thesis submitted to the Faculty of the Graduate School of the University of Minnesota in partial fulfilment of the requirements for the degree of Master of Science in Ophthalmology, December, 1922. The complete thesis was read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923, and will appear in full in the Transactions of the Section.

1. Lillie, W. I.: Ocular Phenomena in Cases of Chiasmal Lesions Not of Pituitary Origin: Report of Six Cases, Surg. Clin. N. Am. **1**: 1363-1380 (Oct.) 1921.

that the visual changes are noticed by the patient. The one point that stands out consistently is that the vision does not improve to any appreciable extent by refraction, even though there is an error of one or more diopters, either spherical or cylindric. In this series of cases, in which there was opportunity to study the changes of vision before and after operation, the improvement was always in the cases in which there was a normal fundus or pallor of the disks without loss of substance. Neither the visual acuity nor the fields in an eye that showed a definite simple optic atrophy improved to any appreciable extent following operation.

Changes in the Optic Disk.—The typical ophthalmoscopic appearance of the disks has been described by Benedict,[2] and the pallor without loss of substance is such a common finding that the expression should be universally used instead of the so-called primary optic atrophy so often recorded. This is in accord with the views of Walker and Cushing:[3]

Despite the so-called atrophic pallor of the disks in patients having visual-field defects resulting from lesions in the chiasmal regions, the histologic examination of the nerves fails to show the expected degree of fiber degeneration unless the process has been of long duration.

Our cases serve to illustrate the fact that in the presence of chiasmal pressure of known long duration, associated with sharply cut hemianopias, even when to the ophthalmoscope the

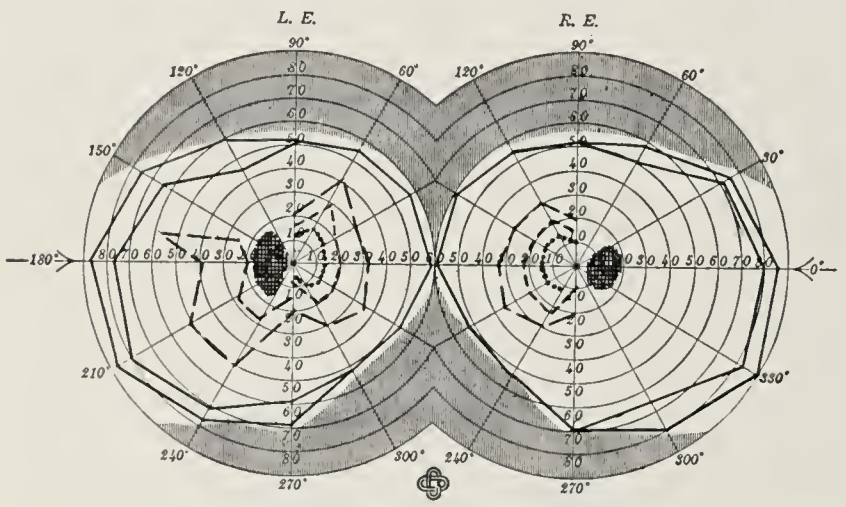


Fig. 2.—Slight contraction of the form field in the upper temporal quadrant of each eye with 2 and 6 millimeter test objects. Definite temporal hemianopia in the right eye for all colors. Definite hemianopia for red and green, with preservation of the lower temporal quadrant for blue, in the left eye. Bilateral enlargement of the physiologic blind spot.

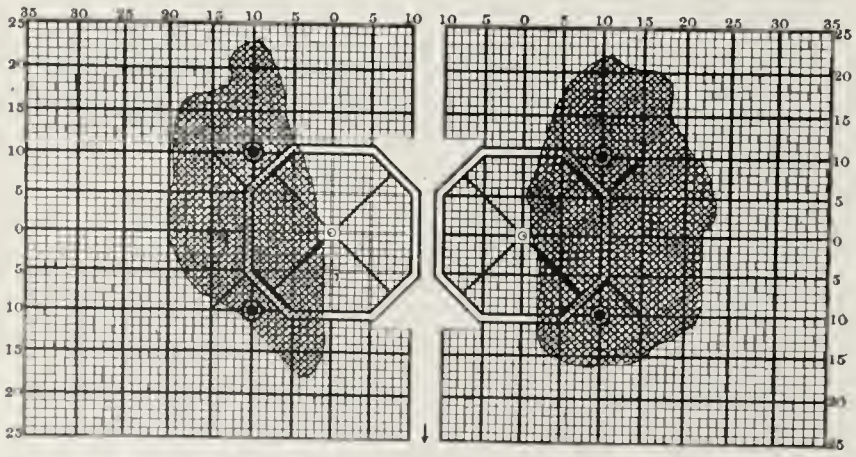


Fig. 3 (Same case as Fig. 2).—Definite bilateral enlargement of the physiologic blind spot recorded on Lloyd's stereocampimeter chart.

nerve shows the pallor of presumed atrophy, there may be no corresponding sharp delineation of the areas of atrophy in the cross section of the nerve.

2. Benedict, W. L.: Early Diagnosis of Pituitary Tumor with Ocular Phenomena, Am. J. Ophth. **3**: 571-584 (Aug.) 1920.

3. Walker, C. B., and Cushing, Harvey: Studies of Optic Nerve Atrophy in Association with Chiasmal Lesions, Arch. Ophth. **45**: 407-437 (Sept. 16) 1916.

When one stops to consider the frequency with which the perimetric fields improve or return to normal following the removal of the pressure at the chiasm, it is apparent that the loss of function is purely a "block" and not due to atrophy. In cases in which the pressure

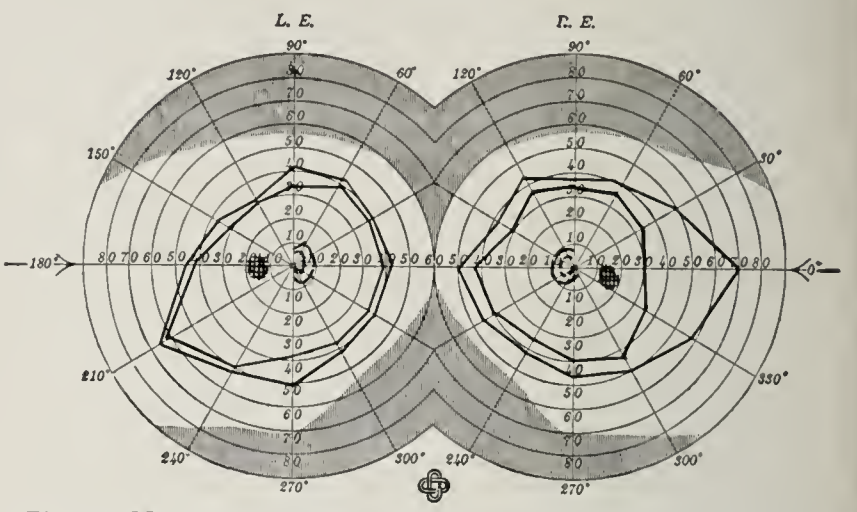


Fig. 4.—Marked temporal contraction of the form fields of both eyes with 1 and 2 millimeter test objects. Definite bitemporal hemianopia for blue and red, with complete loss of vision for green. Bilateral enlargement of the physiologic blind spot.

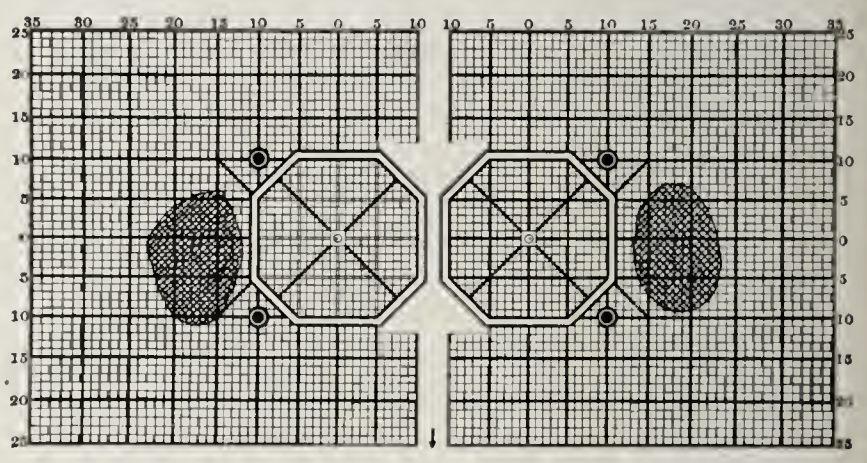


Fig. 5 (Same case as Fig. 4).—Bilateral enlargement of the physiologic blind spot recorded on Lloyd's stereocampimeter chart.

has been of such long duration as to produce a simple atrophy of the optic nerves, the perimetric fields do not improve following operation.

In many of the cases reported in this paper, the examinations following operation revealed improvement in the vision and perimetric fields of patients whose disks were originally reported "pallor without loss of substance"; while those whose disks were reported "simple optic atrophy" generally did not improve either in vision or in perimetric fields following operation. Again, in certain cases, the visual and perimetric field changes were out of proportion in respect to the appearance of the disks, especially in one case in which disks were normal and the vision was nil in each eye.

Changes in Perimetric Fields.—The perimetric field defects found in the cases reported here may be classified as follows: (1) bitemporal hemianopia, partial or complete; (2) homonymous hemianopia, partial or complete; (3) temporal hemianopia in one eye, complete loss of vision in the other; (4) quadrant defects, one or both eyes; (5) scotomatous field defects, and (6) normal fields.

Bitemporal Hemianopia: In thirty-two of the cases from all groups there was bitemporal hemianopia, either partial or complete. The hemianopia varied from color defect in one or both eyes, with an early enlargement of the physiologic blind spot, to more definite hemianopic color and form defects. Almost all known types of defects were found, and in some cases marked variation in the fields was noted on repeated examina-

tions. In nearly all the cases in which the blind spot was recorded, an enlargement was found. Some of the fields were within normal limits, except for slight quadrant defects in the green-color fields.

Homonymous Hemianopia: In seven of the cases there was the homonymous type of hemianopia, either partial or complete, varying from definite homonymous hemianopia for forms and colors to a homonymous defect for one color only. These defects also varied on repeated examinations.

Temporal Hemianopia: In ten of the cases there was temporal hemianopia in one eye, and complete amaurosis in the other. Varying degrees of contraction of the form and color fields were found, and in some, loss of one or more color fields.

Quadrant Defects: Four of the cases revealed quadrant defects in one or both eyes. These varied from small defects for one or more colors to a definite quadrant defect for form and color. Usually the enlargement of the physiologic blind spot encroached on the field of the color defect.

Scotomatous Field Defects: In twelve of the cases, definite scotomatous changes were noted. The scotomas were usually continuous with the physiologic blind spot; or, if the process had been of long duration, the quadrant or temporal loss of vision was continuous with the physiologic blind spot. Many varieties of

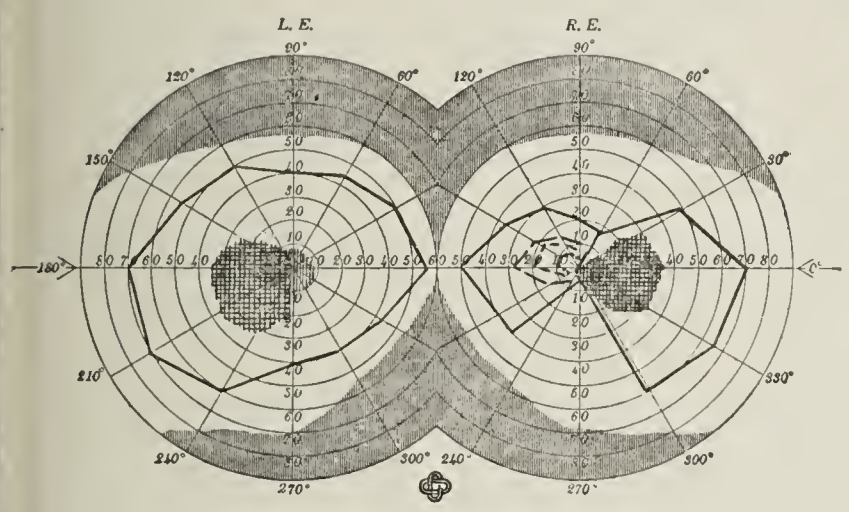


Fig. 6.—Marked concentric contraction of the form fields of both eyes with a 6 millimeter test object. Temporal hemianopia in the right eye with a 2 millimeter test object. The color field of the right eye reveals a definite temporal hemianopia. Color perception is lost in the left eye. The physiologic blind spots are markedly enlarged, and a small central relative scotoma is present in the left eye.

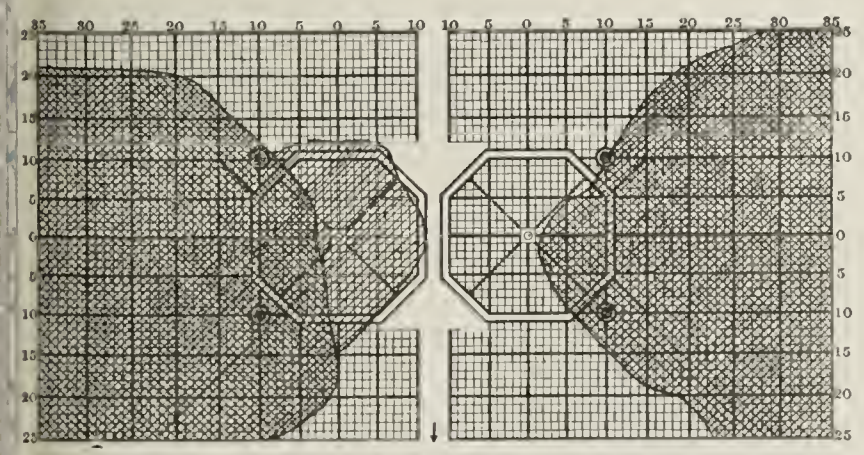


Fig. 7 (Same case as Fig. 6).—Bilateral enlargement of the physiologic blind spot with a central relative scotoma in the left eye, recorded on Lloyd's stereocampimeter chart.

temporal defects for form and color accompanied the scotomatous changes. If the fields were taken often, the temporal return of vision usually preceded the shrinking of the scotoma. When the blind spots were carefully charted on the Lloyd stereocampimeter, they were found to be enlarged early in the course of the disease, and the temporal scotomas were always continuous with the blind spots. Also, in the fields in which there were temporal isles of vision, the loss of fields was continuous with the blind spots. This was not found in some of the earlier records and was probably due to faulty technic. The reverse also seems to be true; with the return of visual fields, the enlarged blind spots and scotomas persist, while the form fields return more rapidly.

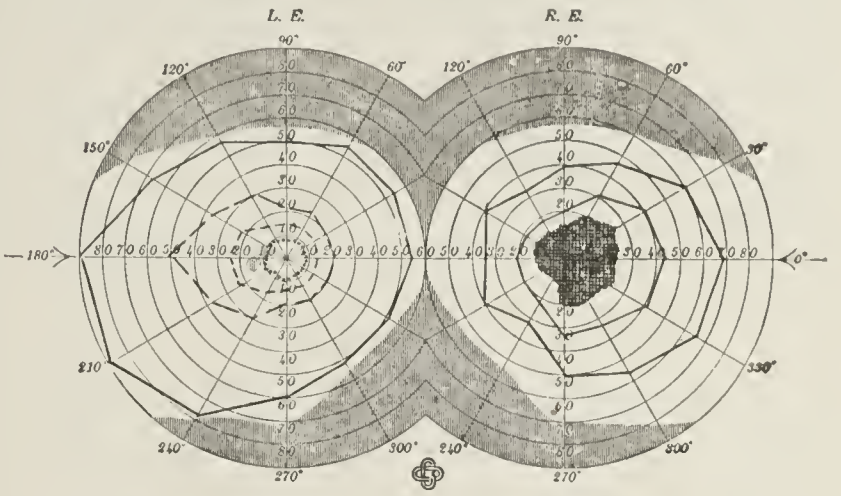


Fig. 8.—Concentric contraction for form and colors, with complete loss of vision for red and green in the right eye. A large central absolute scotoma includes the physiologic blind spot. Normal form and color fields in the left eye.

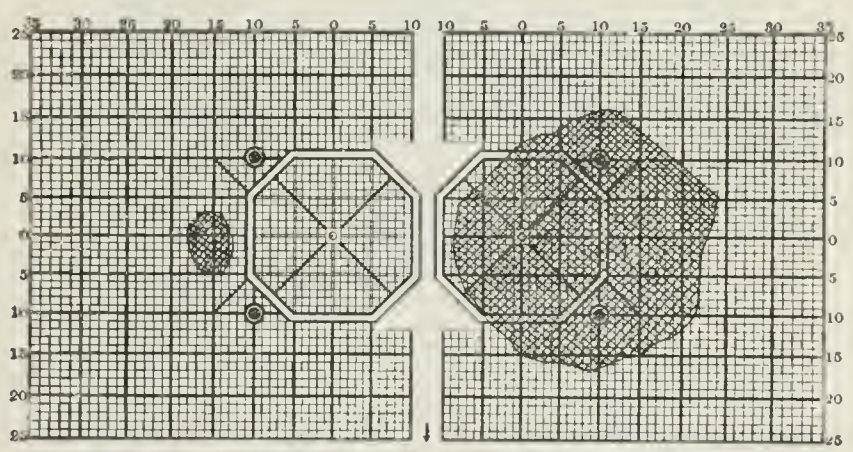


Fig. 9 (Same case as Fig. 8).—The large central absolute scotoma, including the physiologic blind spot in the right eye, recorded on Lloyd's stereocampimeter chart. The physiologic blind spot in the left eye is normal.

Normal Fields: In four of the cases, the perimetric fields were normal, both for form and color. Also, the blind spots were of normal size.

Ocular Motor Changes.—Ocular motor changes were less frequent except in the nasopharyngeal group. Any one or all of the ocular motor nerves may be involved, most commonly the sixth cranial nerve. In thirty of the cases, pupillary disturbances were noted, varying from a slow reaction to a complete internal ophthalmoplegia.

SUMMARY

The roentgenologic findings and ocular phenomena of the six groups are summarized and compared in Table 1.

CONCLUSIONS

1. All but four of the sixty-four patients had some change in visual acuity of one or both eyes.

2. The patients in whom the optic disks were normal in appearance, or who had pallor of the disk without loss of substance, obtained the greatest gain in visual acuity and perimetric fields following surgery.

3. In practically all cases the scotomatous field changes were, at one time or another, continuous with the physiologic blind spot, and the blind spot was almost

always incorporated in the temporal field defect, either for form or for color.

4. The presence or absence of color-field defects was as important as that of form defects.

5. The roentgenograms of the sella turcica were normal in a higher percentage of cases with intracranial lesions, not of pituitary origin, than in those of pituitary origin.

6. All persons suspected of having intracranial lesions affecting the chiasm should have thorough nasopharyngeal examinations.

7. The origin of lesions affecting the chiasm cannot be definitely determined from ophthalmologic examination.

ABSTRACT OF DISCUSSION

DR. GILBERT HORRAX, Boston: Any possible aid we can obtain in differentiating the type of tumors around the chiasm is naturally of immense importance. Tumors of this type,

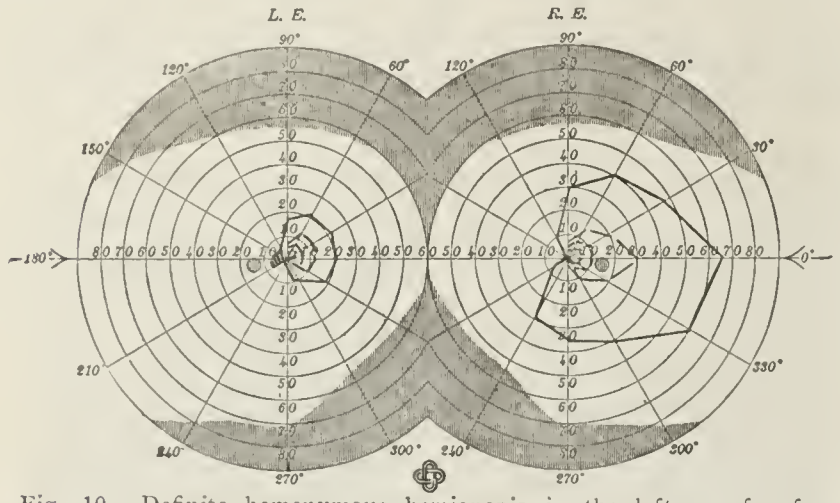


Fig. 10.—Definite homonymous hemianopia in the left eye for form and colors, with a small relative central scotoma.

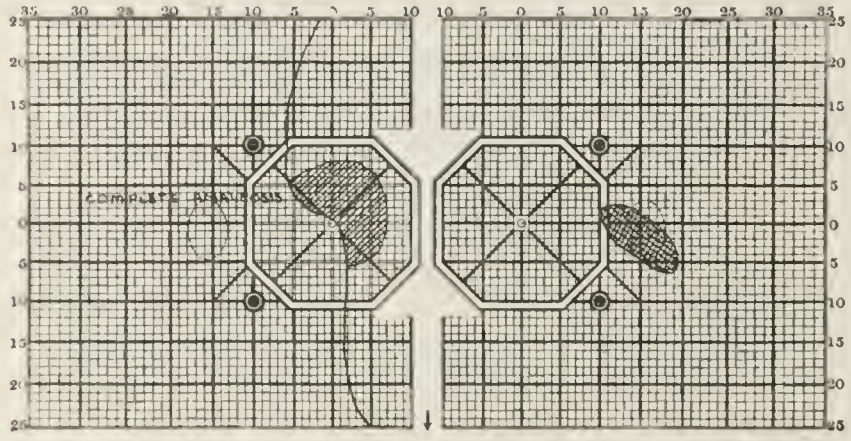


Fig. 11 (Same case as Fig. 10).—Enlargement of the physiologic blind spot in the right eye recorded on Lloyd's stereocampimeter chart. A relative central scotoma in the left eye, with complete amaurosis of the temporal field.

whether they are pituitary in origin or actual tumors of the chiasm, whether they are tumors of the nasopharynx or true adenomas, represent a large proportion of brain tumors, in Cushing's series about 25 per cent. The differential points from the appearance of the disks and the fields are the features that mainly interest ophthalmologists. Atrophy, with or without loss of substance, it seems to me is a term that is used in different ways. So far as the Brigham Hospital clinic is concerned, we cannot differentiate between atrophy with loss of substance and that without loss of substance. We do think we can distinguish between the type of atrophy occurring in tumors around the chiasm and the atrophy occurring in other types of disease—tabetic atrophy, or secondary atrophy following brain tumor. But atrophy with or without loss of substance we cannot differentiate to our own satisfaction, although Dr. Lillie believes this point to be of importance in prognosis. The prognosis, so far as we can determine, depends, chiefly, on how long a block there has been of the optic chiasm. The atrophy resulting from such a block may be complete in a short time, or it may go on for a long time. It is interesting that in charting the scotomas the field defects are always, in Dr. Lillie's experience, continuous with the physiologic blind spot. As to the type of hemianopia, the bitemporal type is more common than the homonymous type. The method of determining the extent of the field defects differs in different schools. We have given up using the color fields and rely on the small test objects designed by Walker, either on the perimeter or on the screen. We find that this gives us results comparable to what Dr. Lillie finds with his colors so far as determining an early hemianopic defect, which is, of course, the consideration of prime importance. The type of tumor that is giving us more trouble than any other in differentiation is the tumor of the optic chiasm itself. This is the group of tumors that Cushing and Martin reported recently in the *Archives of Ophthalmology*, a group that shows certain characteristic findings that separate them from the general group of tumors in this region.

DR. G. E. DE SCHWEINITZ, Philadelphia: Referring for the present to bitemporal hemianopia, associated, for example, with a tumor of the pituitary body, it is well known that the changes that take place in the field in typical instances are not individual types, but constitute stages of an advancing process, and are best studied with serial test objects. Beginning in the upper temporal field, the deformation proceeds downward, and from below upward in the nasal field, or, to use Traquair's description, "progresses round the fixation point clockwise in the right field and counterclockwise in the left." My own investigations confirm those of Traquair and some other observers that the attainment of the ultimate stages is about twice as common in the upper nasal quadrants as in the lower. Such typical development of the stages of progressing bitemporal hemianopia is not, of course, a constant condition. Naturally, departures from these types or stages are frequent, and other combinations are not uncommon. The instability of visual field boundaries in cases of pituitary body disorders, tumors, for example, is well known, and the homonymous hemianopic defects are also well recognized, but are now omitted from consideration. Paracentral scotomas are common and often an early manifestation; they may be bitemporal in form, and expand, as it were, into a large or complete bitemporal defect, meeting a contraction which begins in the temporal periphery. But even when there is little or no change in the upper outer peripheral temporal quadrant, alterations within the 30 degree circle may be observed, and the cecocentral region is recognized as a weak part of the field. It is probable that the very earliest changes are to be discovered over the blind spot, and may be continuous with it. Careful analyses of paracentral scotomas in these circumstances indicate that they also, like the general field, are divisible in quadrants; in short, that these scotomas, to use Traquair's expression, "behave like the general field." These scotomas, as also some of the other field changes, have been attributed to pressure foci in the optic pathways, to traction produced by a growing tumor, to vascular constrictions, which certainly are important factors, and possibly sometimes to a toxic influence on the macular fibers. So-called "typical development" of scotomas is, of course, not a constant one, and many deviations from types are recognized. Most, if not all, of the visual field defects can be detected with small white test objects; but even so, it is not wise to disregard the use of color tests, although the threshold of accuracy with white objects is greater than that of color tests.

DR. EMORY HILL, Richmond, Va.: I should like to ask Dr. Lillie what his experience has been in reference to the so-called "zones of deadened perception," mentioned a number of years ago by Wilbrand, which have not received much attention since. In charting the temporal field one brings in a large white disk, of 10 mm. for example, from the periphery toward the center. This will be recognized first merely as a moving object, but for some distance it is not recognized as a white object. In other words, a relative scotoma exists in the temporal field. This precedes a more definite loss of the temporal field, and in recovery the same thing occurs again—a zone of deadened perception in the periphery.

DR. WALTER I. LILLIE, Rochester, Minn.: One of the primary reasons for this paper is that there are many types of chiasmal field changes that are open to discussion. The reason I still continue to use color plates is that in different types of

intracranial lesions the mentality of the patient varies considerably. Some patients are more or less dull—and we can show defects much more readily with color than with small objects. When we first started to study the series, we had sixty-two proved cases out of 226 chiasmal lesions. The others we could not use because they were not proved, although they gave fields absolutely similar to those I have shown. The sixty-two cases were of various types, but they all showed practically the same type of field changes. The reason we began this study was to see whether we could not say definitely whether a lesion was from above coming down on the chiasm, or from below coming up. This we decided was impossible to show conclusively. We could show that there was a lesion affecting the chiasm, but the site of the lesion could not definitely be ascertained. Undoubtedly what Dr. Hill says is true, but that would be in the very early changes in the chiasm, and we have not found that in our series of cases. Most of our patients had been examined elsewhere, and field defects had been noted or had gone too far to give a simple relative scotoma. There is no question that you will find this scotoma or dimness of vision in any part of the field, depending on where the tumor is located. There is nothing new in the field changes we have presented, except that I want to emphasize that the earliest changes we have found are in the blind spots. The fields were absolutely normal for color and form, but the physiologic blind spot was enlarged. This has been found to be true in chiasmal lesions, and one can feel sure that it is not a case of retrobulbar neuritis.

A PROPOSED CLASSIFICATION OF IRITIS AND IRIDOCYCLITIS *

LEE MASTEN FRANCIS, M.D.
BUFFALO

The question may be asked with great propriety whether another classification of iritis and iridocyclitis is needed or even worthy of consideration. While it may be said that it is not demanded, yet some feel that it is desirable. This concerns, particularly, teachers, who are endeavoring to develop and drive home fundamental truths, but also clinicians, whose most difficult task is frequently diagnosis. Whatever contributes to orderly ways of thinking adds, not only to a better analysis of disease, but to more efficient treatment. Consequently, the subject should interest both teachers and practitioners.

That there is more or less confusion in the arrangement of uveal disease is evident from even a casual review of the various textbooks. That confusion should exist is quite natural because such correlations are the gradual outgrowth of the clinical manifestations of uveal disease as it has been observed since the beginning of medical time, rather than classifications largely based on the causal pathology. To express dissatisfaction is one thing, but to offer constructive criticism is quite another. Yet it does seem as if enough advance has been made to, at least, venture some sort of rearrangement to the end that teaching of uveal disease may be simplified, and possibly its etiologic estimation be brought more in line with established knowledge.

The manifestations of the disease may be classified in several different ways. The two methods of grouping commonly employed are based on its various clinical phases and on causal factors. Of the two, the latter seems more definite, rational and less subject to radical changes.

The continuity and histology of the uveal structures hardly admit of isolated processes in its component structures. There obviously cannot be an iritis without a cyclitis, or a cyclitis without an iritis or choroiditis. From a clinical standpoint, the symptoms of one may predominate and mask lesser changes in the other segments, so that from a practical standpoint separation is usual, depending on the dominant symptoms. It is to be understood, therefore, that when the terms iritis and cyclitis are used, they do not refer to an isolated process.

The possible cause of inflammatory changes in the iris and ciliary body must be due to one or a combination of the following:

Direct injury.
Micro-organisms in the tissues.
The toxic products of infection located elsewhere in the body.
Toxins—chemical or biochemical.
Anaphylactic phenomenon.

If a grouping is contemplated from an etiologic basis, one naturally turns to the laboratory for guidance. Despite the important and constructive experimental work of Stock, Guillary, Rosenow, Brown and Irons, Brown, Irons and Nadler, Lewis, Rosenow and Meisser (reported by Benedict), Woods, Straub, Verhoeff and Lemoine and others, its sum total is relatively little compared to the experimental work that has been done in other and less important medical fields. From a review of the experimental work that has been done by the various observers, certain conclusions may be drawn.

1. When the exciting agent of the uveal disease originates outside the body or the globe, it is borne to the uveal tissues by the blood and lymph streams.

2. The exciting agent travels either as fortuitous emboli, or by the white cells acting as phagocytes; or, if toxic, in solution in the blood or lymph stream.

3. Most inflammatory processes of the iris and ciliary body are due to the presence of organisms themselves in the tissues.

4. The varying degrees of inflammatory reaction depend on the virulence or attenuation of the infection, or to tissue resistance or to both factors.

Probably such terms as "idiopathic" and "primary" should be discarded because misleading and inappropriate. Disease of the uveal tract, in that it originates in the uvea itself, is never primary, but always secondary to disturbance elsewhere. Rheumatism should be confined to true rheumatic fever. The source of such disturbance is either from outside the body or from inside the body; consequently, the terms endogenous and exogenous, which have already been proposed, appear satisfactory.

Maxwell,[1] in 1916, proposed a classification of uveitis which furnishes a satisfactory working basis. Maxwell's contribution is largely drawn on in the following classification:

EXOGENOUS GROUP

1. Direct injury to the uveal structures which may introduce infection or may in the case of foreign material produce chemical irritation (copper, etc.).

ENDOGENOUS GROUP

1. Specific infectious diseases:

syphilis	malaria	the acute exanthems
gonorrhea	pneumonia	true rheumatic fever
tuberculosis	typhoid	septicemia, etc.
influenza	typhus	

2. Focal diseases:

conjunctival infections.	skin infections (furunculosis)
tonsil infections	gallbladder infections
alveolar infections	appendical infections
accessory air passage infections	areas of infection wherever located
	sympathetic ophthalmitis(?)

* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Maxwell, M. E.: Ophthalmoscope, September, 1916.

3. Toxins:
   A. Autointoxications:
      intestinal putrefactive processes
      menstrual disturbances
      endocrine disturbances—hypothyroidism, etc.
   B. Chemical — Proteins—lens
      Biochemical — sympathetic ophthalmitis (?)
4. Disorders of general metabolism:
   gout
   diabetes
   anemia
5. Anaphylaxis of the uvea:
   sympathetic ophthalmitis (?)

It will be noted that the endogenous group has been divided into five divisions under which the various clinical phases of iritis and iridocyclitis have been placed. Great difficulty is encountered in correlating some of the types because the causal factors are as yet at most, speculative.

The important and well recognized rôle which injury and exposure play is regarded as contributory rather than directly causal. The same may be said of previously existing disease. Certainly, these and possibly other factors reduce the resistance of the parts and possibly sensitize the tissue to organisms and perhaps toxins, which in some instances have a developed affinity for uveal structures. There are certain clinical expressions of iritic inflammations which, according to the present state of information (or lack of it), cannot be accredited to infections. Into this class fall three groups: toxins, disorders of general metabolism, and anaphylaxis of the uvea.

The experimental work of such men as Uhlenhuth, LaGrange, Hektoen, Straub, Woods, Verhoeff and Lemoine, point to the existence of specific toxins. Similarly, the coincidence of uveal disease appearing at the menopause in women, and when associated with probable disturbances of the endocrine balance, has made it appear admissible to place these under a toxic group. Also into this group has been placed intestinal intoxications. That intestinal intoxication plays an important rôle in iritis and iridocyclitis is the conviction of such an astute observer as de Schweinitz. Whether this rôle is contributory or causal is a mooted question. There is strong clinical ground for a separate group due to disturbances of general metabolism, such as gout, diabetes and possibly anemia, in which no specific infection or infective groups have been thus far identified. The question of uveal anaphylaxis is certainly an important and not altogether clear one. Possibly it should not have a separate head. It may be that future investigations will show that anaphylaxis is an equally important factor in all types of uveal disease, one having primarily to do with tissue sensitization and specificity of the exciting agent. In the case of three groups, toxins, general metabolic disturbances and uveal anaphylaxis, future work may show that the various causal factors are, after all, only contributory, merely lowering uveal resistance to organisms normally present in the blood stream.

There is less difficulty in establishing a classification than there is in knowing into which particular category to place certain well defined clinical entities, the precise cause of which has not as yet been established. However, this classification is proposed as a working basis and not because it is considered ideal or final. Any estimate based on imperfect knowledge is sure to be correspondingly faulty and inaccurate. Consequently, what is written today will probably need to be rewritten tomorrow. No attempt has been made to give credit in most instances to sources. In many cases, it is quite impossible to identify the originator of a certain nomenclature.

It is hardly necessary to add that none of the work is original except the arrangement of the material which has been gleaned from many sources.

THE ETIOLOGY OF IRITIS

SECOND SERIES *

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AND
E. V. L. BROWN, M.D.
CHICAGO

This is a continuation of the study of iritis, of which a series of 100 cases was reported in 1916. The present report includes 100 cases which have been studied by the same methods as in the previous series. These included a careful history and physical examination to determine the presence or absence of syphilis, tuberculosis, gonococcal infection, and infections of the teeth, tonsils, sinuses, prostate, pelvis, or other structures which might give rise to metastatic lesions in joints or eyes. The possibility of invasion of the body by infection entering through mucous membranes without previous residence in a local lesion in the body was considered, and will be discussed below. Laboratory examinations included Wassermann tests, usually controlled by a second laboratory, complement fixation tests for gonococcal infection, roentgenograms of the teeth and sinuses, and of the lungs when there was any question of pulmonary disease. Blood counts and blood cultures, and subcutaneous tuberculin tests after previous determination of sensitiveness by cutaneous tests, were made in suitable cases.

Each patient presents a problem for solution, the ascertainable facts being the history, including the time relations of the onset and recurrence of iritis and infectious processes of the several kinds, the results of physical examination and laboratory study, and the results of treatment directed to the removal or cure of the infections discovered. It is a matter of general experience that the relations of cause and effect may be readily demonstrable in some cases, while in others, several possible causes are present and it may be impossible to state which infection was immediately responsible for the lesion in the eye. Except in the simplest cases, there is thus unavoidably introduced an element of judgment as to which of two or more infections was the cause of the iritis. We have tried to maintain a conservative attitude in drawing conclusions, and when there was reasonable doubt as to which of several causes was responsible, we have placed such cases in the group of combined infections.

The hundred cases in this series are grouped in Table 1, under their probable causative infections so far as the available evidence made this possible.

In patients in whom one infection seemed to be definitely related to the iritis, but in whom the presence of other infections was disclosed by routine examination, the latter infections appear under their appropriate headings—coincident infections. In two cases, a thorough examination failed to demonstrate any infectious process; it is entirely possible, however, that some local infection was missed, or infection may have entered

* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

through apparently intact mucous membranes. We have considered also the possibility of some other nonbacterial etiology of the iritis in these two cases, although one of the former explanations seems to us more probable.

UNDETERMINED GROUP

Seven cases in which evidence of infection was found, but in which the relation of infection to iritis was not clear, require mention. In one there was a positive Wassermann reaction, no history or evidence of syphilis, and the iritis improved slowly under antisyphilitic treatment; in a second there was a positive Wassermann reaction and urethral strictures; in a third, a positive Wassermann reaction without other evidence of syphilis, and gonorrhea five years and arthritis eighteen months previously. A fourth patient had extensive pyorrhea without apical abscesses, and subacute cystitis in which carefully made cultures after cystoscopy remained negative; in a fifth case an extensive pyorrhea was the only lesion found; in a sixth case there was some evidence of tonsillar infection only, but circumstances did not permit of a clear demonstration of its relation to the iritis. In a seventh case the only evidence of infectious process found was a positive tuberculin reaction after subcutaneous injection. Some of these might be included in one of the infectious groups, but for statistical purposes we have felt that it is better to place them in a group with claims more in keeping with the indefiniteness of the available evidence.

SYPHILIS

The search for syphilis included a careful history, physical examination for clinical evidence of syphilis, and Wassermann tests usually controlled by two laboratories, and by repeated tests in all cases. In fifteen cases (two private and thirteen clinical), syphilis seemed clearly the cause of the iritis. In six of these there was gumma of the iris. In three, syphilis was the only infection present; in twelve others, infections, chiefly dental and tonsillar, were present, but collateral evidence, such as presence of gummatous iritis, and active syphilis elsewhere and prompt healing under antisyphilitic treatment without other intervention, indicated a syphilitic etiology. In addition to these fifteen cases in which syphilis was concluded to be the cause of the iritis, evidence of syphilis, usually a history of syphilis years previously, or a controlled positive Wassermann reaction was found in fourteen other cases. These included seven cases in the combined groups in which evidence of syphilis was associated with other infections of the sinuses, tonsils and teeth, and tuberculosis or gonorrhea. In some of these, syphilis may have been the cause of the iritis; in others, the iritis resisted antisyphilitic treatment, and sometimes yielded after removal of other infections. Syphilis cannot be excluded as a cause of the iritis in the cases of the undetermined group in which the Wassermann test was positive. In the four cases of the tonsillar group in which positive Wassermann tests were obtained, there was no other evidence of active syphilis.

In this series there were twenty-nine cases in which syphilis was present; of these the iritis was syphilitic in origin in fifteen, and possibly syphilitic in some of the remaining fourteen cases. The percentage of cases of syphilitic iritis in this series is thus not over 25, and probably somewhat less. A comparison of our results in this series with those of the 1916 series, in which evidence of syphilitic infection was found in thirty-nine cases, and in which 23 per cent. of the iritis was due to syphilis, is of interest in relation to the question of the importance of syphilis as a cause of iritis, and also in relation to the importance of the source of material on which statistics of any kind are based. Unrecognized and untreated syphilis is more frequent in dispensary than in private practice. The proportion of private to dispensary cases was greater in the present than in the 1916 series, and in addition it happened that more cases were referred to us from the venereal wards of the county hospital prior to 1916 than subsequently. These factors, no doubt, have tended to decrease the proportion of syphilitic iritis in the second series. Combining the first and second series in which the cases are approximately half private and half clinical, over a period of ten years, evidence of syphilis was found in 34 per cent., and the iritis was clearly due to syphilis in 19 per cent. Syphilis was the cause in 200 cases in probably not more than 25 and in a much smaller percentage of cases in private practice. These figures are regarded as important, not alone from the standpoint of therapy, but because of their sentimental importance to the sufferer from iritis. It is, no doubt, true that statistics obtained solely from a municipal hospital including venereal wards would show a higher proportion of syphilitic iritis; but even in such a group, a complete survey of each patient would be necessary to exclude other infections, for there is no reason why a patient infected with syphilis should not suffer from iritis of other cause.

TABLE 1.—*Infections Found in One Hundred Cases of Iritis, Series of 1923*

Infections	Alone	With Other Infections	Total	Coincident Infections: Syphilis	Gonococcal	Tuberculosis	Dental	Tonsillar	Sinus	Nonvenereal Genito-Urinary	Other Infections
Syphilis	2	13	15	..	..	1	8	9	2	..	..
Gonococcal infection	1	..	1	..	..	..	..	..	..	..	..
Tuberculosis	..	..	..	..	..	..	..	..	..	..	..
Dental infection	5	4	9	..	..	..	..	2	2	..	..
Tonsillar infection	19	18	37	4	..	2	15	..	1	1	1
Sinus infection	..	1	1	..	..	..	1	..	..	..	..
Genito-urinary, non-venereal	3	..	3	..	..	..	..	..	..	..	..
Other infections	1	..	1	..	..	..	..	..	..	..	..
No infection found	..	..	2	..	..	..	..	..	..	..	..
Combined infections	..	24	24	7	3	4	19	22	10	..	5
Undetermined	..	7	7	3	..	1	2	1	..	..	2
Total			100								

GONOCOCCAL INFECTION

Iritis from gonococcal infection was present in one case in the absence of other demonstrable infections, and associated with multiple arthritis and prostatitis, and gonococci in the urethral discharge. Active gonococcal infection was present also in three other cases in the combined group. In one there was a recurrent arthritis, syphilis, pansinusitis, alveolar abscesses and chronic tonsillitis; in a second, recurrent arthritis, pulmonary tuberculosis, dental infection and tonsillar infection; in a third, arthritis with prostatitis, syphilis, and dental and tonsillar infection. A gonococcal origin of the iritis would have to be considered in these, particularly in view of the recurrent arthritis, which in two was clinically like gonococcal arthritis. The presence of other active infections, however, does not allow the concluding that the iritis was certainly gonococcal in

origin. The number of cases in which there was gonococcal infection is much smaller than in the series of 1916, in which there were nine cases in which the iritis occurred in close association with gonococcal infection, in seven without other infections, and in two with other infections. It was noted in the previous report that the seemingly large number of cases of gonococcal iritis was probably due to the fact that one of us was studying gonococcal arthritis, and that chances of meeting with other gonococcal metastases, including iritis, was thereby much increased. During the period since 1916, we have seen much less gonococcal arthritis, and this fact, together with the decrease in the number of patients referred to either of us from venereal wards, may well account for the smaller proportion of gonococcal iritis in this series.

TONSILLAR INFECTION

The evidence on which a diagnosis of tonsillar infection has been made are recurrent attacks of tonsillitis, evidence of chronic infection such as the expression of pus, with associated redness of the anterior pillars, and chronic enlargement of the regional lymph nodes. The presence of cheeselike plugs in the tonsillar crypts has not been alone regarded as evidence of chronic infection in this or the previous series. We have had the assistance of expert and, we believe, conservative advice of specialists in diseases of the nose and throat in the diagnosis of these cases.

Tonsillar infection was present alone with iritis in nineteen cases, and in eighteen others with other infections. Evidence of tuberculosis was found in two cases, nonvenereal genito-urinary infection in one, and sinus infection in one. A positive Wassermann test without other evidence of active syphilis was found in four. Chronic tonsillar infection was present also in twenty-two of the combined group, in which it was impossible to ascribe the iritis to any one of the several infections present.

DENTAL INFECTION

Nine cases of iritis were apparently due to dental infection (alveolar abscesses). Five of these were unassociated with other infections. In each of four others, tonsillar and sinus infections were found. Alveolar abscesses were found in forty-three other patients, of whom eight were in the syphilitic group, fifteen in the tonsillar group, one associated with sinus infection, and nineteen in the combined group. In two cases in the undetermined group, there was an extensive pyorrhea without alveolar abscesses. It is possible that these two should be regarded as iritis of dental origin, although it has not been our experience that pyorrhea is often associated with metastatic lesions. The serious influence of pyorrhea in some cases on the general health is, of course, not questioned. The large proportion of alveolar abscesses, in which chronic tonsillar infection is also present, and the relatively small number in which alveolar abscesses occur alone gives weight to the view, advanced by dentists of wide experience, that in many instances in which alveolar abscesses and chronic tonsillar infections occur together, the alveolar abscess is as truly a secondary infection as is iritis or arthritis. It is common experience that the removal of an alveolar abscess in a patient with chronic tonsillar infection frequently fails to prevent the recurrence of metastatic infections. These views have undoubtedly affected our opinion in each case studied, so that in the present series we have nine cases in which we believed the dental infection to be the cause of the iritis, as against thirty-seven due to tonsillar infection. We have also been influenced by the subsequent course of the iritis and freedom from recurrence following removal of the alveolar abscesses and chronically infected tonsils. Except in emergencies in which iritis occurred in persons whose vision had been lost in the other eye, we have counseled conservatism in dealing with teeth in which there was doubtful evidence of infection of minor degree, and have regularly availed ourselves of abundant expert dental consultation.

SINUS INFECTION

In determining the presence or absence of sinus infection, in addition to the evidence obtainable from the history, a routine examination of the nose was made together with transillumination tests, and roentgenograms in a majority of the cases. In all cases in which there was any question of sinus infection, the patients were carefully examined by specialists in this department of medicine, and the diagnosis was confirmed in positive cases by the demonstration of pus and other evidence of infection.

Infection of the sinuses was found in fifteen cases. In one in which there was a severe pansinusitis associated with two alveolar abscesses, the sinus infection was regarded as the source of the iritis. Sinus infection was found also in two cases in the syphilitic group, in two cases in the dental group (maxillary sinusitis), and in ten cases in the combined group, usually associated with infections of the tonsils or teeth. In the combined group in which multiple areas of infection were present, the sinus infections undoubtedly contributed to the load of infection of the patients, and in some instances may well have been the portal of entry of the infection which gave rise to the iritis; but the presence of the other infections suggested as preferable the inclusion of these cases of sinus infection in the combined group. In the total of 200 cases, infection of the sinuses was found in twenty-two cases.

TUBERCULOSIS

We have not encountered any cases in this series in which the iritis was clearly associated with tuberculous infection. Evidence of tuberculosis, either on physical examination or from tuberculin reactions or both, was found in eight cases. In one case of syphilitic iritis there was a chronic active apical tuberculosis; in two cases due to tonsillar infection there was a positive tuberculin reaction without other evidence of active tuberculosis; in two cases in the combined group, there were physical signs of old pulmonary tuberculosis with positive tuberculin reactions; in another, tuberculous cervical glands; and in a fourth, a positive tuberculin reaction without other clinical evidence of active tuberculosis. In one other case classified as undetermined, a positive tuberculin reaction without other clinical evidence of tuberculosis was found. In none of these did there appear to be a clear relation between the iritis and the tuberculosis.

NONVENEREAL PROSTATITIS

In three cases, a subacute prostatitis was the only infection found. In one there was an old history of gonorrhea twenty years previously which had healed without immediate complications and without stricture. There was no subsequent history of venereal infection, and examination and a thorough search by the urologist failed to show any evidence of gonococcal infection.

In one case the iritis healed after prostatic massage. Two years later, following severe physical strain and

much driving in an automobile over rough roads, the prostatitis recurred with a slight urethral discharge. There had been no exposure to venereal infection, and the transient discharge contained no gonococci. With the prostatitis and arthritis there was a recurrence of iritis.

MUCOUS MEMBRANE INFECTIONS

Recent studies of recurrent acute and subacute metastatic infections, of which acute and subacute arthritis and iritis of the type under discussion are examples, suggest that, while probably the majority of cases are due to infections resident in some locally infected tissue, there is a group in which the infection enters directly through the mucous membranes without previous prolonged residence in the body.[1] Inflammation of the mucous membranes of the nose and pharynx is sometimes followed by arthritis, in persons in whom previously existing local infections were not demonstrable. In one of our patients, otherwise apparently free from demonstrable localized chronic infections, the iritis followed a "cold in the head." In this case, the coexistence of an acute sinusitis cannot be excluded; but insistence on this point is perhaps more academic than practical.

There are a number of case reports in the literature in which the iritis is attributed to intestinal infection and intoxication. A review of these reports suggests that, while in some the gastro-intestinal symptoms were probably merely secondary effects of infection, the true source of which remained undiscovered, in others the possibility of bacterial invasion from the intestinal tract must be considered. The number of such cases is probably relatively small; and, since in the individual case the diagnosis is largely a matter of exclusion of other sources, there is required a thorough examination, and demonstration of the absence of all other more common sources of infection, before a diagnosis of iritis of intestinal origin can safely be made. From a review of experimental evidence in animals,[2] it appears that while infection may enter the body through presumably intact intestinal mucosa, under normal conditions of health the intestinal wall must offer a fairly effective barrier to the passage of bacteria from within its lumen. In man, it is conceivable that under conditions of greatly depressed resistance, bacterial invasion by organisms of low virulence might occur, with the production of metastatic lesions without continued bacteremia. This seems to be the case in certain ulcerative diseases of the intestine. In ulcerative colitis, there sometimes occur exacerbations with fever, with demonstrable transient bacteremia, and occasionally arthritis; and, presumably, iritis might originate in the same way. In one of our patients (in the combined group) with recurrent iritis of many years' standing, in whom infections of the tonsils, sinuses and teeth had been successively discovered and removed, the iritis continued to recur along with exacerbations of a chronic colitis. On the other hand, several patients with iritis gave a history of associated intestinal disturbance, but examination disclosed other and apparently definite infectious processes to which the intestinal complaints were probably secondary.

COMBINED INFECTIONS

In approximately two-thirds of the cases in the present series, there was more than one area of infection. The frequent coexistence of chronic or recurrent tonsillar infection, alveolar abscesses and sinus infection has already been referred to. In a number of patients, in addition to these infections, there was found also syphilis, gonococcal infection and tuberculosis. Multiple infections no doubt have a cumulative effect in reducing the resistance of the patient, and in such persons a conclusion as to which infection is responsible for the iritis may be difficult or impossible. The successful eradication of one infection may remove a sufficient amount of the load so that the patient ultimately recovers from the others, and, under such circumstances, conclusions as to the etiology based on the results of treatment must be guarded. In twenty-four cases, ten private and fourteen dispensary, in which there were multiple infections, we were unable to determine with certainty which infection had given rise to the iritis.

RESULTS FROM OPERATIVE PROCEDURES

Following the removal of infected tissue, such as chronically infected tonsils, there may be a steady improvement in the eye and ultimate recovery without recurrence of the iritis, and the inference seems reasonable that the tonsillar infection caused the iritis. In another case, the removal of the tonsils is followed by a more striking and sudden improvement in the eye within from twenty-four to forty-eight hours. This improvement may be permanent, in which the inference as to tonsillar causation may be warranted, or in a few days the iritis recurs. The immediate improvement is apparently similar to the startling but often temporary improvement seen in arthritis, and also in iritis following the intravenous injection of foreign protein; it is probably nonspecific, and may be misleading, in that the procedure which gave rise to the prompt effect may be given undue credit as evidence as to the cause of the iritis.

TABLE 2.—*Infections Found in Two Hundred Cases of Iritis, First and Second Series, 1916 and 1923*

Infections	Alone	With Other Infections	Total	Coincident Infections: Syphilis	Gonococcal	Tuberculosis	Dental	Tonsillar	Sinus	Nonvenereal Genito-Urinary	Other Infections
Syphilis	12	26	38	..	8	6	13	10	3	..	..
Gonococcal infection	8	2	10	..	..	..	1	1	..	..	..
Tuberculosis	8	..	8	..	..	..	..	..	..	..	..
Dental infection	12	15	27	2	2	2	..	9	3	..	..
Tonsillar infection	26	27	53	5	3	4	22	..	1	1	1
Sinus infection	1	3	4	..	..	..	2	1	..	..	..
Genito-urinary, nonvenereal	6	..	6	..	..	..	..	..	..	..	..
Other infections	3	..	3	..	..	..	1	..	..	..	..
No infection found	..	..	3	..	..	..	..	..	..	..	..
Combined infections	..	41	41	15	12	11	27	35	15	1	5
Undetermined	..	7	7	3	..	1	2	1	..	..	2
Total			200								

AGE

The youngest patient in this series was 13 years old, the oldest 69 years. The average age was 35 years. With the exception of the 13 year old patient, a girl, well developed for her age, whose iritis healed promptly and permanently after the removal of infected tonsils, there were no cases of iritis in either series in children. Among the factors which suggest themselves in explanation of this apparent infrequency of iritis early in life are the infrequency of small areas of long-standing

1. Irons, E. E.: Some Less Frequently Considered Portals of Infection in Arthritis and Iritis, J. A. M. A. **80**: 1899 (June 30) 1923.
2. Moody, W. B., and Irons, E. E.: J. Infect. Dis. **32**: 226 (March) 923.

infection, such as alveolar abscesses, and the reputed greater activity of lymphoid tissues of the pharynx, tonsils and lymph nodes in resisting infection, in the young as compared with adults. In children, the sinuses are relatively small and undeveloped, and also gonorrhea and acquired syphilis are less frequent than in the years after puberty. It may be noted also that, with the exception of the arthritis of acute rheumatic fever, arthritis is relatively less frequent in children than in adults.

THE FIRST AND SECOND SERIES COMBINED

In Table 2 we have combined the cases of the first and second series. The incidence of the several types and areas of infection in the two series has already been compared in the discussions of the different infections. In the comparison of infections found in these two series, differences are evident, some of which are easily accounted for by known differences in the sources of material, and it is probable that another hundred cases would further modify the percentages of the several etiologic groups. These figures are presented, therefore, not in an attempt to establish the exact frequency of occurrence of the several causes of iritis, but rather as a recital of what infections we found in these 200 patients.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. FRANCIS, AND IRONS AND BROWN

Dr. C. D. Wescott, Chicago: I agree with Dr. Francis that a better classification of iritis and uveitis based on etiology is very desirable. I doubt whether it is possible in the present state of our knowledge to formulate one that will be satisfactory. The one suggested by Dr. Francis seems to me not sufficiently simple and in part untenable. The relation of malaria to iritis, for instance, is very uncertain. I have never seen iritis in true rheumatic fever, and I do not know what causes rheumatic fever, nor do I know the cause of scarlet fever; but the iritis which is sometimes a complication might easily be due to the streptococcus which is so often found in the throat in such cases and has no other relation to the scarlatina. Our knowledge of the relation of intestinal toxemias to uveitis is still indefinite, and the eye complication might be due to associated infection not easily discovered. This is also true in gout, diabetes, "anemia," typhoid and other diseases. The work now going on in the study of anaphylaxis and sympathetic inflammation is extremely important, but, so far, it seems to me, inconclusive. Dr. Francis' classification is certainly very suggestive; but it would be better not to adopt it just yet as the consensus of this section. Dr. Brown and Dr. Irons deserve the thanks of the section. Their study, which, it will be recalled, was initiated for the purpose of discovering, if possible, the cause of "rheumatic iritis," has demonstrated rather conclusively that "there ain't no sich animile"; and the term "idiopathic iritis" may, with propriety, be quietly interred. While this second paper establishes more conclusively the facts brought out in their first communication, the authors have shown that statistics and percentages in regard to the etiology of iritis will always depend somewhat on the source of the material studied and this must be true in regard to the etiology of many conditions. The authors are to be commended for their eminently fair and conservative attitude throughout these studies. I wish to take this opportunity to acknowledge my indebtedness to Dr. Irons for his assistance in the general study of some of my cases.

Dr. Clarence A. Veasey, Spokane, Wash.: Since the papers of Alexander and others, published a generation ago, in which from 60 to 75 per cent. of all cases of iritis were attributed to syphilis, our views concerning the etiology of this affection have undergone many radical changes. The work of Rosenow and others on the importance of focal infections and specific strains of micro-organisms in the production of many affections throughout the body, and that of the authors of this paper concerning the etiology of iritis, has done much to clarify our views and place them in a much better scientific position. As to the percentages of iritis due to any given infection, there must always be some difference of opinion according to the class of patients from which our statistics are drawn. Public hospital cases, and especially hospitals with venereal wards, naturally must give a larger number of cases of iritis due to venereal infections than statistics derived only from private practice. This is especially true if the private practice is among the better classes who have inclination, knowledge, opportunity and means of taking better care of themselves. In my experience (after excluding syphilis), chronic infected tonsils have been the most frequent source of the foci of infection. The tonsils may be the sole seat of infectiton or may be accompanied by dental or other infections. The suggestion referred to in the paper, that many dental infections may be secondary and due to tonsil infections, is a very important one and should be investigated carefully. In comparatively few cases will a single focus of infection be discovered. Most of the cases are mixed infections. The possibility of a pyorrhea or of an intestinal infection being the primary focus must not be overlooked. One must not put too great dependence on roentgenograms, if they are negative. Too frequently it has been found that a sinus reported negative from the roentgenograms contained pus, and that a tooth, also reported negative, showed, when extracted, an apical abscess. Roentgen-ray examinations, when positive, are of great corroborative value, but, when negative, do not always exclude the possibility of an infection existing in the parts. The clinical examination must be our chief guide. The laboratory findings are adjuncts. In operative procedures, many curious effects are observed. Within a month I have observed one case of plastic iritis that resisted the ordinary methods of treatment, and in which the advice of removal of the infected tonsils was declined for ten days. It cleared up entirely within forty-eight hours after the removal of the tonsils, the eye in that time becoming as white and as quiet as the fellow eye. On the other hand, a patient under my care for many years for recurrent attacks of iritis, in whom double iridectomy had been performed and from whom all sources of infection were thought to have been removed, had a severe iritis within twenty-four hours after the removal of a tooth clinically suspected, and the removal of which revealed an apical abscess. The same thing has occurred when the removal of infected tonsils has been quickly followed by an inflamed joint.

Dr. T. B. Holloway, Philadelphia: At the present time we are in the midst of considerable confusion in regard to the etiology of uveitis. The authors have found syphilis a factor in 19 per cent. of their cases; Lang found only 6 per cent. in his private practice. On the other hand, Campbell showed 70 per cent., and Clapp had 80 per cent. Many of Clapp's patients were colored, and a definite percentage showed condylomas. When one compares these figures, is it any wonder that the young man of today becomes confused? As to the tonsils, my own experience is somewhat at variance with that of the authors. For years I have had all of my uveitis cases gone over in much the same way as has Dr. Brown, probably not quite so thoroughly, or shall I say, consistently thoroughly. It is extremely difficult to have all of these examinations made in every case. But the tonsils have not figured with me to the same extent that they have in these statistics. I am also somewhat reluctant to accept the statement that the dental conditions are secondary to the tonsil infection, particularly in older people. It seems to me that pyorrhea, dental abscess and alveolar atrophy are apt to come on in middle life or later years when other organs and functions are undergoing a retrograde process, and, as is well known, may set up distant infectious processes. I should be a little reluctant to accept that statement in toto. Another interesting factor is the relation of the toxins to this condition. At the Boston session, de Schweinitz quoted Flexner as stating definitely that we know nothing at all in regard to the toxins of the pyogenic

cocci; that they cannot be found in anything more than minimum amounts in artificial cultures. Another interesting point is the question of focal infection. Is the onset of the iritis dependent on the turning over of the soil prior to the bacterial invasion, or is it dependent on a selective affinity for certain tissues, as put forth by Rosenow? It is interesting in this respect to point out that Lyons of England in 1916 stated that he believed the bacteria and toxins prepared the ground, but that some trauma, however minimal in degree, was necessary to induce the iritis. Quite in contrast with this, and yet working along similar lines, Flexner takes the opposite view. He believes that trauma, however minimal in amount, is the preparatory step, and that subsequently the bacterial invasion occurs. I have always looked on the last series of 100 cases studied by Drs. Brown and Irons as the most reliable study made in this country, and I know of no statistics from foreign clinics that we can rely on to a greater extent. I do want to point out, however, that even in these statistics much depends on the race, careful study, observation and treatment, and on the interpretation of the findings in these cases. Still further, I dare say that if the authors were to transfer their work, even in Chicago, to a different center, they might possibly arrive at some different conclusions.

Dr. Lloyd Mills, Los Angeles: It will be noted that the combination of cases in which no infection was found, and of the undetermined cases, forms 9 per cent. Anything, therefore, that will tend to reduce the obscurity covering that undetermined element in iritis should be accepted with interest. About a year ago, I had at one time three intractable cases of iritis. In each case the patient had been treated by other men for a long time. Two had come from the Middle West, one from San Francisco, and in each case they had reached the point of near blindness. It was a question of examining the body in every possible way to find out some other possible source of infection. The patients were put into the hands of a good internist, who found nothing new in the way of foci of infection. Tonsils and teeth had been eliminated, nasal sinuses had been eliminated, and every other possible source of infection. As a last resort, thinking there was something back of these cases because the patients were sallow and complained of lassitude and constipation, I sent them to another internist. He found that each of these patients harbored *Endameba histolytica* in the stools; with the first injection of emetin, these eyes, which had been red and absolutely impossible to control by any other means, began to make definite improvement. One of these patients, who has been under observation for eight months, recovered perfectly after a severe fight; two others are still under treatment and are improving. At the same time, in that curious way which unusual cases have of coming in groups, two cases of intractable corneal ulceration came to me. I found *Endameba histolytica* in one case and *Craigia* in the other as the source of infection. The patients have recovered. This work was further confirmed by Barraquer of Barcelona. In the first similar case that I saw with him, we found amebas, and the first injection reduced the redness of the eye. The patient is still improving under treatment. This work should be confirmed, and the means of confirmation are simple. If the relation is confirmed, we shall have to include in our nomenclature the term protozoan iritis as well as that of protozoan keratitis. I would suggest, if any cases can be found which go on, as did my first case, to intractable glaucoma in one eye, that careful section of such an eye might wholly clear up the question of the actual invasion of the tissues by protozoa, a question which is still under discussion, and which would go far to aid the internists on this important question.

Dr. F. Park Lewis, Buffalo: Shortly after Rosenow demonstrated the affinity of certain organisms for special tissues, it occurred to me that it would be well to see whether the same fact held good in intra-ocular inflammations. A case of malignant iritis coming under my observation gave an excellent opportunity for making this study. After the elimination of every other possible source of infection, a roentgenogram showed the presence of an apical abscess. The tooth with which this was connected was removed under as nearly aseptic conditions as possible. It was then dipped in iodin, cracked open, and a culture made in bouillon from the root canal. The organism proved to be *Streptococcus hemorrhagica* in an almost absolutely pure culture. Several white rabbits and some white mice were procured, and about 6 c.c. of the bouillon was injected into the ears of the rabbits and the abdomen of the mice. Twenty-four hours later, a second injection of the bouillon was injected into the abdomen of the rabbits. Forty-eight hours after the first injection, the eyes of the rabbits were found to be highly injected; the iris was inflamed, and the pupil contracted. It was a definite case of iritis. The eyes of the mice also reddened, but the involvement of the iris was not so readily determined. After the second injection, the rabbits died. The eyes were immediately removed under aseptic precautions, and a bit of the iris dropped into sterile bouillon. The next morning, the bouillon was found alive with an almost absolutely pure culture of the same organism. This was, I think, the first instance in which a definite demonstration was made of the selective affinity of an organism for an intra-ocular structure. I think that sometimes in the study of pathology we arrive at a more exact estimate of the actual conditions that obtain by an observation of the disease when it appears in a minor rather than in a maximum degree. We do not know quite what changes occur in the venous structures within the eye as the result of focal infections, but I have seen, as their result, moderate obstructions in the retinal veins with edema around the macular and lowered vision. Such a case came recently under my observation in consequence of an apical abscess, the congestion disappearing and the vision being restored on the removal of the infected tooth. The probabilities are that either as a result of bacterial infection or from the toxins given off by bacteria and taken into the venous circulation, a small embolus was formed which obstructed the circulation, but which was absorbed or passed into the general circulation when the source of the infection was taken away. I suggest this as a possible explanation of the somewhat obscure conditions that occur in advanced stages when we have complete obstruction of the veins and absolute blindness as a result.

Dr. John A. Donovan, Butte, Mont.: Drs. Brown and Irons discuss the etiology in different localities. I find that, in many cases of iritis, treatment of the nose brings marked improvement. My experience has been that many cases of iritis are due to inflammation of the nose. My experience in tuberculosis has been much like theirs.

Dr. W. H. Dudley, Los Angeles: In a case of acute iritis beginning with violent symptoms and progressing rapidly, I investigated the cause. The patient had had a Wassermann test made recently. The teeth and tonsils were negative; the intestinal tract proved the same, and the urine was negative except for large quantities of diacetic acid and acetone. This being an unusual finding in a case of this sort, I gave the patient sodium bicarbonate. Within forty-eight hours, the eye became practically white, the pain was gone, the synechiae were disappearing, and the pupil was wide. In one case in which I had a great deal of trouble in getting response to remedies for two or three months, reexamination of the urine showed the same condition with reference to the acetone and diacetic acid. In this case, also, the response to alkali was prompt. The vision began to improve and the condition was relieved. Up to the present there has been no return of the trouble. Two cases do not prove much, but I do feel that, in some cases that do not clear up promptly under the measures used, if no other cause can be found, it is worth while to look for these acetone bodies.

Dr. Allen Greenwood, Boston: "Elimination of diseases causing iritis" is a broad term. How can we always eliminate a cause? We make a roentgenogram of the teeth, but we have not absolutely eliminated the teeth. We examine the tonsils, but we have not absolutely eliminated the tonsils unless we remove them. The same is true of other conditions. It is a difficult matter to eliminate the hidden causes of this disease. Another thing, very few of the cases recorded as tuberculous are, I think, diagnosed correctly. Some of the members might confuse acute iritis with uveitis, which is often tuberculous in origin. In cases of acute iritis, it seems

to me that tuberculosis is rarely the causative agent. I think most of us will agree that in private practice the question of focal infection in the teeth is of more importance than in the tonsils, for there are more cases which can be demonstrated to be due to focal infection from the teeth. I am accustomed to take cultures of dental focal infections, and in most cases find the streptococcus that Dr. Rosenow has proved to be one that has a particular affinity for the iris.

DR. ANDREW TIMBERMAN, Columbus, Ohio: I believed in a causal relationship between teeth, tonsils and iritis for many years. In the last few years, however, I have changed my ideas. I heard this first report on 100 cases in Washington six or seven years ago. I was very much impressed and have been watching my cases with more interest since that time. Many of my cases of iritis have passed through the hands of other physicians, many of them oculists, and particularly the class of oculists who do no nose and throat work. I found, on observation, that many of these men made a very careless examination of the throat. Then I began a rather systematic examination of the throats of my patients, and in many instances when I first looked at them, I was sure that there was nothing wrong. But I have gone past that. A casual examination never will do. I never make an examination of the throat without pulling forward and to one side the anterior pillar, thus thoroughly exposing the fossa. I think that many times we overlook focal infection in that region. Only recently I saw a woman who had been told that she had no tonsils. When I first looked at her throat my impression was that her tonsils had been removed, but on more careful examination I found that she had tonsil abscesses hidden in the superior part of the fossa. I have come to look on tonsils a good deal as Schwartz did on temporosphenoidal abscess. I heard him say that there might be every symptom of temporosphenoidal abscess and the abscess not be present; and that one might have no symptoms of temporosphenoidal abscess and the abscess still be there. So it is with infected tonsils. I read an article by a New York man some time ago on "The Crucifixion of the Tonsil," and I rather agreed with him; but more mature observation and experience lead me to believe that if every child had his tonsils removed at 6 years, future generations would be happier and more healthy. These charts would suggest that sans teeth and sans tonsils, and desexed, we may be able largely to curb iritis.

DR. M. H. LEBENSOHN, Chicago: A negative Wassermann reaction does not always mean no syphilis. In pre-Wassermann days, we used to depend on therapeutic tests. A patient who gave no evidence or history of syphilis was treated with a good deal of mercury and iodids. If he recovered, we said it was syphilis, and if he did not recover, we did not know exactly what it was. The therapeutic test is still good. I have had a number of cases in which the spinal fluid and blood Wassermann reactions were negative, and if I could not find any cause at all, I put the patient on mercury and iodids, with a great deal of benefit. Now, if I get a positive blood or spinal fluid Wassermann reaction, I treat the patient with arsphenamin; if I get a negative Wassermann reaction, I treat him with mercury and iodids, and with great benefit in the treatment. I would like to ask Dr. Irons whether any cases that were clinically negative and gave a negative Wassermann reaction were given the therapeutic test?

DR. W. H. ROBERTS, Pasadena, Calif.: Dr. Lebensohn has not proved that those cases that do not show syphilis and that do not react to the therapeutic test are, nevertheless, due to syphilis. I think that a large majority of cases of iritis will improve under antisyphilitic treatment no matter whether they are syphilitic in origin or not. Before the days of serology, there is no doubt that we had the same troubles; i. e., toxins causing iritis, and yet we were told that 75 per cent. of our cases of iritis were syphilitic, and why? Because they improved under antisyphilitic treatment. If they improved in the old days under antisyphilitic treatment, they will still continue to improve under this treatment. Therefore, I wish to make a plea for the use of antisyphilitic treatment in all cases.

DR. ERNEST E. IRONS, Chicago: With regard to the effect of removal of tonsils on an iritis, it is, of course, recognized that in cases in which the iritis is due to tonsillar infection, the removal of tonsils is desirable and hastens recovery; but the argument as to etiology should not be based entirely on the effects of tonsillectomy. In cases in which subsequent events indicate that the iritis was due to other causes, sudden but temporary improvement may follow tonsillectomy. This effect seems to be analogous to the sudden effect following the intravenous injection of foreign protein, and like this, is probably nonspecific. We have, of course, used antisyphilitic treatment in cases in which it seemed indicated. In dealing with all forms of infection, it is necessary to bear in mind not only the sources of infection, but also the important factor of resistance of the patient. I agree with Dr. Holloway that the source of material is bound to modify the results obtained in respect to relative frequency of occurrence of the several causes of iritis. This is illustrated in the comparison of results in our two series. We have attempted to present merely a simple statement of what we found in these 200 cases which we studied as carefully as we could.

STUDIES ON ISO-AGGLUTININS IN THE BLOOD OF THE NEW-BORN*

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Transfusion of blood has become such a specific curative measure in hemorrhagic disease of the new-born and in traumatic or accidental hemorrhages in the new-born occurring during delivery that the practical application of this work will become evident at once.

Some observers have stated that iso-agglutinins and isohemolysins are not present in the blood of the new-born and, hence it is unnecessary to test for compatibility of the bloods when the mother acts as donor for her offspring. On the other hand, others assert that both iso-agglutinins and isohemolysins are present in the blood of the new-born, even in that of premature infants, before birth, and that transfusion without compatibility tests may prove disastrous. The latter opinion is the one prevailing. It is on account of this variation in opinions that the present study attempts to verify either contention.

One hundred mothers and their respective new-born babies were grouped (Moss' classification) and subsequently crossagglutinated. In every case the blood of the new-born baby was collected from the umbilical cord and the blood of the mother from the median basilic vein. All tests were performed within seventy-two hours after delivery. To prevent imperfect results, all bloods were previously tested for autoagglutination, a rare phenomenon occurring when the temperature of the blood is below that of the body. The grouping of the blood of both the mother and the new-born baby was done in the usual manner with known citrated serum 2 and 3. The technic for the cross-agglutination tests was as follows:

Five drops of a 1.5 per cent. sodium citrate solution was placed in each of two small test tubes. Nine drops of the baby's blood was collected in one tube, and one drop of the mother's blood added. In the other tube was collected nine drops of the mother's blood and one of the baby's. Both tubes were thoroughly shaken and allowed to stand for one-half hour. One-half drop of blood from the first tube was placed on the left extremity of a glass slide, and one-half drop of blood from the second tube was placed on the right extremity

* From the obstetric service of Dr. George L. Brodhead, Harlem Hospital.

of the same slide. A drop of physiologic sodium chlorid solution was added to each half drop of blood in order to dilute them, so as to render hemolysis and agglutination of the red blood cells much more easily visible. Cover glasses were used, and the bloods were examined microscopically. In fact, all bloods were examined microscopically, both when tested with the known serums and when crossed. Before each agglutination test was read positive, at least one-half hour elapsed, and the results were determined only after repeated thorough mixing and agitation of the bloods by rotating and lifting the cover glass from the slide. This was done to hasten, facilitate and make certain of the agglutination in case it occurred.

Table 1 shows the results obtained.

TABLE 1.—*Results of Cross Agglutination and Grouping*

Case	New-Born	Mother	New-Born	Mother	Case	New-Born	Mother	New-Born	Mother
1....	0	0	4	4	51...	0	0	4	4
2....	0	0	4	4	52...	0	0	2	2
3....	0	0	4	4	53...	0	0	4	4
4....	0	0	2	2	54...	0	0	1	3
5....	0	0	4	4	55...	0	0	2	4
6....	0	0	4	4	56...	0	0	2	4
7....	0	0	4	4	57...	0	0	4	4
8....	0	0	2	2	58...	0	0	1	4
9....	0	0	4	4	59...	0	0	2	3
10....	+	0	2	4	60...	0	0	1	4
11....	0	0	3	3	61...	0	0	4	4
12....	0	0	4	4	62...	0	0	4	1
13....	0	0	2	2	63...	0	0	3	1
14....	0	0	1	2	64...	0	0	2	4
15....	+	0	4	4	65...	0	0	3	2
16....	0	0	4	4	66...	0	0	4	1
17....	0	0	4	4	67...	0	0	4	3
18....	0	0	4	4	68...	0	0	4	4
19....	0	0	4	4	69...	0	0	2	1
20....	0	0	4	4	70...	0	0	2	4
21....	0	0	4	4	71...	0	0	3	3
22....	0	0	4	2	72...	0	0	4	1
23....	0	0	1	4	73...	0	0	4	2
24....	0	0	2	1	74...	0	0	4	3
25....	0	0	2	1	75...	0	0	2	2
26....	0	0	4	2	76...	0	0	2	2
27....	0	0	4	4	77...	0	0	3	2
28....	0	0	4	3	78...	0	0	4	4
29....	0	0	4	2	79...	0	0	4	1
30....	0	0	2	2	80...	0	0	4	1
31....	0	0	3	1	81...	0	0	3	3
32....	0	0	1	1	82...	0	0	3	1
33....	0	0	4	1	83...	0	0	3	3
34....	0	0	4	4	84...	0	0	2	1
35....	0	0	4	4	85...	0	0	2	2
36....	0	0	2	2	86...	+	0	4	4
37....	0	0	2	4	87...	0	0	4	4
38....	0	0	3	1	88...	0	0	2	2
39....	0	0	1	1	89...	0	0	4	4
40....	0	0	4	2	90...	0	0	4	4
41....	0	0	3	3	91...	0	0	2	3
42....	0	0	4	4	92...	0	0	1	2
43....	0	0	4	4	93...	+	0	1	4
44....	0	0	3	4	94...	0	0	2	2
45....	0	0	1	2	95...	0	0	3	2
46....	0	0	1	4	96...	0	0	4	4
47....	0	0	3	3	97...	0	0	3	2
48....	0	0	2	2	98...	0	0	4	4
49....	0	0	2	3	99...	0	0	3	1
50....	0	0	4	4	100...	0	0	4	2

In 54 per cent. of the cases, both the mother and her baby belonged to the same group, and therefore transfusion would have been perfectly safe.

In the remaining 46 per cent. of the cases, mother and infant belonged to different groups. In thirty of the latter forty-six cases, or in 65 per cent., the bloods when grouped were found to be absolutely incompatible, if we accept the grouping method as criterion for compatibility. By absolutely incompatible, I mean that either the mother belonged to Group 1 and her offspring to Groups, 4, 3 or 2; to Group 2 and her infant to Group 3 or 4, or to Group 3 and her infant to Groups 2 or 4.

In this incompatible group I do not include cases in which the mothers belonged to Group 4, and the newborn infants to either Group 1, 2 or 3, because Group 4 donors are supposedly universal donors, although this statement is somewhat incorrect.

When all the 100 cases were crossagglutinated, no clumping occurred, whether the bloods belonged to compatible or to incompatible groups. In only four cases (Cases 10, 15, 86 and 93) the red blood cells of the new-born were clumped by the mother's serum. This may be disregarded, as the important object in transfusion is to determine that the introduced red blood cells be not clumped. In no case were the corpuscles of the mother agglutinated by the serum of the infant.

From the results obtained, it is evident that no agglutinins or hemolysins are present in the blood of the infant capable of acting on the erythrocytes of the mother. If there are any, not only the agglutinins and hemolysins cannot be demonstrated by any known means, but also their agglutinating and hemolyzing powers must be so feeble that the mother's corpuscles are able to withstand their action, and remain intact and unaltered, so that transfusion is absolutely safe and devoid of danger even when compatibility tests are disregarded. Transfusions on infants at Harlem Hospital have demonstrated these facts repeatedly. Mothers belonging to a group incompatible with the group of their respective infants have been used without any ill effect, and in some cases without even a rise of temperature and chill so common after any transfusion. Furthermore, this study shows that the different groups to which the mothers belong occur with approximately the same frequency as those of the new-born, as evidenced by Tables 2 and 3.

TABLE 2.—*Classification of Mother's Blood*

	Number
Group 4	44
Group 2	26
Group 3	13
Group 1	17

TABLE 3.—*Classication of Blood of the New-Born*

	Number
Group 4	47
Group 2	24
Group 3	17
Group 1	12

Another very important piece of evidence has been brought out by this study. Up to now, it has been said that the corpuscles of the new-born do not have their full quota of receptors. My results demonstrate that this is a misconception, because every new-born infant has been grouped with the known serums 2 and 3 according to the Moss classification. If the red cells of the new-born infants did not possess receptors susceptible of being acted on by agglutinins present in other serums, how could we explain the fact that all of the 100 cases have been grouped successfully, as Table 1 shows?

Finally, if the skeptic contemplates compatibility tests, the cross-agglutination should be the one of choice, as Table 1 clearly shows that even though the donor and the recipient belong to incompatible groups, the cross-agglutination test will determine absolute compatibility. This would prevent rejection of the mother as the probable donor, eliminate the search for a compatible one and save time, all of which may be of vital importance in emergencies.

CONCLUSIONS

1. Mothers may act as donors for their new-born infants without compatibility tests for agglutination and hemolysis.

2. If tests are contemplated, the cross-agglutination test should be the one of choice so as to prevent the rejection of the mother donor in case she is found to belong to an incompatible group.

3. Proof is given that the corpuscles of the new-born infants have their quota of receptors. This is shown by the fact that in all of the 100 cases, the new-born babies have been grouped successfully according to the Moss classification.

4. Successful transfusions done at Harlem Hospital, using mothers who, when grouped, were found to belong to groups incompatible with those of their respective new-born infants, demonstrated practically that mothers may be used with impunity without any danger whatsoever.

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CONTROL OF PAIN IN FUNCTIONAL HYPERESTHESIA OF THE CILIARY MUSCLE (PAINFUL ACCOMMODATION)

THROUGH THE NASAL (SPHENOPALATINE, MECKEL'S) GANGLION *

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In this and other countries where the most prevalent refractive defects are hyperopia or hyperopic astigmatism, the services of the ophthalmologist are most frequently sought for the relief of discomfort or pain in or in the vicinity of the eyes or in some part of the head, this symptom usually being associated with smarting, blurring of print, and a whole galaxy of minor complaints which are grouped under the term "asthenopia." Since myopia and myopic astigmatism are relatively infrequent, as compared with refractive states in which axial shortening is the fundamental defect, it follows that the complaint is much more frequently "inability to use the eyes" than it is "inability to see."

It is not our purpose to catalog or describe the great number of symptoms of asthenopia; they are legion. They vary greatly in different patients and, indeed, may vary greatly in the same patient at different times. To the patient who is not in the habit of analyzing his sensations, an accurate description may be impossible. On one point, however, he is very clear; namely, that his discomfort is aggravated by the use of the eyes.

In the vast majority of such patients an accurate correction of the refraction (and by this is meant the determination of the refractive error to the eighth of a diopter for the axial ametropia and the astigmatism, and the precise placing of the axis of the cylinder), associated with the correction of any vertical muscular error and appropriate management of lateral imbalance by means of prisms, exercises or operation, as may be indicated, will abolish all symptoms and permit the eyes to respond painlessly to all the demands of modern life.

It is a very common experience to find a patient suffering from a variety of asthenopic symptoms, including pain, whose distant vision is defective. The assumption that the refractive condition is one of myopia is strengthened by the improvement in vision, often to normal, by the placing of minus spheres (or minus spherocylinders) before the eyes. It is in cases of this type that the refracting optician frequently prescribes minus lenses, and is chagrined to find that his glasses, far from relieving his client, lead only to an aggravation of symptoms.

To the ophthalmologist, the true refractive condition is instantly revealed when the patient's eyes are put under the influence of atropin or some other reliable cycloplegic—a hyperopia, hyperopic astigmatism or rarely mixed astigmatism—which has been concealed by increased convexity of the lens dependent on exalted tone or "contracture" of the ciliary muscle. In many cases the prescription of proper lenses, but little weaker than the static measurement, leads to the happiest results. The "contracture" promptly yields to the combined effect of plus lenses and the complete physiologic rest of the ciliary muscle afforded by the cycloplegic.

Such a fortunate result, however, is not invariably attained. As soon as the ciliary muscle regains its activity after the effect of the "drops" has worn off, the contracture recurs, the eyes again become pseudomyopic, and the patient, while admitting that the glasses help for near work, bitterly complains that they make his distant vision very much worse. It requires great tact on the part of the examiner to gain the confidence and cooperation of the patient during the uncomfortable and trying period of adjustment to the new conditions imposed by the glasses. Before the spasm finally yields, it may be necessary to resort to several periods of atropin cycloplegia.

The relation between the physiologic tone and the pathologic exalted tone or "contracture" of the ciliary muscle has been discussed by Lancaster and Williams.[1] They define contracture as "a state of maintained contraction, or, looked at from the other and, as it seems to us, better point of view, a state of retarded relaxation. . . . Contracture is an excessive activity and should be stopped—tonus is normal and physiologic, and does not need to be stopped." The task of the examiner is, therefore, to determine how much of latent hyperopia is due to tonus and how much to contracture, and to prescribe a glass which shall do no more than "relieve the excessive action."

Accommodation associated with pain due to contracture of the ciliary muscle is characteristic of the extremely common types of cases just referred to. But there is another important, though not very large, group of cases in which accommodation provokes pain, often excruciating and utterly incapacitating, and in which there is no accommodative cramp. This condition was recognized and carefully differentiated by Donders [2] from cases of pain due to contracture, and was called by him "painful accommodation." Since the time of Donders, a number of writers have recognized the existence of painful visual sensations during accommodation and without accommodative cramp. For instance, Forster described this condition as hysterical kopiopia, Nagel as hyperesthesia of the ciliary muscle, Schenkel as hysterical ocular pain, and de Schweinitz as painful visual sensation, or hysterical asthenopia. All appear to be in agreement that underlying this

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* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Lancaster and Williams: Tr. Am. Acad. Ophth. & Oto-Laryngol., 1914, p. 170.

2. Donders: Accommodation and Refraction of the Eye, London, New Sydenham Society, 1864, p. 626.

accommodative anomaly there is invariably nervous instability.

In describing painful accommodation, Donders relates the following case history, which will help to make the clinical picture clear:

A patient residing in the East Indies experienced pain on making observations with optical instruments. His state was considered to be hyperemia of the retina. On reading and in calculating his observations, he had increased pain. Under atropin, hypermetropia of 1.5 was disclosed. Convex glasses, both weak and strong, failed to relieve. Derivants and leeches were tried, with equal want of success. Reading for a few minutes produced pain which compelled him to desist. After suffering eighteen months, he wrote to Donders, who ordered atropin twice a week and convex glasses of different strengths for work at different distances. Almost at once the pain ceased. We give the rest of the history in Donder's own words:

"When, after a first disappointment, the use of atropin was, a few months later, for the second time suspended, the pain on tension of accommodation did not return, and so far as I am aware no disturbance whatever has since recurred in making observations, reading, writing or calculating. This case scarcely needs any comment. It shows that in slight degrees of H. a condition may be developed by continued tension in which the least accommodation for near objects becomes very painful. Spectacles are then of no use, because with convergence involuntary accommodation is combined, and this again excites the pain."

This and similar cases related by Donders were all in patients under the presbyopic age. In 1917, one of us [3] presented a study of three examples of painful accommodation in persons with presbyopia. The impression gained from this study was that the condition was by no means so rare as the paucity of published cases would seem to indicate, and that probably many cases escaped us through failure to put ourselves *en rapport* with the whole physical and psychic history of our patients.

The diagnosis of painful accommodation should not be made unless these conditions coexist:

1. The presence of hyperopia, hyperopic astigmatism or mixed astigmatism.
2. The absence of any muscular anomaly which might conceivably give rise to symptoms of muscular asthenopia, including pain.
3. The absence of "contracture" or "spasm" of the ciliary muscle.
4. Complete control of pain during efficient atropinization.
5. The return of pain on use of the eyes as soon as the effect of atropin has passed away (the patient wearing his full correction).
6. The persistence for weeks and months of unabated pain in near work, despite the constant wearing of the full correction.

The inadequacy of routine measures in the management of these cases is well recognized by those who have given the subject much thought. The possibility that a patient who complains of pain in using the eyes may be suffering from "painful accommodation" should always be borne in mind. Several follow-up visits after glasses have been prescribed may be needed to establish the diagnosis. Too frequently, we suspect, the diagnosis is missed altogether, and the patient, unrelieved, drifts from one adviser to another. Sooner or later he is labeled "neurotic" and is shunted off to a psychiatrist, whose failure to help results in the patient consulting a representative of one of the cults. (Let us add, parenthetically, that we do not mean to disparage the value of mental suggestion in certain forms of asthenopia. We are entirely in accord with Lancaster's [4] recent observation that a careful analysis of the mental state of some of these sufferers will reveal "anxiety neuroses" which may be dissipated by psychotherapy.)

The fact that the pain can be completely abolished by thorough atropinization, that it does not return during the period of atropinization, and that it does return with the resumption of the function of the ciliary muscle, proves that the source of the pain lies in the ciliary muscle. We feel, therefore, that Nagel's designation—hyperesthesia of the ciliary muscle—most accurately describes the condition.

Not all cases are of the relatively mild type of the one related by Donders, and yet even in his case the first atropin period was followed by recurrence of symptoms. Typical of the severe type is a case reported by one of us [3] in 1917, a brief synopsis of which is given:

Dr. X., a man of excellent physique, after graduating in medicine, set out to achieve a large measure of success as a practitioner. He was successful from the start. He entered actively into the work of various medical societies, held various teaching positions in his medical school, and ultimately occupied the chair of surgery. For twenty years it was one continual grind from morning to night. Often he would return home at midnight, tired out after a round of visits, and spend the next two or three hours preparing himself for the next day's lecture or demonstration. In spite of his strenuous life he supported, with equanimity, a moderate hyperopia, with a low inverse astigmatism. Without experiencing any of the signs of early presbyopia, he reached the age of 47, when, rather suddenly, the accommodative strain became too great. After a morning's operating, he would pass a wretched afternoon, with bloodshot, aching eyes. The oculist consulted prescribed reading and operating glasses, with bromids internally. There was no relief. Finally a sea trip was planned and undertaken, during which he abstained from reading. He returned convinced that his eye troubles were at an end. But his hopes were dashed the first morning he attempted to operate—the eyes burned and ached. That afternoon was spent on a couch in a dark room, with cool cloths applied to the closed lids. For two months he led a miserable existence, endeavoring to get through with the accumulated operative work of the summer, and spending his afternoons and evenings in ocular misery. He was fond of social life, but found the bright lights of the drawing room intolerable. "On several occasions," he said, "it has required all my will power to remain in a friend's house the time demanded by the rules of courtesy." Such an experience would be followed by a sleepless night.

A group examination proved that, apart from his eyes, he was a thoroughly sound man. The measures adopted in this case were (1) prolonged atropinization (one month); (2) full correction of a hyperopic astigmatism and presbyopia (bifocals); and (3) systematic reeducation of his irritable ciliary muscles by carefully regulated reading exercises. He abandoned his practice, and went to live on his farm in a distant state. He has made a partial recovery (ability to read upward of an hour at a time), but has never ventured to resume his practice.

As has been stated, it is always possible to abolish the pain in this condition by rendering the accommodative apparatus functionless by means of atropin, but it is obviously impossible to keep a patient permanently under the influence of atropin; and, moreover, in persons with presbyopia, such a procedure is not without danger of inducing a rise of tension in preglaucomatous eyes.

3. Green: Tr. Am. Acad. Ophth. & Oto-Laryngol., 1917, p. 178.

4. Lancaster: Tr. Am. Acad. Ophth. & Oto-Laryngol., 1922.

The question then arose, Might it be possible to control the ciliary pain by indirect measures? As pain is the sole disabling factor, if some means other than atropinization could be found of controlling this factor, there would be far less difficulty in reestablishing the normal function of the ciliary muscle. It was recalled that, in 1908, Ewing [5] reported the complete relief of the pain of an acute glaucoma within a few minutes after the application of a 50 per cent. solution of cocain to the mucous membrane over the site of the nasal ganglion. One of us [6] has frequently observed the complete control of the pain of an acute iritis by the full cocainization of the nasal ganglion on the corresponding side. If the pain of glaucoma and the pain incident to a congested or inflamed ciliary muscle (iritis) can be controlled by this measure, it seemed likely that it would be equally efficacious in functional hyperaesthesia of the ciliary muscle. About eighteen months ago an opportunity was given to test this theory.

REPORT OF CASES

CASE 1.—*History.*—Rev. J. W. H., aged 34, a Canadian clergyman, consulted one of us (J. G.), Oct. 13, 1921. We give his ocular history in his own words:

"From the age of 16 to 22, I worked in an engineering factory. I worked from 6 a. m. until 5 p. m. in the usual trying conditions peculiar to most factories in those days. Being ambitious, I took up a college course. The lectures were at night and several miles from my home, so that for five years I led a very strenuous physical and intellectual existence. I was very strong, however, and all during that period had no eye trouble of any description. After completing my course at the end of six years, I was a fully indentured engineer. I then decided that I would enter the ministry. Having very little means, I was compelled to take a somewhat difficult course to achieve this. But this is aside of our present object. It was, however, during my first year at the theological college that it became necessary to consult an eye specialist. He ordered spectacles, and I have worn them ever since. After I finished my theological course, I left England and came out to Canada. For six years I did missionary work. During that time I had little or no trouble. After this I came to the city and there was connected with a large city church. I then began to have difficulty in focusing, and during my year there I was compelled to consult a specialist several times. With each consultation there was a change of lenses made.

"I then volunteered for overseas service in Mesopotamia; but owing to very important work that I was given in India, I was not allowed to reach Mesopotamia. Gradually the eye strain increased. So bad did it become that at the end of a year I was rarely without acute pain. This brought on (together with tremendous responsibilities) great mental irritation. During an interview with the general, I flared up and gave him a first-class exhibition of temper. This was so unusual that he put me down as a sick man. I confessed to the head and eye aches. That night he took me to Bombay with him to consult some of the army specialists. They gave further changes of refraction, and ordered me to the hills for a six weeks' rest. At the end of that time I was a little better; but as soon as I took up the work again the old trouble returned. The upshot was that the doctors ordered me home to Canada.

"On my return I consulted an oculist. He said that it seemed to him that the trouble might be some organic nervous trouble and turned me over to a nerve specialist (a psychanalyst). After several months of digging into my complexes, I apparently refused to be harmonized, as I was as bad as ever. Then followed a course of chiropractic. But the spine juggling brought only increased irritation. It was after this series of séances that I went to Beaumaris to recover from the manhandling, when I met you. The rest you know. This, briefly, is the history of my life as far as the eye trouble is concerned. As I look back I believe I have suffered from painful accommodation for about eight or ten years."

Symptoms.—Ocular pain and retro-ocular headache developed almost immediately after the patient began to read: "Both eyes got red-hot. . . . They seemed to swell and protrude." The patient was well set up and muscular, and looked the picture of health. He had had no severe illness. Apart from a slight drooping of the lids, which gave to the face a sleepy expression, and moderate conjunctival hyperemia, there was nothing noteworthy. The pupils were equal and reacted normally. Right vision was 6/22; left vision, 6/22.

Right — .12 — 1.75 CX 10° V 6/6
Left — 1.50 CX 150° V 6/6+

Muscles: Distance, orthophoria; near, exophoria 6°; no hyperphoria; no cyclophoria.

Form fields, full; there was some interlacing of the green and red fields. There was no central color defect. Physical examination was negative. Roentgen-ray examination of the teeth was negative. Under homatropin cycloplegia:

Right + .5 — 2.00 CX 5° V 6/5
Left + .75 — 2.25 CX 170° V 6/5

Treatment and Course.—Atropin, 1 per cent., was then ordered (three times a day for one week). After the first day the eyes became entirely comfortable and remained so throughout the period of atropinization. The test (atropin) gave:

Right + .75 — 2.50 CX 10° V 6/5
Left + 1.25 — 2.25 CX 170° V 6/5

Glasses were prescribed as follows:

Right + .5 — 2.50 CX 10°
Left + 1.00 — 2.25 CX 170°

Accommodation was: Right, 6.00 D; left, 6.00 D. Ophthalmoscopically, the eyegrounds were normal.

One of us (G. S.) reported, Oct. 13, 1921. "Mr. H. has a well marked hyperplastic postethmoid-sphenoiditis."

During the period from October 13 to 25, routine nasal treatment was directed against this condition. October 26, the right nasal ganglion was injected (.5 c.c. of 5 per cent. phenol, 95 per cent. alcohol). November 1, the left nasal ganglion was injected.

The patient returned to his home in Canada, Nov. 11, 1921. He was forbidden to use his eyes for more than five minutes at a time at first, but was instructed to increase the reading periods very gradually, provided pain did not recur. He was given a 3 per cent. homatropin solution to use at night in case the symptoms should reassert themselves. He was also provided with a 1 per cent. atropin solution for another "rest cure," should the pain recur in its former severity. As it was possible for him to relinquish his pastoral duties for six months, he was advised to do so.

He wrote under date of Nov. 27, 1921, "I have not written to you earlier as I thought it would be better to take a couple of weeks and then report on the condition of my eyes. I find the last few days that there has been a recurrence of the pain and sense of strain in the eyes. I resorted to the drops, as ordered, and I am afraid it will be necessary to place the eyes again at rest by a two weeks' application of atropin. The severe headaches from which I suffered have so far not returned, which, as you can imagine, is a great source of relief and gives me every encouragement to hope that the source of the trouble has at last been located. I have given up the parish for six months, as you suggested, and so will give the eyes all the chance that I can to obtain a complete rest."

Feb. 23, 1922, he wrote: "I have had none of the extreme pains at the back of my head since the operation, but the eyes still are troublesome, although there is marked progress. I do not have pain as frequently as I did, and the pain is confined almost entirely to the balls of the eyes; but as to reading, it is next to impossible to read for ten minutes at a time without the pain recurring."

The patient returned to St. Louis, April 8, 1922, complaining of aching through the temples and eyes. Cocainization of the nasal ganglion on either side produced almost immediate and complete relief.

5. Ewing: Am. J. Ophth. **25**: 354-355, 1908.
6. Sluder, Greenfield: Headaches and Eye Disorders of Nasal Origin 1918, p. 230.

April 10, the patient reported that he had been free from pain up to 6 p. m. of the 8th, when it recurred slightly. On the evening of the 9th, pain recurred in the occipital region. April 17, the right nasal ganglion was injected. Three days later the left was injected. Repeated tests yielded identical results, as follows:

Right + .50 — 2.00 CX 5°
Left + .87 — 2.00 CX 165°

which were prescribed.

Nothing more was heard of the patient until Dec. 22, 1922, when, in response to a letter of inquiry, he wrote: "I am sure that both you and Dr. Sluder will be as delighted as I am to know that I am in better health now than I have been for five years or more. On my return from St. Louis in the spring, for a time I was a little shaky. Nothing very acute but a certain discomfort. . . . About the end of July I had a very bad attack, which lasted three days. The pain was acute, both in the eyes and the back of the head. Since that time I have gotten gradually better. I have never now a suggestion of pain in the head, and my eyes are splendid. I gradually took up reading toward the end of September, and now use my eyes as much as I ever did."

On the return of the patient to St. Louis, Jan. 23, 1923, it was possible to verify all the foregoing statements. A final adjustment was made, as follows:

Right + .37 — 1.87 CX 5°
Left + .75 — 1.87 CX 165°

March 17, he wrote: "My eyes still continue in splendid condition. There has been no suggestion of a return of the old trouble, although I use my eyes for reading and writing several hours each day."

CASE 2.—Mrs. L. D., aged 61, gave a typical history of painful accommodation of several years' duration. After estimation of her refraction (under homatropin), glasses were prescribed as follows:

Right + 2.75 + .25 CX 120°
Left + 2.37 + .62 CX 60°

Muscles: Distance, esophoria 1°, no hyperphoria; Near, exophoria, 3°, no hyperphoria. Accommodation: right 1 D; left 1 D.

The patient had the benefit of a group examination, which disclosed nothing but some abscessed teeth, which were promptly extracted. She has been seen at intervals for several years. Systematic reading exercises of increasing duration have been tried on several occasions, but pain and "distress" invariably occur in from ten to twenty minutes. When seen, Nov. 1, 1922, she was very despondent because of severe pain in the eyes which came on a few minutes after beginning to read. November 4, both nasal ganglions were injected. She returned to St. Louis, Jan. 25, 1923. She stated that since the nasal operation "there is freedom from nerve strain around the eyes" and that her "head feels more comfortable." She can now read thirty minutes without discomfort. She was anxious to have the nasal operation repeated, which was done, January 26. At this writing (March 25, 1923) she is still in the stage of reaction following the second injection: hence final conclusions cannot be drawn. This case is admittedly incomplete. It is presented merely to show improvement following a single injection.

COMMENT

A frontal sinus abscess causes pain in the brow, which, almost uniformly, comes on after the patient arises, and stops sometime during the day, the night always being free of pain. Because of its "morning" appearance, in earlier time it bore the name of "sun pain"; because of its cyclic recurrence, it was supposed to be of malarial origin. Such a patient will show pathologic changes in the frontal sinus by roentgen ray, and will have pus in the middle meatus in the nose, unless the outlet is completely occluded; under this condition, there will be great pain, and rupture into the orbit will almost surely follow.

Vacuum frontal headache, not unlike the clinical picture of painful accommodation, uniformly gives a tender point at the upper inner angle of the orbit—"Ewing's sign"[7]—with greater or lesser discomfort on use of the eyes, particularly for near work.

Anterior ethmoiditis causes pain referred to the eyes or behind them; usually pus is found in the middle meatus. Vacuum anterior ethmoidal headache gives rise to similar sensations, and, in addition, there is a point of tenderness at the site of the lacrimal bone. Nasociliary neuralgia is described as tenderness of the nasal bone and discomfort from the pressure of the bridge of spectacles or the guards of eye glasses; Ewing's sign is absent. It is relieved by applications of cocain to the uppermost anterior limit of the nose, the point at which the nasociliary nerve enters. It is doubtful whether disease of the antrum of Highmore ever gives rise to sensations which might be regarded as of ocular origin. All of these disorders are unrelated to painful accommodation, which, it seems to us, is a separate and distinct clinical entity.

For some time it has been known to us that the pain of all eye disease could be stopped by a cocainization block of the nasal ganglion. One of us (G. S.) has observed a case of traumatic keratitis with great pain, which was stopped by cocainization of the nasal ganglion. The only sensation left in the eye was described as the same feeling as "when the cinder first struck the eye"; in other words, the ophthalmic division of the fifth nerve conveyed the sensation first made by the cinder, but the great deep pain of the infected cornea was controlled through the nasal ganglion. Bryan[8] has reported a herpes of the first and second division of the fifth nerve with great pain in the eye. He showed that cocainization of the ganglion stopped the pain in the eye, but did not influence the pain of the first division. He then did an intrasphenoidal cocainization of the upper lateral part of the sphenoidal cell along which the first division runs, with complete relief of the pain in the first division but without abatement of the ocular pain.

From these cases it seems reasonable to infer that the great pain of ocular disorders, iritis, keratitis, etc., is transferred by some path through the nasal ganglion, and it seems to us to follow logically that hyperesthesia of the ciliary muscle may be, in some instances, produced by lesions in that district. Such lesions should be susceptible of satisfactory surgical treatment, but great care should be taken in establishing a differential diagnosis. Let us recall, in this connection, that lower half headache may be of ganglion or sphenoidal origin. In the one case it is controllable through the nasal ganglion and in the other it is not, so that falure to control it through the nasal ganglion does not mean failure of all possible control. In addition to those cases which almost always show pathologic changes in the district, there are others which are controllable by cocainization of the nasal ganglion, but do not always give satisfactory results from injection of it. Of late, one of us (G. S.) has come to think that through the sympathetic there may be exercised an influence on disturbances in distant parts, which, at present, is not at all understood and cannot even be speculated on. Although these cases are relieved by cocainization of the nasal ganglion, injections of it are disappointing. In the case of the clergyman there was a definite postethmoidal inflammation without pus; it was an ideal case for injection. The first injection relieved the great pain from which he suffered, leaving only the painful accommodation; the second injection relieved the painful accommodation, which is quite in line with logical expectation.

7. Ewing: Tr. Am. Ophth. Soc. 9: 60, 1900.
8. Bryan, W. M. C.: Personal communication to the authors.

If, as we believe, the effect of the injection is to bring about an involution of the hyperplastic process surrounding the ganglion, it is not surprising that there may be an interval of several weeks before the patient is conscious of improvement. It is possible, too, that as the number of cases increases, we may meet with disappointments, as some of them may be of sphenoidal origin, or the point of control may be within the sphenoid.

Was injection of the ganglion a positive factor in the improvement of these patients? Would they not have improved as rapidly and as well by accurate correction of the refraction, atropin rest periods and systematic ocular exercise (reeducation of the irritable ciliary muscle)? Our experience indicates that while these measures are necessary and essential in every case and may suffice in the milder examples of this trouble, they are likely to fall short of entire success: that while there is usually improvement there is only rarely a definite cure.

The one conspicuous feature—pain—occurs whenever the ciliary muscle is called into use by the act of accommodation. Other symptoms of asthenopia, if present, are inconspicuous. The pain increases in intensity, the longer the patient uses his eyes, until at last it becomes unbearable and the patient has to desist. It does not terminate with the cessation of near work, but continues for many hours after the accommodation has been inactive.

It is our belief that injection of the nasal ganglion, by eliminating the disabling symptom—pain—is a very real factor in permitting the patient to resume the normal use of his eyes. It is a truism that one shrinks from exercising any bodily function that experience has shown will surely give rise to discomfort, and this disinclination is not solely confined to highly sensitized persons—the so-called neurotics. If, after repeated trials, a patient, equipped with the most exact refractive correction, experiences pain after a few minutes' use of the eyes and finds that his painless reading periods do not become longer, however assiduous his practice and however faithfully he may carry out his physician's orders, he will inevitably despair of ever fighting his way through.

On the other hand, if nasal ganglion injection, by abolishing his painful sensation, reveals to the patient a new power and a new endurance, the early reestablishment of the normal function of the ciliary muscle will not be difficult.

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ABSTRACT OF DISCUSSION

Dr. Lloyd Mills, Los Angeles: This novel application of Dr. Sluder's work is based on the following facts and statements: 1. The sphenopalatine ganglion and its branches become involved in the exceedingly common hyperplastic inflammations of the postethmoid sphenoidal district in the same way that the optic nerve may be affected in postethmoid sphenoiditis. 2. The intense pain of iritis, ocular herpes, glaucoma and keratitis has yielded to cocain anesthesia or to silver nitrate cauterization applied over the sphenopalatine foramen or to the injection of a phenol-alcohol mixture into the ganglion. 3. Injection of alcohol into the ganglion has been followed by sympathetic paralysis in the corresponding eye. Ocular pain or pupillary paralysis occurs but rarely, however, in frank ganglion involvement from adjacent nasal disease, the characteristic symptom of which is the "lower half headache" corresponding to the main nervous distribution. Ordinarily, no branches of the ganglion reach the globe; but this region is prone to anatomic vagaries, and branches to the sixth nerve; the ciliary ganglion and the optic nerve sheath have been noted. An active nervous relation between eye and ganglion functioning through the cervical sympathetic loop is too strained to be credible. A comparison, therefore, of the alleged constancy of sphenopalatine involvement, with the rarity of ocular association, forces the conclusion that these occasional cases represent the occasional anatomic variations already mentioned. The point is capable of proof, however, by the routine cocainization of the sphenopalatine ganglion in a consecutive series of patients with ocular pain, regardless of its cause. If all ocular pain can be relieved by this cocain block, then the constancy of an actively functioning relation between eye and ganglion is sufficiently and practically demonstrated. The difficulties that have hindered the acceptance of alcohol injection of the nasal ganglion have been those of accurately localizing the lesion in the sphenoid, ganglion or vidian nerve, inability to place the injection correctly, occasional severe pain and reaction, frequent necessity for repetitions of treatment, and the rare production of abducens paresis, ptosis and miosis. The possible great and more applicable benefits of the minor measures of cocain blocking and cauterization with silver nitrate have been lost sight of in the difficulties attendant on the severer procedure. The full value of these measures can and should be ascertained conclusively. Dr. Green is to be congratulated on the hopeful line of attack on the distressing condition of painful accommodation which is opened by his ingenious adaptation of Dr. Sluder's work.

Dr. Thomas E. Carmody, Denver: Of the pains in different parts of the fifth nerve, of course, we had knowledge for a long time, and we have paid particular attention to the pains associated with disease of the tonsils and of the teeth; but we had not considered the matter seriously until Sluder's work was made known. Of course, our attention has been called to Ewing's sign, but we do not know whether it involves the sympathetic, or how it is controlled. The pains Dr. Sluder described, which are sometimes referred to the throat from the sphenopalatine ganglion, and occur along the sphenopalatine margin, can be controlled. But those that are referred to the jaw and to the ears are not controlled by cocainizing the sphenopalatine ganglion. As to pain in the eye, I have had very little experience. The patients who complain of this symptom are referred to the oculist. If I do not find any signs of disease, I feel that the oculist should see them first to ascertain whether there is anything in the eye to account for the pain. The possibility of influencing pain in the eye through the sphenopalatine nerve appears to me to be due to the cocain being carried through to the lymphatic spaces. The ciliary branches have no relation, except through the sympathetic and back through the gasserian ganglion and the sphenopalatine ganglion. The point brought out by Dr. Green that many of these patients become neurotic and go from one physician to another, and then collapse, is important. The reason is that we do not go into the case thoroughly enough. The mental condition of the patient becomes such that he is likely to seek relief wherever he thinks it can be obtained.

Dr. George S. Derby, Boston: Although I do not wish to throw doubt on the diagnosis in the cases so well described by Drs. Green and Sluder, yet I think we should all bear in mind the great frequency of various types of neuroses among our patients. In my experience, painful accommodation most often manifests itself as a neurosis, and occurs in those who have been subjected to overwork and overstrain for a considerable period of time, as in the cases reported by Dr. Green, and also in others, especially women who are of unstable, nervous organization. We are beginning now to see in the literature more and more attention paid to this very important subject—witness a paper by Harford in the transactions of an international congress, and one by Lancaster at the last meeting of the academy. Some of these cases are most resistant to treatment, even in the hands of capable neurologists and psychiatrists. A good example of such a neurosis is the case of an ophthalmologist, aged 52, practicing in a New England city of moderate size, who consulted me last December, complaining that he could not use his eyes for close work for more than five minutes without pain. His refraction had been taken repeatedly without

result, and a thorough general overhauling had been negative. After a careful study of the case, I made up my mind it was a neurosis, and advised him to see Dr. Austin Riggs in Stockridge, Mass., one of our best neuropsychiatrists. The patient wrote to me later that he went to see Dr. Riggs. He found Dr. Lunt, an associate, writing a paper on the subject, so he collaborated with him from the standpoint of both victim and executioner, with quite successful results. His eyes have been well this winter and now do all the work he asks of them without much, if any, discomfort. I feel strongly that we should carefully consider this question of a neurosis in all these cases of so-called painful accommodation. It is hard to see how cocainization of the ganglion could have any permanent result.

DR. JOHN GREEN, JR., St. Louis: Any one who has observed the almost magical subsidence of pain in iritis after the application of 50 per cent. cocain to the nasal ganglion will no longer doubt that ciliary pain can be controlled temporarily by cocainizing this region. In regard to Dr. Derby's remarks, I am entirely convinced that these cases present a background of nervous instability. That was my conclusion in my first paper on this subject, presented in 1917. Of three cases reported, two were subjected to very careful neurologic and psychic examination, but in spite of every help from the neurologist and psychiatrist, these patients were not definitely cured. They were improved, but they did not reach the point of my clergyman, who has been able to use his eyes eight or ten hours without any discomfort whatever.

DR. GREENFIELD SLUDER, St. Louis: To what extent can the pain of inflammatory lesions in the eye be controlled through the nasal ganglion? It may be controlled by injection of the ganglion, but again injection may fail and subsequent cocainization may succeed. At present an explanation of these variations is unknown. Ocular pain without ocular lesions may depend on a lesion in the nasal ganglion, just as there may be a severe ganglion neuralgia, controllable from the ganglion, without evidence of a pathologic condition. It is understandable that functional eye pain, of whatever severity, from a lesion in the ganglion district should be controllable by injecting it. Patients with "lower half" headache, whose ganglion district appears normal, have had antecedent lesions there. Neurologic problems of the postnasal district are interesting and largely unsolved. It is possible that a "trophic" influence may be exerted over inflammatory eye lesions through the nasal ganglion. The adjective "trophic" may be inexact. Certain it is, however, that following control of pain through the nasal ganglion some intractable inflammatory eye lesions have suddenly begun to improve. Paralysis of the third and sixth nerves occurred once for each nerve. In these cases, the phenol-alcohol passed from the pterygomaxillary fossa upward and outward to the sphenoidal fissure (the tissues were unusually loose). Recovery was complete in three months. Sensory changes have been observed six times in the palate and once in the face. The question arises, Is it the general effect of cocain that controls the pain? Many times the experiment has been tried of heavily cocainizing some other part of the nose. It has always failed to relieve the ocular pain. The case referred to and reported by Dr. Bryan shows very clearly that the painful eye sensation is transmitted backward through the nasal ganglion and not through the ophthalmic division of the trigeminus. One is left with the feeling that it must be the sympathetic that conveys the sensation, which is difficult to understand, since the sympathetic reaches the eye by way of the ophthalmic ganglion of the first division of the fifth. It has been known for years that the sympathetic trunk carries sensory fibers, the cell bodies of which are in the posterior root ganglion. One is tempted to assume that these fibers may explain the phenomena. Ranson states that their threshold is high and that ordinarily they do not transmit painful sensations; but despite the sensory fibers in the sympathetic trunk, there is no anatomic explanation for the fact that eye pain can be controlled from the nasal ganglion, any more than there is explanation for the control of external cricodynia, or complex pharyngeal or esophageal spasm, by anesthetizing the nasal ganglion.

Clinical Notes, Suggestions, and New Instruments

ABSCESS OF FIBROID UTERUS PERFORATING INTO GENERAL PERITONEAL CAVITY

HERBERT E. STEIN, M.D., NEW YORK

The danger of fibroid tumors of the uterus lies not so much in their presence per se, as in the secondary changes that they may undergo, their remote effects on the cardiovascular system, and their pressure on neighboring organs and tissues.

Of 2,274 cases of uterine fibroids reported by Noble, these degenerative changes and complications were noted: necrosis of tumor; myxomatous degeneration; hyaline degeneration; cystic degeneration; fatty degeneration; calcareous infiltration; malignancy; edema; twisted pedicle; uncontrollable hemorrhage, and aberrant sites.

In this large series, suppuration was absent, although its presence has been noted by other authors. However, its infrequency is apparent. In a fairly extensive review of the literature, I have failed to come across the report of an abscess of a fibroid perforating into the general peritoneal cavity. A report of the case seems worth while.

REPORT OF CASE

Mrs. S., aged 44, admitted to the gynecologic service of Harlem Hospital, Aug. 14, 1922, whose family history was irrelevant, had pneumonia at the age of 19. Menstruation, which began at 14, was regular, of five days' duration, profuse in quantity, but not associated with any pain. She had been bleeding for the past five weeks by the vagina. She never had any miscarriages, and had had three normal confinements. During the last few years she had suffered with indefinite pains in the lower abdomen.

The day before admission to the hospital, the patient was seized with severe lancinating pain in the hypogastric region, more marked about the umbilicus. After that, she vomited several times, noticed abdominal distention, and was unable to empty the bowels or evacuate the bladder.

The patient was stout, dyspneic and apparently in pain. The mucous membranes were pale; the heart sounds were of poor quality, and there were asthmatic râles present throughout the chest. Blood pressure was 105 systolic, and 65 diastolic. There was moderate distention and tenderness of the lower abdomen. An indefinite, rather hard mass extended from 2 centimeters below the umbilicus to the symphysis.

Pelvic examination elicited a relaxed perineum, the cervix enlarged, of normal consistency, and at right angles to the axis of the vagina, the external os admitting the tip of the index finger. The fundus was converted into the mass mentioned above; it was fairly tender and about 12 cm. in diameter.

Urinary examination showed: specific gravity, 1.018; a trace of albumin, numerous hyaline and granular casts, and occasional pus cells.

Blood examination showed: red blood cells, 3,200,000; hemoglobin, 60 per cent.; leukocytes, 8,500, and polymorphonuclears, 87 per cent.

The temperature on admission was 100; pulse, 90, and respiration, 20.

On the third day, all the symptoms became aggravated, abdominal tenderness, rigidity and rebound were more general, and the temperature rose to 101.5, with the pulse to 120. A diagnosis was made of fibroid uterus undergoing some secondary changes and causing beginning general peritonitis.

Under gas-oxygen anesthesia, a left paramedian incision was made. The peritoneum was found thick and edematous, and free seropus was found in the peritoneal cavity. The omentum was bound down over the uterus and the tubes. When the adhesions were freed, foul-smelling pus escaped from an opening in the left cornu, which freely admitted a probe. The uterus was about 12 cm. in width, and of an irregular contour. The left tube was markedly thickened and almost black at its proximal half; the fimbria was open but

congested. The right tube was congested. Both ovaries contained small retention cysts. The appendix was markedly inflamed and covered by a fibrinous exudate. Supravaginal hysterectomy, double salpingo-oophorectomy and appendectomy were performed in the usual manner, and the abdomen was closed without drainage. The patient made an uneventful recovery.

A pathologic report by Dr. Gonzales stated: The uterus was 10 by 10 by 10 by 4 cm. in size, with an irregular surface and covered by a greenish exudate in the region of the left tube. The wall contained three fibroids. In the lumen there was a soft, pedunculated, greenish tumor 3 by 3.5 cm. in size, which on cross-section appeared soft and greenish gray. The rest of the endometrium appeared normal. Both tubes were swollen and congested, the left one being covered by the same greenish exudate, its interstitial portion being absolutely gangrenous. The lumen was completely obliterated. A section through the abscess cavity showed the site to be entirely uterine, no interstitial tubal tissue being present. The distal portions of the abscess cavity showed the presence of hyaline degeneration.

COMMENT

A most interesting phase of this case is the source of the infection. I was dealing originally with a fibroid uterus, one part of which was undergoing hyaline degeneration, and another section contained a sloughing submucous polyp. I believe that the active process was due to a thrombus infected from the sloughing polyp becoming lodged in one of the arteries at the bifurcation of the uterine and ovarian vessels on the left side. The condition of the tube did not appear as if it was the original source, particularly as the abscess cavity did not involve the interstitial portion of the tube.

41 West Seventy-Fifth Street.

ACUTE APPENDICITIS IN A CASE OF STRANGULATED HERNIA

VINCENT ANTHONY LAPENTA, M.D., INDIANAPOLIS

Dr. A. W. Miller, Aug. 1, 1923, referred for examination to me a boy, aged 2 years, who had a large swelling in the scrotum and right inguinal region. The child appeared to be very sick and was vomiting frequently. The pulse was rapid and of good volume, the temperature was normal, and the abdomen was slightly distended. An attempt to reduce the hernia was unsuccessful. The mother reported that incarcerations had occurred at other times, which had been reduced by manipulation; this, however, was the first time that the child had shown such a sick appearance. On account of the irreducible strangulation, an immediate operation was advised.

The patient was admitted to St. Francis Hospital, and under ether anesthesia, a classical incision was made, exposing the constriction near the internal inguinal ring. The contents of the sac, however, could not be reduced. The sac was dissected free from the elements of the cord and opened. A small amount of serohematic fluid escaped. Some firm adhesions at the sac neck, preventing reduction, were separated. The contents of the sac proved to be a long cecum, with a large thickened appendix, showing signs of acute inflammation. The cecum, entirely free of the mesentery, measured fully 4 cm. to the iliocecal valve. The appendix was 8 cm. long and 1 cm. in diameter.

The point of interest in this case is undoubtedly the absence of fever, although there was sufficient inflammation to produce it. While the fever was absent, the toxic manifestations were very evident. The child presented the typical peritonitic face, with abdominal distention and active reverse peristalsis.

The acute inflammation of the appendix was, no doubt, superinduced by the trauma and vascular distention due to the incarceration, making possible the development of a true secondary inflammation. I have often observed that the thermic reaction, both in appendical inflammation and in strangulated hernia, with severe peritoneal reaction, in children below 5 or 6 years of age, is usually in reverse proportion to the intensity of the inflammation present. This seems to me to be a point well worth bearing in mind, since the absence of fever may lead one to temporize, and often with fatal results.

In adults, the temperature remains a trustworthy guide, not second even to the total leukocytic count. In my experience, this criterion has proved to be inapplicable to small children, in whom severe peritoneal inflammation can exist, with comparatively mild thermic elevation, while the leukocytosis is always present.

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TRAUMATIC RUPTURE OF THE PERICARDIUM WITH RESULTING DEXTROCARDIA COMPLICATED BY RUPTURE OF THE DIAPHRAGM AND LIVER *

J. F. DOUGHTY, M.D., CHICAGO

This type of injury to the pericardium is unusual; the resulting dextrocardia is particularly interesting. I was able to find in the literature only one case of rupture of the pericardium due to trauma,[1] but many due to gunshot wounds.

Miss M. H., aged 35, was knocked down by an automobile as she was stepping off a street car. She came under our observation four days later, complaining of dyspnea on lying down. She maintained the sitting posture constantly. Eating caused a feeling of fulness in the left hypochondrium and was frequently accompanied by a choking sensation.

Orthopnea was present. The cardiac pulsation was not visible on the left side, but the apical beat was observed in the sixth right interspace 4 cm. to the right of the midsternal line. The left border of the heart, determined by percussion, was 2 cm. to the left of the midsternal line, and the right border, 4 cm. There was a rough systolic murmur over the apex. The pulse ranged around 120. In the sitting posture, the blood pressure was 134 systolic, and 84 diastolic.

Expansion of the left thorax was limited. The diaphragm was 3 cm. higher on the left than on the right, and the excursion was 3 cm., in contrast to 6 cm. of the right side.

There was a moderate degree of abdominal distention. Tenderness was generalized, but there was no rigidity. No organs were palpable.

Fluoroscopic examination revealed a dextrocardia with the arch of the aorta in a normal position. The upper level of the stomach was seen at the border of the fourth rib on the left side, in the standing position. When the stomach was partially filled with barium, this was brought out more distinctly. The stomach emptied with moderate rapidity.

After a week of observation, we decided that the extreme discomfort, the inability of the patient to be active, and the possibility of further complications indicated operation.

At operation, we blocked the sixth to tenth left intercostal nerves with 2 per cent. procain solution. The area of the eighth left intercostal space was then injected down to and including the pleura. An incision about 10 cm. long was made in the eighth left intercostal space, beginning at the posterior axillary line and extending anteriorly. This incision was carried down to the pleura. The patient became very unruly, and in spite of additional injection of the pleura, an ether anesthetic had to be given. The pleura was then incised. At this moment the heart and respiration ceased. The operation was at once stopped and resuscitation unsuccessfully attempted.

Postmortem examination revealed a linear tear of the right side of the pericardium through which the heart protruded into the right pleural cavity. A fibrinous exudate was present between the visceral pericardium and the pleura. There was a tear in the left side of the diaphragm easily admitting the hand. In this opening were the stomach and some small intestine extending up into the pleural cavity. There was a small laceration of the diaphragmatic surface of the liver and some bloody fluid in the peritoneal cavity.

2449 South Dearborn Street.

* From the service of Dr. J. R. Buchbinder.

1. Allan, J.: Rupture of Pericardium, Fracture of Pelvis and Rupture of Urethra, Lancet **2**: 331, 1878.

Special Article

EPIDEMIC (LETHARGIC) ENCEPHALITIS AND ALLIED CONDITIONS

SIMON FLEXNER, M.D.
NEW YORK

(Concluded from page 1693)

EXPERIMENTS IN TRANSMITTING ENCEPHALITIS TO ANIMALS

Early in the epidemic outbreak of encephalitis, Dr. Amoss and I undertook the transmission of the disease to animals. The first inoculations performed in the winter of 1919 were made with emulsion of human brain into *Macacus rhesus* monkeys. Materials injected from several fatal cases were without positive result. The effort to secure transmission was continued as opportunity offered, and following the publication of the Mount Sinai experiments, to the materials previously employed for inoculation were added filtered nasopharyngeal washings, filtered extracts of nasopharyngeal mucosa, and cerebrospinal fluid; and the rabbit was substituted for the monkey, as constituting a more susceptible animal species. These attempts, continued through 1920, 1921 and 1922, failed consistently to yield an unequivocal result. Now and again an encephalitis or a meningitis would follow on the intracerebral inoculation of rabbits, but they proved, on close study, to be accidental or intercurrent infections of common bacterial origin.

The at least occasionally successful transmission by others with cerebrospinal fluid of a reinoculable disease in the rabbit led us in the winter of 1922 to 1923 to extend the scope of our study, and through the cooperation of the staffs of the Presbyterian Hospital and the Neurological Institute of New York, a wide variety of such fluid was obtained for inoculation. The cases from which the fluid was derived included such as were diagnosed as epidemic encephalitis; other fluids were taken from cases of neurosyphilis, brain tumor, multiple sclerosis, and a miscellany of nervous and other affections. Coincidentally with this enlarged study in New York, Amoss carried out similar inoculations at the Johns Hopkins Hospital in Baltimore.

It is of interest to record that in the four years during which this investigation was pursued, the number of cases of so-called epidemic encephalitis from which material of one kind or another was obtained for purposes of inoculation numbered two or more score, and that the total number of cerebrospinal fluids from all sources injected exceeded a hundred,[3] with, it is to be noted, a single instance interpretable as a successful infection.

The method employed to secure transmission was the usual one; namely, subdural or intracerebral inoculation of several rabbits, never fewer than two, and with materials coming supposedly from cases of epidemic encephalitis, five or six. As much as 0.35 c.c. of fluid could be safely injected.

The ease with which transmission in this one instance was secured has in this connection quite unusual interest. The patient, a man, aged 51, had been under treatment for neurosyphilis at the Presbyterian Hospital since 1921. He suffered also from aortitis, aortic insufficiency and other symptoms. The syphilitic infection had been acquired sixteen years before. There was at no time any question of epidemic encephalitis; indeed, the patient was ambulatory, coming into the hospital for treatment and then going out. The treatment consisted of mercury and arsphenamin, including arsphenaminized serum injected intraspinally.

With the clear cerebrospinal fluid from this case, which showed globulin by the Noguchi test and was sterile in ordinary cultures, two rabbits were injected intracerebrally, Jan. 4, 1923, each receiving 0.35 c.c. One rabbit developed no symptoms. The other was noted, January 13, to be tremulous and to turn in circles to the left (the side of inoculation), and to keep the head inclined backward and to the left. The rectal temperature was 105.6 F. The jaws were moved with gnashing, but there was no salivation. Death occurred at 3 a. m. on the 14th.

With the brain of this animal, which showed no bacteria in films or ordinary cultures (agar plates; fragments in deep bouillon), other rabbits were inoculated successfully. The transmission of this strain of "virus" has been continued regularly and without failure practically through many generations. It is effective no matter how inoculated; namely, subdurally, by way of the cornea, in which it excites a keratoconjunctivitis, or skin, in which it induces vesiculation, the nares, blood, testis, etc. Salivation, urine retention, paralyses and convulsions are among the regular effects of the inoculations at the present time.

This strain of virus, which we shall call "Beckley," is now in its twelfth generation of unimpaired activity. It is filtrable, glycerol resistant, and noncultivatable either under aerobic or anaerobic (Smith-Noguchi) conditions, as far as determined. Feb. 2, 1923, a second specimen of cerebrospinal fluid was obtained from the same individual, with which five rabbits were injected intracerebrally, 0.35 c.c. again being used. This fluid again gave a strong globulin reaction. All these rabbits developed temperatures of 104 + F., and showed retention of urine, and even fleeting salivation. But these symptoms, if symptoms they were, subsided quickly, and none of the animals succumbed. Three months later they were susceptible to inoculation with so-called "herpes virus."

HERPETIC KERATITIS

Into this account of the experimental investigation of encephalitis which we are following there must now be injected what may at first sight appear to be a foreign and remote topic. As long ago as 1913, Grüter discovered that the condition known as herpetic keratitis in man is communicable by inoculation to the abraded cornea of the rabbit. Although Grüter did not publish this important finding until 1920, it became known, so that it was confirmed by Löwenstein and Siegrist, the former, indeed, making a first communication in 1919. Löwenstein's contribution alone need detain us now, because he identified all forms of febrile herpes by the Grüter corneal inoculation test and definitely separated them from herpes zoster, the vesicular contents of

3. This number does not include a series of eight specimens of cerebrospinal fluid kindly supplied us by Dr. J. A. Douglas of Winnipeg. The vicinity of this city suffered a severe outbreak of epidemic encephalitis in January, February and early in March, 1923. Particular inquiry elicited the important fact that no relation to influenza was observed, and the latter disease was conspicuously absent. The cerebrospinal fluids were sent by post, so that an interval of about twelve days elapsed between their collection and injection into rabbits. The fluids were first determined to be sterile in ordinary cultures, and were then inoculated subdurally into twenty rabbits. In no instance were infection and subsequent encephalitis provoked.

which are innocuous. He also determined some of the properties of the active material of febrile herpes, such as heat lability, nonbacterial nature, infectivity under high dilution, and glycerol resistance. But what is particularly important is his discovery that in the rabbit, in contradistinction to man, the cornea that has recovered from the experimental herpes is refractory to a subsequent inoculation. He drew attention also to the fact that the active material of febrile herpetic eruption (which he speaks of as "virus") must have a wide distribution in the healthy body, since it so readily accumulates and multiplies in the eruptions. No matter what their inciting cause—whether a febrile disease, a drug (e. g., arsphenamin) or a foreign protein, (e. g., milk injection)—the inoculability is the same.

At this early period in the experimental study of herpes, Doerr, whose interest seems to have been excited by Siegrist, made an observation which has since proved significant. He states that he found by cross resistance tests that corneal and lip herpes are immunologically identical, and especially that the corneal inoculated rabbits occasionally develop general nervous symptoms, such as turnings to the side of the affected eye, tremors, transitory paraplegias, and excessive salivation, in which intances death, often sudden, supervenes. In other words, Doerr observed the symptoms now recognized as indicating the existence of an active encephalitic process in rabbits, and a little later, with Vöchting, on the basis of printed reports alone, identified this general herpetic state with the pathologic complex described shortly before by the Mount Sinai Hospital workers and Levaditi as indicative of experimental epidemic encephalitis of the rabbit.

The two lines of experimental investigation had now converged, and have continued ever since to move closer and closer together. Thus, Blanc and Caminopetros found that the brain of the herpetic encephalitic rabbit provoked corneal herpes, and Levaditi and Harvier that the brain of the epidemic encephalitic rabbit equally provoked a keratoconjunctivitis. Moreover, Levaditi, Harvier and Nicolau showed that in both conditions the brain was capable of inducing vesiculation of the abraded skin of the rabbit, while Doerr and Schnabel established the important fact that the herpetic and the encephalitic viruses in the rabbit cross-immunized against each other. In other words, the two sets of active materials were proved not only to be pathologically and immunologically analogous, but by the available biologic tests to be indistinguishable.

And so the subject has remained, except that each new feature brought to light with respect to one kind of virus is found to apply to the other kind. There are no essential distinctions known as regards the symptoms provoked in rabbits and other rodents, the histologic lesions produced in the cornea, skin or brain, in mode of infection, in manner of recovery and resistance to cross infection after recovery, except in one particular, namely, that in relation to the herpes virus, of which many strains have been investigated as compared with the few studied of the so-called encephalitic virus, stronger and weaker; that is, more or less readily infective and invasive specimens have been secured. And yet there is at least one record of a weak strain of encephalitis virus being obtained by Harvier and Levaditi, although so little study was given it that its real nature remains in doubt. A second example of a weak virus may be found possibly in the report of Netter, Cesari and Durand, in which it is stated that a "virus" was recovered from the brain in a case of encephalitis fifteen months after its onset. This virus, strangely, was irregularly active when introduced into rabbits with the brain tissue of succumbing animals, while the secretion of the salivary gland of the infected animals was uniformly virulent.

CONFLICTING RESULTS

It is not to be supposed that many more investigators than those whose work has already been dealt with have not devoted themselves to the experimental reproduction of epidemic encephalitis. I have already referred to the large number of unsuccessful inoculations made by Amoss and myself, and it is quite certain that not a few others have had similar unfruitful experiences. There remains, however, an intermediate group of experimenters whose published results, on the surface appearing positive, may prove not to have been so. To this group we must now devote brief attention.

The first whose discordant results should be considered are the Italian investigators Ottolenghi, d'Antona and Tonietti, who carried out a series of inoculations on guinea-pigs with the cerebrospinal fluid and blood from thirteen cases of epidemic encephalitis. The injections were made into the peritoneum and the brain. The symptoms induced were vague; somnolence is said sometimes to have been present. Death occurred in from five to thirty-five days after inoculation. The brains of the guinea-pigs that succumbed were infectious for other guinea-pigs and for the cat. Human cerebrospinal fluid instilled into the nose of the animal was effective, and the "virus" was glycerol resistant and remained active a long time in the spinal fluid. Of 215 guinea-pigs inoculated, only thirteen survived. Now, since all other investigators have found the cat insusceptible and the guinea-pigs more resistant than the rabbit, which, it will be recalled, responds to the primary inoculation with such difficulty that several animals are employed for a given sample of encephalitis material, the strong presumption is that the results reported by Ottolenghi and his associates are of extremely dubious nature, and this conclusion is strengthened by the absence in the brain of the animals succumbing to inoculation of the histologic lesions of a definite encephalitis.

Another Italian observer, Bastai, has reported the successful inoculation of the cat with human encephalitis material, and also the cultivation of a "virus" that proved slightly infectious for the monkey and more highly infectious for the rabbit, the latter animal responding to inoculation by way of the brain, eye, peripheral nerves, skin, etc. The eye and skin applications were said to induce herpetic vesiculation. The brain and the blood of the succumbing animals were in turn infectious. It seems necessary merely to remark that the findings described are wholly discordant, and to suggest that the effects described could well have been obtained by inoculation with a moderately virulent staphylococcus.

The outstanding instances of a series of experimental findings which fail to harmonize with those of the Mount Sinai workers, Levaditi, Doerr and Schnabel, are those of Kling and his associates. This investigator has studied the problem of epidemic encephalitis in a comprehensive way. Utilizing the isolation of certain Swedish communities, as his distinguished predecessor

Wickman had done for epidemic poliomyelitis, he endeavored to trace the connection between cases of epidemic encephalitis in a manner more complete than can be accomplished for populations in ordinary state of flux. The conclusions arrived at from the study thus carried out were all in favor of the personal communicability of the encephalitis; they included also the operation of the factor of the abortive or ambulant type of cases of the disease, numerically far more frequent than the frank and obvious cases, and, according to him, more active in spreading the infection. It lies outside the province of this article to discuss at any length the epidemiology of the encephalitis. I wish merely to raise a question in this connection, which time and greater knowledge alone will enable us to answer. The question is whether with a disease, the manifestations of which are so manifold as are those of epidemic encephalitis as now conceived, we are justified on purely clinical observational grounds alone in asserting a high degree of susceptibility among the general population for the mild and indefinite abortive forms, at the same time that we assume a low degree of susceptibility for the obviously severe types of the disease. My own inclination is toward holding all such decisions in abeyance until the etiology and means of diagnosis of the malady are more firmly established.

To return to our main theme. Kling and his associates repeated the experiments with rabbits as previously made in the United States and France. He injected intracerebrally the cerebrospinal fluid, emulsion of brain tissue, and filtrates of nasopharyngeal and intestinal washings of cases of epidemic encephalitis. With all these materials he secured infection, but the experimental disease thus induced differed essentially from that described by his predecessors.

All the earlier investigators who had claimed success based their statements on the induction of an acute disease. Kling excludes all these and bases his claims on the induction of a disease not with rapid but with slow evolution, in which weeks and months of incubation replace the days of previous observers. This distinction, as will be apparent, at once removes the similarity and possible confusion with herpetic encephalitis. And in keeping with the greater duration of encephalitic processes preceding the appearance of symptoms or of death, the histologic lesions differ; all the signs of acute infection, such as the presence of polymorphonuclear leukocytes in the brain tissue, are wanting. The lesions are mononuclear, even polyblastic in character; they are also nodular as well as perivascular and diffusely infiltrative, and although no counterpart is known in human cases of encephalitis, the nodules are sometimes in process of degeneration with definitely necrotic centers. Finally, the lesions have a wide distribution; on the whole, the basal ganglions are commonly affected, and in those parts the lesions are chiefly perivascular or minutely focal or diffuse, while in the cerebrum the larger perivascular infiltration and the larger nodular lesions prevail. However, there is greater variety of lesion than regularity of distribution to be made out, and a lesion common in one part may also appear, although rarely, in another part of the brain.

This brief account, based both on Kling's descriptions and on his published photographs, is entirely out of keeping with the account given for the acute encephalitic and herpetic lesions in the brain of rabbits. In still another way does Kling's finding differ essentially from those of Levaditi, Doerr and Schnabel; namely, in that the rabbit brain showing lesions fails on inoculation of the abraded cornea to induce keratitis. This difference emphasizes the distinction from herpes, although Doerr and Zdansky try to minimize it by reporting a partial success of their own with a specimen of glycerolated "virus" sent them by Kling. On the other hand, the specimen did not excite encephalitis on subdural injection. It is sufficiently clear, therefore, that whatever it may prove to be that Kling and his associates have been dealing with in their experiments, a fundamental difference in result has been disclosed that must be explained before the etiology of epidemic encephalitis may be accepted as settled. And what has been stated about the studies of Kling may be said also of the results, on a far smaller scale, reported from Warsaw by Szymanowski and Zylberblast-Zand, and from Belgium by Bessemans and Van Boeckel.

REACTIONS OF THE RABBIT

An impasse has now seemingly been reached in which two sets of conflicting experimental results stand opposed to each other. As a matter of fact, the situation is not so complex and discouraging as might at first sight appear, and it is not insusceptible of being in material measure cleared up by the application of facts not so generally known to experimental pathologists as could be desired.

The conflict centers about the chief laboratory animal employed in the experimental study of epidemic encephalitis. The rabbit, as we have seen, reacts in divers ways to the implantation of the supposed virus of encephalitis. One set of inoculation effects is superficial, and consists of vesicular lesions of the abraded cornea and skin which are indistinguishable from the corresponding lesions induced by the virus of herpes. Another set of the inoculation effects is general or systemic, and expresses itself in symptoms resulting chiefly from involvement of the central nervous organs; these, again, are the same, whether arising from the virus of encephalitis or of herpes.

The superficial lesions of cornea and skin are histologically as well as clinically obvious and characteristic; not so, however, all those of the brain, and for the reason that it happens that, at times, the brain of the domestic rabbit is the seat of pathologic changes already existing at the time the virus inoculations are made. These changes, not having given rise to symptoms, have been unsuspected, and hence in the past have been revealed accidentally by the microscope. To the uninitiated, they have been the source of mistaken interpretation, as in the instance of Reasoner, who regarded them as evidence of *Spirochaeta pallida* infection. Just now they would seem to be misleading Kling and some other investigators of epidemic encephalitis. There can be no doubt that the "spontaneous" lesions originate in some infectious disease or process common in the domestic rabbit which, having run its course, leaves a more or less permanent defect behind. In this respect there is analogy between the hepatic cirrhosis and the focal encephalomeningitis of the laboratory rabbit.

Bull, and later Oliver, have drawn attention to these accidental brain lesions. Brown and Pearce and Amoss and I, at the Rockefeller Institute, have become familiar with them from frequent observation. There seems little doubt that certain stocks are more numerously affected than others. I have come to doubt their complete absence from any considerable number of the laboratory rabbits.

At my request, Dr. McCartney made a systematic examination for the lesions of more than 300 rabbits from the stock of the Rockefeller Institute. He determined their presence in about one half. This high percentage may be unusual, or may be explained by the thoroughness of the examination. Portions from the cerebrum, central ganglions and medulla were regularly sectioned and studied. In other words, McCartney treated these animals as he would have done had they been the subject of actual experiment. The sources of the rabbits examined were various: accidental death (from snuffles, etc.), healthy individuals killed for normal organs, and others used in miscellaneous experiments, such as tumor transplantation, and *Spirochaeta pallida* infection. The presence of the lesions was sometimes ascertained by means of frozen sections, and the brain emulsified and inoculated subdurally into healthy rabbits. No evidence of a communication from one to the other was obtained in this manner.

The observations of Bull and Oliver, and of McCartney especially, have just been confirmed in an interesting way by Twort, who connects the latent brain lesions with a particular kidney affection in the rabbit which, on theoretical grounds, he attributes to a filter-passing virus infection. Twort thinks that he has succeeded in communicating the disease, by inoculation of brain tissue, to a mother and four young rabbits. In my opinion this question of transmission is still to be regarded as an open one.

The accidental or spontaneous lesions consist of a meningo-encephalitis affecting the cerebrum, but more often the basal ganglions and the medulla. The tissues are not everywhere affected, but the lesions tend to be focalized. Perivascular involvement is frequent. The larger, more circumscribed nodules are clearly associated with proliferation and with emigration of cells. Degeneration, even necrosis of the centers, of the latter kind of lesions is encountered. The infiltrating and other cells are mononuclear and polyblastic in type. Polymorphonuclear cells are conspicuously absent.

I have compared these accidental lesions with the published reports and photographs of Kling and his associates and of the Mount Sinai workers. They are often significantly alike. The agreement is more perfect in the case of the Swedish investigators, who dealt only with animals surviving inoculations weeks and months. The Mount Sinai investigators dealt with acute encephalitic conditions also, with which the older preexisting lesions might or might not be associated. It is worth noting here that Kling records the fact that he discovered the encephalitic lesions in about one half (50 per cent.) of the rabbits exposed to the inoculations.

RELATIONSHIP OF HERPES VIRUS AND THE VIRUS OF ENCEPHALITIS

We have become used to attributing epidemics of particular diseases to the operation of single, specific microbic incitants, whence the main interest has centered about the nature of the special etiologic agent in epidemic encephalitis. In spite of a large number of experimental and other studies, agreement on this vital point has not been reached. Transmission to animals of a disease bearing certain resemblances to epidemic encephalitis has, indeed, been accomplished, but under circumstances so infrequent and capricious as to be extremely disquieting. These virtually haphazard results are not sufficiently accounted for by Doerr's suggested analogy with typhus fever infection in the guinea-pig, since, although failure here is not infrequent, success is not uncommon, and all experienced investigators fare alike.

A still greater difficulty arises from the obvious similarities existing between the supposed virus of encephalitis and the proved virus of herpes. This close relationship introduces a strange riddle into the conceptions of the etiology of the encephalitis, on the solving of which rests the fate of the views of the Mount Sinai Hospital workers, Levaditi, Doerr, Schnabel and still others. The infection of rabbits with the virus of herpes follows as easily and as regularly as the implantation of the virus of encephalitis is accomplished with difficulty and uncertainty. But once the latter is effected, the further transmission is as simple in one case as in the other.

The fact that so many of the successful instances of inoculation of the encephalitis virus have been accomplished with nasopharyngeal secretions cannot be without significance. Were these examples set aside and those alone accepted as trustworthy in which the infection was secured with materials of central nervous origin, the already small number of positive transmissions would sink to a still lower level. Hardly any one will contend that the nasopharyngeal secretions, even when filtered, constitute a simple inoculum. Now it happens that Doerr early discovered in these secretions a virus identical with the virus of herpes. Levaditi, Harvier and Nicolau, a little later, made a more systematic study of these secretions in healthy subjects, and arrived at the conclusion that 80 per cent. of such persons carry a virus of attenuated affinity for the rabbit cornea, and also that healthy persons in contact with cases of encephalitis may carry in their buccal secretions the more virulent encephalitis virus. They claim to have detected two strains of the latter among fifteen persons examined, of which one was weak and the other strong. Levaditi distinguishes the two kinds of active materials or viruses contained in the nasopharyngeal secretions as "salivary keratogenic" and "salivary encephalogenic," according as they resemble, on the one hand, the herpes virus or, on the other, the encephalitis virus. Since, however, only one of the encephalogenic strains proved durably effective, it is not evident that Levaditi's findings extend appreciably those of Doerr. Both findings readily accord with the notion of the existence of herpes virus carriers which common experience renders highly probable.

We have seen that the virus of herpes and the supposed virus of encephalitis cannot be distinguished by infection tests, by cross immunity tests, or by chemical tests. Strong and weak strains of both exist; infection with a weak strain protects from inoculation with a strong strain; and both resist glycerol, and both succumb to bile. Even Levaditi's "salivary keratogenic" virus protects against his strongest strain of encephalitis virus.

Protection tests have also been made with human blood serum derived from patients who have passed through attacks of epidemic encephalitis some time before. Amoss and I have found that rabbits that recovered from both the herpes and the encephalitis virus [4] infections yield serum that neutralizes indifferently the two viruses. We have tested also several samples of convalescent human serum taken two or three years after the acute attack of encephalitis. As compared with a few samples of normal human serum,

4. The encephalitis virus consisted of the Beckley strain and the two strains kindly sent by Dr. Levaditi and Professor Doerr.

the former was somewhat more protective. The results are not constant and are not conclusive; hence a much larger series of tests is obviously called for. So far as our tests are susceptible of interpretation, they indicate no difference between the herpes and encephalitis strains of virus. Levaditi and Harvier also tested some half dozen convalescent serums taken from one month to one year after the attack of encephalitis. Only the one year serum was neutralizing to the encephalitis virus; the remarkable statement is made that the other samples promoted, rather than retarded infection. Finally, Kling has reported a series of rather ambiguous tests made with convalescent serum and his variety of the encephalitis virus, which he regards as positive and on the basis of which he predicts a serum therapy of epidemic encephalitis.

It is, therefore, far easier to identify with than to distinguish from each other the virus of herpes and of encephalitis. Febrile herpes in man is known to be both auto-inoculable and homo-inoculable, and it has now been determined that herpes implanted in the rabbit is reinoculable on the skin of man. Furthermore, Schnabel has shown on himself that the virus of encephalitis, as contained in the brain of the rabbit, induces herpetic skin vesicles. The minute histologic studies of the lesions in the rabbit induced by the herpes and by the encephalitis viruses have disclosed the occurrence of intracellular inclusion bodies regarded by some investigators, probably erroneously, as microorganismal, but indistinguishable in the two conditions.

Since the virus of herpes and of epidemic encephalitis has been brought into so close a relationship, it is pertinent to inquire whether that of herpes has been discovered in the central nervous system in man. The means employed for the detection have been to inoculate cerebrospinal fluid or brain tissue removed post mortem, from patients having herpes, into the eye or brain of the rabbit. The number of examinations carried out in this manner is still relatively small. Two investigators have reported successful inoculation of the cornea in rabbits with cerebrospinal fluid; the others have recorded only failures. Careful study of the protocols of the former does not bring conviction that experimental herpetic infection has certainly been induced. Amoss has tested the cerebrospinal fluid from three patients with marked febrile herpes, and Doerr and Zdansky have employed a number of brain specimens, both without result.

In these brief statements are contained the bare facts of the case. If I were asked to comment on them, I should be inclined to say that they signify only what they affirm and no more. Just as it has been abundantly proved that it is difficult to detect by inoculation a virus in the nervous system of cases of encephalitis, I should expect that it will prove to be difficult to discover there the virus of herpes. The only way to determine ultimately whether the virus of herpes receives sometimes a general distribution throughout the humors and tissues of the body of man is to continue the search for it, and with an assiduity at least the equal of that devoted to the finding of the virus of encephalitis.

THE OUTCOME

We have reached a natural halting place in this discourse. I should beg the indulgence of my audience for so long a presentation, were the circumstances different from what they are. The world has been sorely beset by an unusual epidemic disease which it is the office and the duty of physicians, clinicians and pathologists alike, to study with utmost zeal. Opinions may differ as to whether epidemic encephalitis was definitely known to our predecessors; there can be no such difference of opinion as to the unprecedented extent and destructiveness of the recent pandemic. Experience has shown that epidemic diseases once introduced do not, as a rule, suddenly disappear from a country. I fear, therefore, that we shall have occasional visitations from this one for some years to come. The hope, then, of control lies in a fundamental understanding of the nature of epidemic encephalitis. It would, in my opinion, be very unfortunate should we adopt a premature conviction regarding the etiology of the disease. The recent investigations to which attention has been directed have undoubtedly thrown open a wide new field of bacteriologic research to exploitation. Within it lies perhaps the solution of the problem of the causation of epidemic encephalitis—not yet, as I believe, an accomplished fact.

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SATURDAY, NOVEMBER 24, 1923

DIET AND INTESTINAL PROTOZOA

The digestive tube is the passageway not only for food but also for various types of micro-organisms. At birth, the enteric tract is free from the latter, so that its contents are sterile. The alimentary canal is soon invaded by living forms, and never again attains a freedom from them. With the advent of modern bacteriology, concern soon arose regarding the effects of the micro-organisms on the contents of the gastro-intestinal tube. Attention was directed to the kinds and numbers of the invaders, to their putrefactive and fermentative potencies, and to the possible physiologic action of the chemical products that may arise. Intestinal putrefaction became linked with "autointoxication" by substances of alimentary bacterial origin. It seemed for a time as if many of the minor ills of human kind might be charged to the products of putrefaction arising in the bowel.

Meanwhile there has come a better realization of the fact that the alimentary bacteria are themselves sensitive to the food content of the intestine—that they not only can alter the organic materials with which they may come into contact but also are affected by their chemical environment. It makes considerable difference, with respect to the survival of certain races of bacteria, whether their pabulum consists largely of protein or of carbohydrate; whether the conditions engendered by the contending micro-organisms in the anaerobic reaches of the bowel tend to become acidic, neutral or alkaline. Many micro-organisms are extremely sensitive to the reaction of the medium in which they are placed. The flora of the healthy stomach consists almost entirely of organisms swallowed. The gastric juice restrains bacterial multiplication, and destroys most of the bacteria that the gastric content may receive. The secretions of the liver, the pancreas and the duodenal mucosa are quite free from bacteria, and tend to "flush out" the upper portion of the small intestine; so that, in health, the duodenum is quite free from living bacteria in the intervals when food is absent, and it contains relatively few bacteria during digestion.[1] Only in the lower portions of the large intestine, where the results of progressive absorption of water and intestinal contents become conspicuous, do bacteria accumulate in larger numbers. Most persons fail to realize, however, that the vast majority of the alimentary bacteria die in the bowel, so that the feces represent in no small measure the accumulated dead bodies of microbial forms. A bacteriologist has estimated that the daily excretion of bacteria in the feces of healthy man may average thirty-three million million cells.

The effects of various types of diet on the bacterial flora of the intestine have been ascertained with considerable detail, in particular with reference to the acidophilic micro-organisms.[2] A summary of the current beliefs was given in a recent issue of THE JOURNAL.[3] To a considerable degree, the lactic acid-forming species are antagonistic to the putrefactive anaerobes, and tend to supplant them as the diet affords opportunity for the successful implantation and survival of the acidophilic types. Hegner[4] of the School of Hygiene and Public Health at the Johns Hopkins University has begun a study of the effect of changes in diet on the fauna of the alimentary tract, notably the species of intestinal protozoa that may inhabit it. The possible practical importance of such an undertaking is apparent when one recalls that no therapeutic agent has yet been reported for dealing successfully with the intestinal flagellate infections of man.

The intestinal contents may, of course, be changed directly by variations in the chemical make-up of the food intake. As a consequence, the degree of stimulation of the secretory glands pouring into the intestine may be varied; and there may be profound modifications in the comparative numbers of various sorts of bacteria, their activities, and the character of their secretions or products of microbiotic metabolism. Apparently, this bacterial factor plays a significant part in the establishment of the flagellate endozoal parasites. In Hegner's experiments on rats, for example, no increase was noted in the numbers of trichomonads, so long as the predominant type of bacteria in the cecum was of the putrefactive type; but, as soon as a change to the acidophilus type was brought about by a normal diet to which dextrin was added, trichomonads reappeared in large numbers. It is of interest to note, in this connection, that protozoa are abundant in the digestive tract of many animals that live on vegetation, and are less numerous in carnivorous animals. The optimal habitat of some of the common intestinal flagellates is also likely to vary with modifications of the

1. MacNeal, W. J., and Chase, A. F.: A Contribution to the Bacteriology of the Duodenum, Arch. Int. Med. **12**: 178 (Aug.) 1913.

2. A summary is given by Rettger, L. F., and Cheplin, H. A.: A Treatise on the Transformation of Intestinal Flora, Yale University Press, 1921. This contains an extensive bibliography.

3. Lactic Acid-Producing Organisms and Preparations, J. A. M. A. **81**: 831 (Sept. 8) 1923.

4. Hegner, R. W.: The Effect of Changes in Diet on the Incidence, Distribution and Numbers of Certain Intestinal Protozoa of Rats, Am. J. Pub. Health **3**: 180 (March) 1923.

mediums and bacterial flora within the intestine. Enough evidence has already been gathered to give promise of interesting developments in a comparatively new field of investigation.

ABSORPTION FROM THE URINARY TRACT

There is at present no comprehensive vantage point from which the phenomena of absorption from the mucous membranes and epithelial surfaces of the body can be surveyed. Attempts at generalization have rarely succeeded, because a uniform principle of function applicable to all the situations has not yet been discovered. A good illustration of the confusion confronting the student of absorption is afforded by the alimentary tract. The intestine is notably a region in which substances in solution can readily penetrate the lining membranes and thus finally enter the blood stream. Yet the gastric mucosa, existing in almost direct continuity with that of the lower reaches of the bowel, is demonstrably impervious not only to products of digestion but even to the universal solvent water. The nasopharyngeal surfaces also have varied absorptive capacities. The conjunctival membranes and the skin are in marked contrast with respect to their permeability to drugs. Such illustrations suffice to indicate the unwisdom of attempting any statement of universal application in the present state of our knowledge.

The possibility of unlike absorptive powers in membranes closely related in both structural and topographic respects has an important bearing in practical ways as well as from more purely theoretical standpoints. Until recently, it has been customary, for the most part, to consider the genito-urinary surfaces and their lining epithelial membranes from a uniform standpoint with respect to their physiologic permeability. The subject has attained a growing importance because the regions involved have become more readily approachable through the improvement in instrumentation and the technic of examination of the urinary passageways. Not only the bladder but also the ureter and pelvis of the kidneys can be explored with considerable facility by the modern urologist; and he does not hesitate to introduce foreign materials, such as instruments and chemical products, into the formerly hidden recesses of the renal excretory system. Catheterization of the ureters for diagnostic ends, therapeutic irrigation of the bladder and its pathway appendages, introduction of solutions and mixtures for pyelography and other types of roentgen-ray examination—these are some of the prevalent procedures in the urologic clinic.

The urinary bladder has long sustained the reputation of being an organ from which little or no absorption can take place. This conception has been extended to include not only water and substances in solution in the urine, but also particulate forms, such as bacteria. Teleologically, the impermeability of the bladder in these respects is readily appreciated. It would be physiologically futile to store excretory products in a structure whence they could readily be returned to the blood from which they had been eliminated. Such reasoning as to purpose in Nature sometimes encounters the opposition of seemingly contradictory facts. In this case, however, there is considerable experimental evidence to show that foreign compounds introduced into the bladder are not promptly absorbed. Hence the practice of irrigating the organ with drugs that might do harm if they found their way into the body at large. There is an accepted belief among physicians that the antiseptics, styptics, local anesthetics, sedatives and stimulants of the mucous membranes exert a purely local or topical effect.

Macht,[1] in particular, has pointed out in his studies at the Johns Hopkins University that the bladder and urethra behave quite differently with respect to their permeability. Whereas the absorptive power of the bladder is very slow, it is marked from the urethra, being more efficient and rapid from the posterior than from the anterior portion. Macht has reminded us that a review of clinical evidence agrees with the experimental findings described above. Poisoning through the urinary tracts has been reported and is not uncommon. On studying such cases, it will be found that absorption of drugs or poisons in them occurred for the most part through the urethra. This holds good not only in the case of the male, but also in that of the female. Absorption from the prostatic urethra in urologic practice is not unknown. In gynecology, poisoning from the short female urethra has also been described.

The latest observations of Magoun[2] at the Mayo Foundation are also in accord with this. According to them, the absorptive powers of the various portions of the urinary tract differ. The kidney absorbs dyes and bacteria to a marked extent. The ureter and urethra absorb these pigments readily, but the bacteria less readily. The bladder, on the other hand, absorbs a very small amount of dye and no bacteria.

The possibilities of absorption from some regions in the urinary tract must be important clinically. It has been suggested, for instance, that in cases of pyelitis the phenomena of chills and fever may be due to the absorption of urine and bacterial toxins. In contrast with the bladder, the kidney, once infected, may act as a focus for secondary bacteremia. Cystoscopic manipulations thus present obvious dangers in the transfer of objectionable materials either into the renal pelvis or into the urethra. To what extent inflammation or injury of the mucous surfaces may

1. Macht, D. I.: Concerning the Absorption of Drugs and Poisons from the Ureter and Pelvis of the Kidney, J. Urol. **2**: 481, 1918; On the Absorption of Drugs and Poisons from the Bladder and the Urethra, I, Absorption of Apomorphin and Morphin, ibid. **2**: 43, 1918; On the Absorption of Drugs and Poisons from the Bladder and the Urethra, II, Absorption of Various Alkaloids, Antiseptics, Local Anesthetics and Salts, ibid. **2**: 211, 1918.

2. Magoun, J. A. H., Jr.: Absorption from the Urinary Tract, J. Urol. **10**: 67 (July) 1923.

modify their normal physiologic properties cannot even be conjectured. The time has come to realize, with Magoun, that drugs introduced into the urethra, bladder, ureters or pelvis of the kidney, whether as opaque mediums, for roentgenologic procedures, or as therapeutic agents, are noxious in proportion to their capability of causing "local" irritation, to their toxicity, and to their absorbability.

ERNST SALKOWSKI, 1844-1923

A student of the history of medicine [1] has remarked that in the United States and Canada there are not many physicians who possess even a slight knowledge concerning the manner in which the science of medicine has attained its present power as an agency for good, or concerning the persons who played the chief parts in bringing about this great result. The day has passed, however, when the importance of having some familiarity with the lives and achievements of the "makers of medicine" can be overlooked with the excuse of the "youth" of our country and the unpreparedness of our educational institutions to present the biographic and historical aspects of the subject. Each age steps on the shoulders of the ages that have gone before. The value of each age, Sir Michael Foster once observed, is not its own but is in part, in large part, a debt to its forerunners. A familiarity with the lives and labors of those who gave something of a more permanent sort to medical progress not only lends human interest to the story of this development, but exerts an inspiration that should not be overlooked.

In the active world of today, we are all too prone to forget quickly. Novelties are accumulating at such a rapid rate in this generation that they become part and parcel of the daily life of science and practice almost before their origin and development have become impressed on those who have occasion to deal with them. Perhaps it will be a real service if, now and then, we remind ourselves of the deserts of some investigator who may have failed to attain the recognition or awaken the attention that his labors merit. In this spirit we refer to the recent death of Prof. Ernst Salkowski, for many years director of the chemical division of the pathologic institute at the University of Berlin. Few, indeed, are the persons to whom it has been granted to leave a record of such long, devoted service to medical teaching and research. His scientific activities began in the seventies of the last century and continued until the very year of his death, at the age of 79. It was Salkowski who, in 1876, demonstrated the significance of the excretion of phenols and explained their origin in putrefactive processes in the intestine; thus, Baumann's discovery of phenyl sulphates in the urine of man was supplemented with an explanation of the genesis of the aromatic radical therein. Salkowski, too, first gave an impetus to the study of autolysis, or autodigestion as it has been called —a process that has assumed large significance in pathology. One may recall the autolytic resolution of pulmonary exudates and the autolysis of certain tissues under aseptic conditions. Among various popular tests introduced by him, the reaction for the identification of cholesterol which commonly bears his name finds application daily in the clinical laboratory. Salkowski early discovered the antiseptic properties of benzoic acid, which has played a much discussed part in food preservation; and the use of chloroform as an antiseptic which does not interefere with enzymatic reactions was likewise one of his contributions to biochemical technic.

To physicians, however, these investigative results are overshadowed by Salkowski's discovery and description of pentosuria, in the last decade of the last century. The peculiarity of the excretion of a 5-carbon sugar, in contrast with the glucose of the diabetic urine, was soon demonstrated to be an anomaly of metabolism. The observation of the persistent elimination of a pentose without apparent detriment to the person concerned has emphasized the necessity of careful differential diagnosis of all cases that exhibit a "reduction test" in the urine. Most of these contributions have long since passed into the permanent possessions of present-day medical science. Let us not forget the part a modest worker played in their development.

1. Buck, A. H.: The Growth of Medicine, Yale University Press, 1917.

Current Comment

NEW EXPERIMENTS ON REJUVENATION

THE JOURNAL has commented on the experiments of Steinach and others in the rejuvenation of animals presumed to follow ligation of the vas. Recently Macht and Teagarden,[1] of Johns Hopkins University have performed similar operations on six rats, all more than a year old and showing definite signs of senescence. These were compared with two other animals used as controls. Fourteen additional rats were studied by special methods involving the use of animals operated on and adequate controls. The details of the method leave no doubt as to the scientific character of the experiments. After ligation, a number of the rats showed distinct improvement in general appearance and behavior. They were more active, and several developed a new coat of fur. These changes persisted only for several weeks, however, and the animals gradually relapsed into their usual senile state. Also distinct improvement in muscular coordination and muscular efficiency of the animals was noted, but this was temporary, lasting only a few weeks. It is the belief of the observers that all the changes noted seemed to have been the results of the operation; they assert, nevertheless, that this cannot be said positively without numerous additional experiments. This work would

1. Macht, D. I., and Teagarden, E. J., Jr.: Rejuvenation Experiments with Vas Ligation in Rats, J. Urol. **10**: 407 (Nov.) 1923.

seem to confirm the impression now prevailing that the various rejuvenation experiments constitute at best only a temporary stimulus, and that the inevitable result is relapse, if not, perhaps, a shortening of life because of additional burdens thrown on a senescent organization.

BACTERIA IN THE LUNGS

There is little doubt that micro-organisms enter the respiratory passages in enormous numbers through the mouth and the nasal orifices. Spray or droplet introduction is a demonstrable phenomenon. The myriads of bacteria that are discoverable in the outermost nasopharyngeal passages include many that have sustained a reputation for objectionable virulence. Sometimes they gain a sufficient foothold to start trouble. Influenza and pneumonia may be among the consequences of such a result. The surprising feature, however, is the fact that, with seemingly ever present opportunity for infection, the dire consequences rarely ensue. Can it be that, after all, bacteria rarely find their way into the recesses of the lungs where they can make trouble? Some writers believe that in health and under average conditions of dust exposure, micro-organisms only occasionally penetrate below the larynx, owing to the effective "filtration system" of the upper respiratory tract. It is also assumed that bacteria inspired into this region are usually eliminated by ciliary currents, die in situ, or are carried off in the lymphatic channels. We may now regard it as experimentally demonstrated on animals, most recently by Stillman [1] at the Rockefeller Institute for Medical Research, New York, that after the individual is subjected to a dense spray containing bacteria in suspension, the bacteria can actually reach the lungs. Stillman's studies indicate that the further history of the bacteria which have penetrated the lungs depends on the variety of micro-organism concerned. As regards the pneumococcus, the bacteria are disposed of within a few hours. On the question as to whether they are killed in situ, are taken up by leukocytes, or are carried to other parts of the body, the present experiments throw no light. Streptococci persist much longer in the lungs, so that their presence is far more likely to be followed by infection; in fact, a general septicemia usually attends the entrance of hemolytic streptococci, as they persist in the lung for a long time. The results with the bacillus of influenza were more irregular. In the animals tested, at least, it appears that factors other than the presence of the pneumococci in the lungs are necessary for infection. Even in the highly susceptible mouse, neither various modes of exposure to cold nor slight injuries to the mucous membranes through inhalation of irritating vapors or dusts lowered the local resistance. How infection is actually secured with the pneumococcus through respiratory channels thus remains obscure. Apparently this is one of the cases to which we may apply the oft quoted dictum: "While it is most important to know what kind of a disease the patient has got, it is even more important to know what kind of a patient the disease has got."

1. Stillman, E. G.: The Presence of Bacteria in the Lungs of Mice After Inhalation, J. Exper. Med. **38**: 117 (Aug.) 1923.

SAFE MILK

There is less public discussion about "safe" milk than there was a few years ago. Recognition of the importance of milk as a food and of the fact that it has to be carried long distances to market has established the principle that milk sanitation is a necessity. The procedures involved have at length become fairly well "standardized." Foremost are: 1. Prevention of all possible contamination by those handling the milk on the farm and in the dairy and by proper care of the cow. The utmost refinement of this plan is observed in the production of certified milk or its equivalent, produced and cared for under exceptionally sanitary conditions, and constantly supervised and inspected by a medical milk commission. 2. Pasteurization by one of a variety of commercial methods. Its use has greatly increased in recent years. The general tendency is toward the pasteurization of all market milk except the certified milk, and in some large cities it is compulsory. Tuberculosis is the commonest disease with which cows are affected, and therefore demands particularly careful consideration in connection with milk, although the other possibilities of milk-borne infectious agencies are not by any means negligible. It is pertinent to inquire from time to time, therefore, whether commercial pasteurization conducted, as it must be, on a large scale, actually destroys tubercle bacilli. A careful investigation [1] in a representative American city has shown the presence of these micro-organisms by actual inoculation tests in specimens of the raw milk of average quality delivered to city dealers. It was also demonstrated that pasteurization by the holding process between 142 and 148 F. for thirty minutes destroys the tubercle bacillus in the milk. The commercial process of rendering the milk safe can readily be made efficient; it should never be allowed to fail wherever dependence is placed on pasteurization.

REGURGITATION FROM THE URINARY BLADDER

There is no doubt today that hematogenous infection of the kidney can occur; indeed, it seems likely that this forms a not infrequent method by which disease becomes localized in this organ. In the days when the blood stream was supposed to be singularly free from bacteria, such a conception of infectious invasion of the renal structures seemed somewhat less probable than now. Viable micro-organisms are, in fact, known to be so readily excreted by the kidneys, even without any evidence of local disease, that some writers have actually classed the ridding of the body of infectious material as an important renal function. Transfer of bacteria from the circulating mediums of the body, however, is not the only way by which noxious agents might reach the kidney. It is a matter of every-day occurrence that the urinary bladder becomes infected through the external pathway of the urethra; it is a natural step to assume that through the ureters an almost equally available further channel is presented for reaching the pelvis of the kidney. It must be borne

1. Bartlett, C. J.: Does Commercial Pasteurization Destroy Tubercle Bacilli in Milk? Am. J. Pub. Health. **13**: 807 (Oct.) 1923.

in mind, however, in evaluating such a possibility, that the ureters are not merely possible conductors of urine. A stream of urine directed bladderward is flowing through them, and they are furthermore subject to muscular contractions of a wavelike character that oppose rather than favor the passage of anything in the direction of the kidneys. The possible regurgitation of vesical contents is therefore obviously a problem for study rather than mere speculation. The most recent investigators of the subject, Graves and Davidoff [1] in the Laboratory of Surgical Research at the Medical School of Harvard University, report that they have never seen antiperistalsis in a normal ureter, and in no way have they found it concerned with regurgitation; but the latter does occur, and it seems to depend on a variety of factors, among which a good bladder tone seems to be indispensable. Active pressure usually caused regurgitation; passive pressure never. The degree of ureteral activity seems to have little influence on the process. The upshot of these studies is to render bladder regurgitation accountable for ascending infections of the urinary tract, particularly in the case of vesical-neck obstruction. The decisive facts are based on animal experimentation; but they seem to be sufficient to warrant the conjecture that in man also the hematogenous route is not the only path for infection of the kidney.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Repair of Medical Building.—The board of revenue, November 6, announced that $6,000 would be spent for repairs on the old medical building of the University of Alabama, Birmingham, opposite the Hillman Hospital. When completed, the building will be used for the juvenile court as well as for the nurses' home and hospital.

CALIFORNIA

Southern California Society News.—At the semiannual meeting of the Southern California Medical Association in Los Angeles, November 2-3, Dr. Egerton L. Crispin, Los Angeles, was elected president; Drs. Rexwald Brown, Santa Barbara, and Allan L. Bramkamp, Banning, vice presidents, and Dr. Charles T. Sturgeon, Los Angeles, secretary-treasurer. ——At the annual meeting of the San Bernardino County Medical Society, October 2, the following officers were elected: Dr. John H. Evans, Highland, president, and Dr. Ernest O. J. Eytinge, Redlands, secretary-treasurer.

Hospital News.—A children's ward of forty beds will be erected at the Tulare-Kings County Tuberculosis Hospital, Springville, at a cost of $50,000.——Plans are being completed for a group of six reenforced concrete hospital buildings for the San Francisco Hospital in the Relief Home Tract, to be erected at an estimated cost of $1,750,000.——A solution of the problem of reducing the cost of hospitalization to the middle class is to be worked out by a committee whose appointment was approved by resolution, October 19, at the closing session of the annual convention of the hospitals of California. A resolution which authorizes the appointment of a committee to codify existing hospital laws and gather data on which new legislation covering state hospital regulations, to be enacted at the next session of the state legislature, was also unanimously adopted.——Drs. Milton H. Damron and Frank M. Mikels will open a number of emergency hospitals in Long Beach which will be operated to care for traffic and industrial injuries. The first unit of this system will be opened in the North Long Beach district. These hospitals will be known as the D. & M. emergency hospitals.——The Butts ranch property, north of Richmond, has been selected by the city council as the site for the Harding Memorial Hospital, for which a bond issue of $150,000 is proposed.——The Berkeley General Hospital, Berkeley, is being rebuilt. The first unit of five fireproof wings is nearing completion. When the new buildings are finished, the present structure will be moved to the rear and used for a nurses' school and home.——The new $10,000 nurses' home of the Emanuel Hospital, Turlock, was dedicated, November 2.

CONNECTICUT

The Diploma Inquiry.—The Journal is daily receiving reports of the state investigation into the medical diploma scandal that was recently exposed by the St. Louis *Star* (The Journal, November 17, p. 1698). Several hundred witnesses will be summoned before the grand jury's inquiry into charges of perjury and conspiracy. Dr. James E. Hair, secretary of the eclectic medical examination board, has returned from his farm in Townsend, Vt., coincident with the calling of the extraordinary grand jury. Harry T. Brundige, special investigator of the St. Louis *Star*, will be the first witness called as he (as "Dr." Harry Thompson) obtained the evidence which led to exposing the "mill." Members of the state board of eclectic medical examiners will then be called. The accused physicians will be called last. The Hartford *Daily Courant* states that more than twenty physicians who are suspected in connection with the frauds have left the state. Some of the suspects who, it is reported, will be called on to testify as to the legality of their medical diplomas are: Arnold H. Brein, Waterbury; Aaron Glass, New Haven; Saverio N. Pennine, New Haven; Nathaniel McCarthy, New Canaan; Bernard I. Kafka, Bridgeport; Paul V. Marzio, New Haven; Isidor Yochelman, who operates the Sydenham Hospital and Clinic, Bridgeport; Etamar A. Mower, Hartford; Harry Chaimson, Hartford; William Levy, Hartford; Samuel Lerner, Bridgeport; George E. Sutcliffe, the St. Louis photographer who admitted buying a Kansas City medical diploma; Dr. Ralph L. White, New Canaan, a member of the state board of eclectic medical examiners, who holds a Kansas City diploma; Michael J'Anthony, Torrington; Aurelius Raphael Dejanis, Bridgeport; Frank Beardsley, Bridgeport; James A. Christian, Fairfield; Anthony R. Campo, Bridgeport; Modestino Coppola, New Haven; Peter Koraitis, New Britain; Harry Braverman, Stamford; Joseph E. Koplowitz, Baltimore; Andrew Pleasant Bush, New Britain; Pasquale Romeo, Bridgeport, and Dr. James W. Bush, New Britain. Several of these men have now left the state; others cannot be found. The majority of these men, who showed diplomas from either the Kansas City College of Medicine and Surgery, Kansas City, or the St. Louis College of Physicians and Surgeons, failed at the examinations in July, 1921 and 1922, and passed with good marks at subsequent examinations.——Telegrams were sent by Dr. Hair to the twenty-eight men who had applied for examination at the November 13 examination at the Hotel Garde, New Haven, stating that no examination would be held on that date. Previously Dr. Hair had announced that no candidates from the Kansas City College of Medicine and Surgery or the St. Louis College of Physicians and Surgeons would be considered eligible for examination.——Governor Templeton sent for the deputy comptroller, November 13, to determine whether a $10,000 appropriation made by the 1923 session of the legislature to Columbus Hospital, Bridgeport, could be stopped on finding that Dr. Pasquale Romeo, who is alleged to have distributed many licenses granted by order of the state board of eclectic medical examiners, is president of the institution.——Hartford hospitals have issued notice to the effect that all graduates of the Kansas City College of Medicine and Surgery and of the St. Louis College of Physicians and Surgeons are barred from their institutions.——In an address to the Waterbury Medical Society, November 8, Governor Templeton urged the physicians of the state to take more interest in the affairs of Connecticut and declared that if they studied bills before the general assembly which affect their profession, a situation such as the one now being exposed could not exist.——Some of the physicians accused are threatening to sue the Hartford *Daily Courant* for mentioning their names in connection with the exposure.

1. Graves, R. C., and Davidoff, L. M.: Studies on the Ureter and Bladder, with Special Reference to Regurgitation of the Vesical Contents. J. Urol. **10**: 185 (Sept.) 1923.

FLORIDA

Hospital Celebrates Anniversary.—St. Luke's Hospital, Jacksonville, has just completed its annual drive in connection with the celebration of the fiftieth anniversary of the founding of the institution. Approximately $50,000 was raised, with which a children's ward will be erected.

Kiwanis Club Child Clinic.—The Jacksonville Kiwanis Club has raised $14,000 by subscription to establish a child clinic in that city. A representative of the National Committee for Mental Hygiene conducted a survey at the request of the club as to ways and means of operating a child clinic for the study of behavioristic abnormalities. Should the clinic not be assured, money on hand will be applied to some problem of child life in the city.

GEORGIA

Graduate Medical School Established.—It is announced that the formal opening of the Atlanta Graduate School of Physicians and Surgeons will take place, April 9, 1924. Dr. William Perrin Nicolson is dean; Dr. Garnett W. Quillian, vice dean, and Dr. Michael Hoke, president of the faculty. Through the generosity of Jacob Elsas a new outdoor clinic building is under construction at Grady Hospital.

Memorial to Physician.—Dr. F. Phinizy Calhoun, Atlanta, and members of his family have made a "founders' roll" subscription of $1,000 to the Stone Mountain Confederate Memorial in memory of the late Dr. Abner Wellborn Calhoun, who at the age of 15 enlisted as a private in the First Georgia Regiment. Dr. A. W. Calhoun was chairman of the Section on Ophthalmology of the American Medical Association, 1882-1883.

ILLINOIS

State Health Authorities at Zion.—Following complaints that there are more than twenty cases of diphtheria in Zion City, the state department of health started an investigation, November 7.

Dinner to Dr. Ridlon.—The colleagues and friends of Dr. John Ridlon, Chicago, will present him, on November 24, with a portrait of himself painted by Carl Bohnen. The ceremony will follow a banquet to Dr. Ridlon on that evening.

Physician Fined.—According to reports, Dr. Alfred Stocker, Rock Island, was fined $500 and costs in the federal district court at Peoria, November 6, when he pleaded guilty to the second count of an indictment charging him with violation of the Harrison Narcotic Law (THE JOURNAL, July 21, p. 220).

Hospital News.—Bids were taken November 1, for the construction of a $75,000 home for soldiers' widows at Maywood. ——Construction work on the $100,000 addition to St. Margaret's Hospital, Spring Valley, is nearing completion.—— Construction work will soon be started on a $70,000 addition to the Silver Cross Hospital, Joliet.

IOWA

Physician Fined.—It is reported that Dr. Frank H. Gaffey, Bradgate, was fined $200 when he pleaded guilty, November 10, at Rock Island, Ill., to driving his automobile while under the influence of liquor.

KENTUCKY

Results of Trachoma Campaign.—In 1912, at the request of the Kentucky State Board of Health, and under instructions from the Surgeon-General of the United States Public Health Service, an officer of that bureau proceeded to Kentucky to determine the prevalence of trachoma in that state. A survey was made in twenty-three counties, more than 18,000 persons were examined and over 1,200, between 7 and 8 per cent., were found to have trachoma. The type of trachoma found here was very severe and its mutilating effects were much in evidence. Numbers of people had been blinded by this disease. As an old resident said, "You coudn't throw a stone in any direction without hitting sore eyes." In 1913, in cooperation with the Kentucky State Board of Health, the Public Health Service established a hospital in the county seat of Knott County. An eye specialist was placed in charge, assisted by two trained nurses and other necessary aids. Thus the problem of eradicating trachoma was undertaken. This campaign against trachoma has been carried on in Kentucky down to the present time. A total of 740 trachoma patients, residents of Knott County, were treated at the U. S. Public Health Service Trachoma Hospital from 1913 to 1922, inclusive. The officer who went over the ground in 1912 recently made another survey of this region. He found that of those who had been found infected with trachoma in 1912, 63 per cent. were known to have been completely cured and only 35 per cent. still remained in doubt. Those cases were placed on the doubtful list which the county health officer was unable to determine from a personal examination as to whether a cure had or had not been effected. Heads of families who for years had been unable to earn a living and mothers unable to care for their children have been restored to usefulness. In brief, it can be said that one of the worst trachoma regions in this country has been practically cleared of the disease within a period of less than ten years.

LOUISIANA

Medical Society Organized.—Forty physicians of southern Louisiana met in New Iberia, October 28, to organize the Third District Medical Association. Dr. Lewis B. Crawford, Patterson, was elected president; Dr. Frank T. Gouaux, Lockport, vice president, and Dr. Harold G. F. Edwards, Lafayette, secretary-treasurer.

MAINE

Hospital News.—The Trull Hospital, Biddeford, closed its doors, November 1, after an existence of twenty-three years, following the death of Dr. J. F. Trull, the founder, some months ago.——A fire at the State Insane Hospital, Augusta, October 31, caused damages estimated at $20,000.

MARYLAND

Personal.—Dr. Arthur J. Davis, Baltimore, was elected a member of the executive committee of the Southern Medical Association and Dr. Howard E. Ashbury, secretary of the section on radiology, at the annual meeting in Washington, D. C., November 12-16.——Dr. Randolph Winslow, professor emeritus of surgery at the University of Maryland Medical School, has gone on a tour of the world.——Dr. Augustus B. Wadsworth, Albany, director, division of laboratories and research, New York State Department of Health, lectured at the School of Hygiene and Public Health, Johns Hopkins University, November 19, on "The Development of Public Health Laboratory Service in New York State."

Southern Physicians Visit Baltimore.—Members of the Southern Medical Association were guests of the physicians of Baltimore, November 16 and 17, after the close of the annual meeting in Washington, D. C. Clinics were arranged, November 16, at the University of Maryland Hospital, Mercy and Johns Hopkins Hospital and at the School of Hygiene and Public Health, Johns Hopkins University. On the 17th, a discussion of the prevention of cancer by the Maryland Cancer Committee of the American Society for the Control of Cancer was held. A dinner was given the members of the association by the Baltimore City Medical Society at Osler Hall, Medical and Chirurgical Faculty Building.

MASSACHUSETTS

Society News.—At a meeting of four western districts of the Massachusetts Medical Society in Springfield, October 26, Dr. William A. Pusey, Chicago, President-Elect of the American Medical Association, spoke on "Our Changing Knowledge of Eczema." Drs. James S. Stone, Boston, and Alfred Worcester, Waltham, ex-president of the state medical society, also gave addresses.

Gift Conditional to Progress.—In the will of the late William S. Richardson, who died, October 6, the sum of $75,000 is left to the Massachusetts Homeopathic Hospital, Boston, on condition it keeps pace with the general advancement of medicine and surgery for the next five years. If the hospital is not progressive the fund will go equally to Harvard University and the Sulgrave Institution, which institutions are to receive the remainder of the $210,000 estate.

Diploma Investigation.—Dr. Charles E. Prior, secretary of the Massachusetts Board of Registration and Licensure, is conducting an investigation to ascertain if "diploma mills" have any ramifications in that state, as some of the men who are to appear in the Connecticut grand jury investigation (alleged graduates of either the Kansas City College of Medicine and Surgery or the St. Louis College of Physicians and Surgeons) have claimed that part of their instruction was received at the Middlesex College of Medicine and Surgery, Cambridge, Mass.——Drs. Michael M. J'Anthony and Aurelius R. De Janis, practicing physicians of Connecticut, who are said to have applied for examination before the

Massachusetts Board of Registration in Medicine and paid their application fees of $25 each, failed to appear at Boston, November 13, to take their examinations. No reason was given for their absence. A certificate declaring that both men were graduated from the St. Louis College of Physicians and Surgeons in 1922 and signed by Waldo Briggs, dean, was received, November 13, by the state board. J'Anthony is said to be practicing in Torrington, Conn., and De Janis in Bridgeport, Conn. It is stated that a charge of perjury may be preferred against Dr. Frank J. Beardsley, of Bridgeport, owing to discrepancies made in his applications to the Connecticut and Massachusetts boards.

MICHIGAN

Chiropractor Sentenced.—According to reports, Paul Philip, a chiropractor of Mount Clemens, was sentenced recently to six months in jail for practicing medicine without a license.

MISSISSIPPI

Personal.—Dr. William H. Aikman has been appointed city health officer of Natchez, to succeed Dr. Eugene B. French, Jr., who resigned last April.——Dr. Charles M. Roberts, Ancon, Canal Zone, has been installed as county health officer of Lee County, to succeed Dr. James B. Black, Jr., Tupelo, who resigned recently.——Dr. W. A. Barnes has been appointed surgeon in charge of the Natchez Hospital to fill the unexpired term of Dr. Augustine J. Podesta, who resigned to enter private practice at Vicksburg. Dr. Edwin Benoist has been appointed house surgeon to succeed Dr. Barnes.

MISSOURI

Personal.—Dr. Stephen H. Ragan, Kansas City, has been appointed surgeon-general of the U. S. Confederate Veterans. Dr. Ragan, who is a major in the medical officers' reserve corps of the U. S. Army, has been in charge of medical aid in every reunion, except two, of the Confederate veterans in the last fifteen years.——Edgar Allen, Ph.D., Washington University, St. Louis, has been appointed professor of anatomy at the University of Missouri School of Medicine, Columbia.——Dr. Eugene M. Lucke, Gray Summit, has been appointed health commissioner of Franklin County.

Hospital News.—The Christian Hospital property in North St. Louis has been sold and will be reconstructed into an office building. New property has been purchased at Carter and Newstead avenues on which the Christian Hospital Association will erect a new building which will cost approximately $350,000 and will have a capacity of 140 beds.——A seventy-five bed hospital will be erected for the Ellen A. Burge Deaconess Hospital, Springfield. The present institution will be used for a nurses' training school.

MONTANA

Hospital Dedicated.—Bishop Lenihan, Great Falls, dedicated the new St. Vincent Hospital, Billings, November 7. The institution was erected at a cost of $750,000 and has a capacity of 150 beds.

State Hospital News.—The Montana State Hospital, Warm Springs, has 1,430 patients. A new wing is being constructed. For the first time the natural warm water from the springs is being used for the treatment of patients.——The state tuberculosis sanatorium, Deer Lodge, has 110 patients.

Get-Together Meeting.—The Western Montana Medical Association at a meeting held recently, decided to hold a banquet and clinical program in Missoula this month for physicians from the surrounding country. A committee on arrangements was appointed with Dr. Frank D. Pease, city and county health officer, chairman.

NEW YORK

Typhoid Carrier Caused Epidemic.—The source of nineteen cases of typhoid fever, which occurred recently in Jamestown, has been traced to a "carrier" on a dairy farm, according to the state health department.

Free Insulin Clinic.—The Harbor Hospital, Brooklyn, has opened a free insulin clinic for the poor under the direction of Dr. Max J. Fein, chief of the metabolic service of Broad Street Hospital, New York City, and the executive committee of the hospital has donated beds for diabetic patients who require hospital treatment.

Examination of Children.—Investigation of the health status of children will be conducted by the New York State Department of Health, division of maternity, infancy and child hygiene at various towns in Nassau County, from November 19-28. All well children from 6 months to 6 years of age not attending school are to be examined without charge.

Bogus Physicians Sought.—The board of health and the New York County Medical Society are on the lookout for more than 100 fake "physicians" who are said to have taken refuge in New York as a result of the investigation in Connecticut regarding the authenticity of their medical diplomas. It is alleged that several are practicing in hospitals in the city.

Medical Center in Queens.—A new medical center is proposed for Queens by the Medical Society of the County of Queens, on the site recently purchased in Forest Hills with money raised by members of the society. The plans provide for one large auditorium and several meeting rooms for the different sections; office accommodation for the allied professions, physicians, dentists, druggists, with a nurses' registry, club room and a medical library.

New York City

Harvey Society Lecture.—Dr. Walter W. Jacobs of the Rockefeller Institute for Medical Research will deliver the third Harvey Society lecture at the New York Academy of Medicine, December 8. His subject will be "Chemotherapy of Protozoan and Bacterial Infections."

Malignant Disease Clinic.—A new clinic for the treatment of malignant diseases of the urinary tract, was opened, November 14, at the New York Hospital by the James Buchanan Brady Foundation. Dr. Oswald Swinney Lowsley, director of the Brady Foundation, and twenty other physicians will be on the staff.

New York Post-Graduate Medical School and Hospital Lectures.—This course of free lectures at 5 o'clock Friday afternoons to which all physicians are cordially invited, will include the following: November 30, "Epidemic Encephalitis," by Dr. Frederick Tilney; December 7, "The Importance of Early Diagnosis in Diseases of the Genito-Urinary Tract," by Dr. Joseph F. McCarthy; December 14, "Radium Therapy" (with moving pictures), by Dr. George Stewart Willis.

Personal.—Dr. Frank J. Monaghan, commissioner of health, has been appointed by acting mayor Murray Hulbert, to represent the citizens of New York on the Fair Coal Price Commission which is being organized in accordance with a proclamation issued by Governor Smith, October 23.——Dr. Harry P. Swift, who has been engaged in public health work with the department of health for fourteen years, has been appointed special deputy commissioner of health to serve without compensation and to perform such duties as may be assigned to him.

Society Celebrates Fiftieth Anniversary.—The New York Laryngological Society, now the Section of Laryngology of the New York Academy of Medicine, which has the distinction of being the oldest laryngological society, celebrated its fiftieth anniversary at the New York Academy of Medicine, November 15. Dr. Arthur B. Duel, a vice president of the academy, presided, and Drs. Henry Hall Forbes and D. Bryson Delavan, gave addresses. Another feature of the meeting was the presentation of a portrait of Professor Ludwig Türck of Vienna, the gift of Mrs. George Morewood Lefferts to the academy. Dr. Thomas J. Harris made the presentation. In connection with this celebration there is an exhibition which will continue two weeks at the Academy of Medicine, consisting of instruments, illustrations, portraits and publications, representing original discoveries, inventions and other contributions to the progress of laryngology made in New York.

OHIO

Chiropractors to Jail.—Three chiropractors of Bellefontaine were convicted of practicing medicine without a license by Judge Pettit, November 1, and were sent to jail for forty-one days on failure to pay fines of $25 each.

Orthopedic Clinics.—A new series of orthopedic clinics will be held under the joint auspices of the medical profession, the state department of welfare, the state department of health, and the Ohio Society for Crippled Children. The academies of medicine in various cities are forming committees to support the work.

Psychiatric Foundation of the Western Reserve.—A group of northern Ohio residents have organized to establish a model health community and nerve rehabilitation center near Cleveland, it was announced, November 5. The charter, which has

been taken out under the name of the Psychiatric Foundation of the Western Reserve, will be on the order of the MacLean Institute, Boston, the Friends Hospital, Philadelphia, and the Sheppard and Pratt Hospital, near Baltimore. It is designed as a rest colony and research center. Laboratory equipment will be installed for the investigation of all phases of practical psychology, and the cause and treatment of nervous and mental ailments. The staff will comprise an experienced psychiatrist and a corps of physicians, nurses and aids. The institution will be heavily endowed and will be operated on a cost basis.

Philadelphia

Personal.—Dr. Frederick Hurst Maier has been appointed a visiting chief of the gynecologic department of the Philadelphia Hospital.——Dr. Laura H. Carnell, dean of Temple University, was the guest of honor at the fifteenth annual luncheon of the Temple University Association, held at the Bellevue Stratford, November 10.——Dr. Arthur P. Keegan, who was for more than ten years surgeon of St. Agnes Hospital, has been appointed chief surgeon of St. Mary's Hospital.

Hospital News.—Formal opening of the new administration and tuberculosis buildings of the Philadelphia Hospital for Mental Diseases took place at Byberry, November 9, with Hampton Moore, mayor of the city, the principal speaker. The new building has been named in honor of the late director of the department of public health, Dr. C. Lincoln Furbush, who planned the structure but died before its completion. ——The semiannual luncheon of the managers and staffs of the Women's Hospital, Philadelphia, October 19, marked the opening of the remodeled clinic.

TENNESSEE

Hospital News.—The Junior League Hospital for Crippled Children was opened in Nashville, October 8. The present building is a remodeled residence donated by the Standard Oil Company rent free. An outpatient department has been established, and the social service work of the hospital will be conducted by members of the league.——A new hospital will be erected at Jackson in the near future at a cost of $125,000 it was announced, October 15, at a dinner given by Dr. Jere L. Crook, originator of the plan. The staff of the new institution has been announced as follows: Drs. Charles F. Webb, George L. Williamson, Rufus S. Brown, John T. Herron, Stanford M. Herron, C. P. Waller, Benjamin C. Arnold, S. Dickson and C. W. Davis.——The Wallace-Somerville Sanitarium, Cherry Station, Memphis, is erecting a $30,000 addition.——The general Education Board, New York City, appropriated more than $80,000 to erect an addition to the George W. Hubbard Hospital of Meharry Medical College, Nashville, and thus increased its capacity to 150 beds. The hospital will be opened for public inspection, Thanksgiving Day, November 29.

UTAH

Public Health Laboratory.—In conjunction with the biologic department of Brigham Young University, a county public health laboratory will be maintained in Utah County so that physicians who send bacteriologic material to the laboratory may receive the reports twenty-four hours later free of charge.

WISCONSIN

Chiropractors Cannot Make Eugenic Examinations.—In an opinion handed down by Attorney General Eckern, November 1 he declared that chiropractors are not permitted to make eugenic examinations as they are not included under the title of physicians.

State Liquor License Required.—The state prohibition commissioner has notified Wisconsin physicians that a state license to prescribe liquor is required in addition to the federal permit. But he called attention to the fact that no permits are required after Jan. 1, 1924, for the use of alcohol for sterilizing purposes only. The $10 fee for this use was repealed by the 1923 legislature, effective next year.

Medical Testimony Not Essential.—Judge Stevens of Dane County recently decided that the state industrial commission need not be bound by medical testimony in determining the extent of injuries when they in person see the injured man. In the case in question, medical testimony fixed the disability at less than 50 per cent. The commission saw the injured man and raised the percentage of disability to 50 per cent. which was sustained by the circuit court.

CANAL ZONE

The Gorgas Memorial.—The honorary presidency of the Gorgas Memorial Institute of Tropical and Preventive Medicine has been accepted by President Coolidge, in a letter which was read before a meeting of the board of directors of the organization at the Pan-American Union Building, Washington, D. C., November 13. The President's letter said in part:

> "The organization stands for a world movement to bring the lands and climates of the tropical world into their fullest productivity and service to humanity. This is certain to be one of the great problems of the coming generations, increasingly insistent as the population of the temperate zones shall increase. One of the great accomplishments of the last half century has been the development of sanitary and medical procedures by which the tropics have been made available for the habitation of peoples acclimated to the temperate areas. General Gorgas will always be remembered as foremost among those who have labored intelligently and effectively in this cause, and I am glad to be associated with an organization which proposes to project that great service into the future."

The Gorgas Memorial Institute which will be established at Panama City will have an endowment fund of $5,000,000 raised by popular subscription. The directors will start a drive to raise this fund, Jan. 1, 1924.

PHILIPPINE ISLANDS

Public Health News.—Under the auspices of the Rockefeller Foundation the Philippine Islands Department of Health will inaugurate a campaign to rid the islands of mosquitoes.——According to the annual report of the director of health the birth rate during 1922 increased, and the death rate was lowered. This is attributed to generally improved sanitary conditions.

CANADA

University News.—The University of Toronto is making arrangements for a banquet in honor of Drs. Banting, Best and Macleod, at Hart House, Toronto, November 26, for which about 325 invitations will be issued.——Dr. Samuel Johnston, Toronto, has been appointed lecturer in anesthesia in the University of Toronto.

Banting Research Foundation.—It was announced from London, Ont., October 31, that it is proposed to establish a $1,000,000 Banting Medical Research Foundation. Dr. Frederick G. Banting was the first contributor to the fund, donating $10,000, a portion of his share of the Nobel Prize. The committee to take preliminary charge of the foundation includes Dr. George David Stewart, president of the New York Academy of Medicine, New York; Dr. John Gerald Fitzgerald of the University of Toronto, and Dr. George W. Ross, Toronto.

Free Insulin.—Insulin for free distribution is provided by the provincial board of health of Ontario. Returns received from seven of the fifteen distribution centers indicate a large increase in the number of units of insulin for distribution as follows:

	October	September
Windsor	8,300	4,000
Peterboro'	2,900	1,600
Owen Sound	4,600	3,550
Fort William	850	400
Kingston	9,810	7,300
London	11,200	10,800
Toronto (approximately)	60,000	42,950

Sanipractic Board Bill.—The chiropractors of British Columbia are renewing their appeal to the legislature to give them a legal status independent of the legitimate medical profession. Their case is supposed to be strengthened by association with them of the entire so-called sanipractic profession, a name given to a group including not only chiropractors but also masseurs, dietitians, physical culture experts and others. R. H. Neelands, legislator from South Vancouver, introduced this bill, "The Sanipractic Physicians Act," asking that the sanipractic group be given its own board of examiners, but permitting one member of the medical profession to be on that board.

GENERAL

Investigation of Respiratory Diseases.—The U. S. Public Health Service is undertaking a study of common colds, respiratory diseases and influenza. Certain colleges have been selected and cooperation obtained for this study—Harvard, Johns Hopkins, Georgetown, Howard, Tulane, Ohio State, the University of Chicago and the University of California. It is anticipated this work will extend over a period of two or three years.

Roentgenology. Journal to be Enlarged.—The *American Journal of Roentgenology and Radium Therapy,* official organ of the American Roentgen-Ray Society and the American Radium Society will appear in enlarged form in 1924, with more illustrations, abstracts and original articles. Dr. Arthur C. Christie will be the editor succeeding Dr. H. M. Imboden, and Drs. James T. Case, Henry K. Pancoast and William Duane, Ph.D., will be the associate editors. The yearly subscription will be $10.

Nobel Prizes.—The Swedish Academy of Science has awarded the 1923 Nobel prize for physics to Prof. Robert A. Millikan, director of the Norman Bridge Laboratory, Pasadena, Calif., for research concerning electrical unit charges, photoelectrical effects, and isolation of electrons. Professor Millikan was professor of physics at the University of Chicago from 1910 to 1921. The 1923 prize for chemistry has been awarded to Prof. Friedrich Pregl, professor of chemistry, University of Graz, Austria, for work on micro-analysis.

Ohio Valley Medical Association.—At the annual convention of the association in Evansville, Ind., November 6-7, Dr. Leon L. Solomon, Louisville, Ky., was elected president to succeed Dr. Sidney J. Eichel, Evansville; Drs. Murray N. Hadley, Indianapolis, William C. Herman, Cincinnati, and James Y. Welborn, Evansville, vice presidents, and Dr. Benjamin L. W. Floyd, Evansville, was reelected secretary-treasurer. The 1924 convention will again be held in Evansville, and will continue for four days instead of two. The entire area of every state bordering on the Ohio River will henceforth be included in the association.

Mentally Deficient Immigrants.—The medical examiner for the New York State Hospital Commission announces that in the last fiscal year, 4,724 mentally defective aliens have been admitted to the United States under bond and 2,712 without bond, despite the fact that all were mandatorily excluded by medical examiners. This announcement was made October 27, at a conference in New York of insanity experts from various states who proposed the permanent organization of state bodies dealing with insanity in an effort to force the government to assume full responsibility for the situation and bring about corrective measures. New York, Connecticut, New Jersey, Massachusetts, Illinois, Pennsylvania, Rhode Island and the District of Columbia were represented.

Hospital May Refuse Admission to Patients of Cultists.—The question of whether or not the superintendent of the Siskiyou County General Hospital, Yreka, Calif., has the right to deny admission to patients entered at the hospital by chiropractors came to a focus at a meeting of the county board, October 1, when Alfred Burklund appeared before the supervisors with legal counsel and demanded equal privileges with physicians. At the conclusion of a lengthy hearing the board adopted the following resolution:

Resolved, That the board of supervisors vest full discretionary powers in the superintendent of the county hospital in the admission of patients to the county hospital, excepting as provided by law. All patients at such hospital to be under the care or charge of a legally qualified medical practitioner.

Milbank Memorial Fund.—At the recent annual meeting of the American Public Health Association, John A. Kingsbury, secretary of the Milbank Memorial Fund announced that $2,000,000 would be appropriated by that foundation for health demonstrations (The Journal, September 22, p. 1030) to determine which diseases yield more readily to concerted attack; to what extent tuberculosis can be further reduced; whether the infant mortality rate can be lowered; whether diphtheria can be practically eliminated; what preventive methods are most effective in controlling disease, and what constructive measures are most successful in promoting public health. A record will be kept of the cost of each project. Actual work has already started in Cattaraugus County, a typical rural district in the western part of New York State with a population of about 72,000, and in the city of Syracuse with a population of about 175,000. It is estimated that at the end of the five-year period the demonstrations program will be firmly enough established in each community to command complete local support and to serve as an example in disease prevention and health promotion. The origin and purpose of this fund was given in The Journal, Sept. 30, 1922, p. 1154.

Bequests and Donations.—The following bequests and donations have recently been announced:

Hershey Industrial School and Orphanage, Harrisburg, Pa., $60,000,000, by Milton S. Hershey, the chocolate manufacturer.

To found the Washington and Jane Smith Home for Aged People in Chicago, in memory of her parents, $1,000,000, by the will of Miss Emilie J. Smith.

Murphy Memorial Hospital, Whittier, Calif., an additional $150,000 for extension work by Col. Simon J. Murphy.

Van Wert (Ohio) County Hospital, Van Wert, $110,000, by the will of William Jones.

Everett, Wash., for the erection of a hospital, $100,000; $50,000 each, from A. H. B. Jordan and William C. Butler.

St. Francis Xavier Infirmary, Charleston, S. C., $55,625, in a drive for funds.

Bryn Mawr Hospital, Philadelphia, $50,000, the proceeds of the Devon horse show and country fair.

Beth Israel Hospital, New York City, $50,000, donated for the completion of the new building.

Druid City Hospital, Tusealoosa, Ala., $10,000 for the erection of a nurses' home, from J. T. Horne.

The New Protestant Hospital, Anderson, Ind., $10,000 from the local chapter of the Ku Klux Klan.

Culver Union Hospital, Crawfordsville, Ind., $6,500 by the will of Miss Clara Crawford.

Rockford, Ill., for the establishment of hospital beds, $1,500, by James H. Lake.

Victory Memorial Hospital, Waukegan, Ill., $1,000, by the will of Mrs. Grace Edmonds.

St. Luke's Hospital, Jacksonville, Fla., $1,000, by the Putnam Lumber Company.

Southern Medical Association.—At the final session of the Southern Medical Association held at Washington, D. C., November 15, Dr. Charles L. Minor, Asheville, N. C., former president of the National Tuberculosis Association, was elected president. Other officers elected were: Dr. Robert C. Lynch, New Orleans, vice president; Dr. Thomas A. Groover, Washington, D. C., second vice president; C. P. Loranz, Birmingham, Ala., secretary-manager, and Dr. Marye Y. Dabney, Birmingham, editor of the association's journal. Next year's convention will be held in New Orleans. On the last day of the session, Mrs. Coolidge received the ladies and the President received the entire group attending the convention. The members had previously adopted a resolution declaring they would have the President forego the strain of handshaking. In a brief address, President Coolidge commended the medical profession for safeguarding the health of the nation, declaring that, public health lies at the foundation of all public welfare. "Unless the public health," he said, "is properly conserved and protected, there is very little use for any activity looking toward the promotion of public welfare." The President's address was in the form of a welcome. He spoke of his high regard for the medical profession. He said, because of the high type of men, their advice has been eagerly sought, and has helped to make better citizens.

LATIN AMERICA

Public Health in Brazil.—A campaign is being conducted in the state of Amazonas, Brazil, against hookworm, malaria and smallpox by the state health department. Leprosy is reported as increasing rapidly. In the city of Manaos 440 cases have been reported.

Mental Hygiene in Argentina.—A league for mental hygiene is being planned in Argentina, similar to those in the United States and France. The editorial staff of the *Semana Médica* appointed in 1921 Prof. Victor Delfino as its representative to confer with the Argentine Neurologic Society and others in regard to the organization of a league of the kind in Argentina. The movement has received new impetus from the return of Dr. Helvio Fernández, who has been studying the subject in other countries. He is director of the institute of criminology connected with the national penitentiary.

Joint Meeting of Pediatric Societies.—In 1921 the Pediatric Society of Uruguay visited Buenos Aires to hold joint meetings with the Argentine society. This year the Argentine society visited Montevideo, and two joint meetings were held, besides visits to local medical institutions and excursions. There were seven members in the party from Argentina, besides the president, Dr. Mamerto Acuña. A banquet was tendered by Dr. Morquio. The sessions were presided over by Drs. Acuña, Navarro, Aráoz Alfaro and Cibils Aguirre of the visiting society. Navarro's suggestion was adopted that in future joint meetings of the kind, two special topics shall be appointed for discussion.

Personal.—Dr. Martin Ficker, professor of hygiene at Berlin, has gone to S. Paulo, Brazil, to take charge of the bacteriologic laboratory at the German Hospital in that city. ——The prize awarded by the Buenos Aires medical faculty for the best work published in Argentina during the years 1919-1920, was given to Dr. Guillermo Bosch Arana for his "Cineplastic Amputations." Another prize was awarded to Dr. P. I. Elizalde for his work "Syphilis of the Lungs." The Azara prize for the best work on the flora and fauna of Argentina was awarded to Dr. A. Bianchi Lischetti for his studies of Argentine mosquitoes.——On the return of Dr. E. V. Segura, professor of otolaryngology at Buenos Aires,

from Europe as delegate from the medical faculty at the Pasteur centennial and congresses, he was tendered a banquet with addresses by Drs. José Arce, Zambrini and Ayarragaray, concluding with remarks by Dr. Demarest of the Paris medical school, now visiting in Argentina.——The S. Paulo Medical Society has elected Drs. Acuña and A. Olivera of Buenos Aires corresponding members.

FOREIGN

Anniversary of Free Treatment of Venereal Disease.—October 20 was the one hundred and fiftieth anniversary of the first decree in Denmark providing gratuitous treatment for persons with venereal disease.

The Legion of Honor.—In connection with the celebration of the centenary of the birth of Pasteur, the French government made awards in "La Légion d'Honneur" of two "grands officiers," nine "commandeurs," twenty-eight "officiers," and fifty-two "chevaliers."

Public Health News.—Plague has been reported in British East Africa. Seventeen cases with eight deaths occurred in Mombasa. In Uganda 172 cases were reported in one month with 164 deaths.——Epidemic smallpox is reported from Bangkok, Siam, where during the last five months 329 cases have been reported with 184 deaths. Vaccination is compulsory, but enforcement of the law is difficult in certain areas. All persons entering the port of Bangkok are required to be vaccinated before leaving the ship.——Under date of September 21, epidemic cerebrospinal meningitis was reported prevalent in the Witwatersrand area of South Africa, with twenty-nine cases occurring in the white population and 185 cases in the colored population. The infection was stated to be widely disseminated.——In two weeks 12,700 cases of malaria were reported recently from the Bashkir country of the Ural region of Russia and more than 70,000 cases were reported during the first six months of 1923 from the Donetz River region.

Labor and Health in Japan.—It is planned to establish a compulsory labor insurance system for injured or sick workers in Japan who are receiving 1,200 yen or less per year. They will receive 60 per cent. of their wages while disabled, and be given free medical attention; in case of death, funeral expenses will be paid.——Every three years Japan will take a labor census. Factories employing thirty or more workers will be required to report to the government the name and location of factories, kind of business, number of employees, working hours, holidays and rest periods. This will help the government to enforce the recently amended factory law.——In the cotton mills of Japan, four fifths of the workers are women and girls, of whom nearly two thirds are under 20 years of age. Among 177,476 working women and girls, seventy-nine were less than 12 years of age; 32,722 were between 12 and 15 years; 79,656 between 15 and 20 years, and 65,016 over 20 years. The new law requires that children under 16 years of age, and women, will not be employed more than eleven hours a day.

Economy Halts Medical Research in India.—The committee on retrenchment in India recently recommended, among other things, that the payment of research officers from central revenue should be discontinued. The Research Fund Association has nearly $1,000,000 (33 lakhs) in hand derived from government contributions. The retrenchment committee advised that the interest on this money be used to maintain medical research. The drastic proposals put forward by the committee would have meant virtually closing down all research work in India; but instead of abolishing the appointments of the twelve bacteriologists, it is proposed to retain six of them and leave six places unfilled until the financial conditions are more favorable. The establishment of the central research institute at Delhi and the grant of about $161,000 yearly to the Indian Research Fund Association are similarly suspended. The directorship of medical research has also been abolished for the time being, but that officer's duties will be carried on departmentally.

CORRECTION

Cleveland Academy of Medicine.—THE JOURNAL, November 3, p. 1532, stated that Drs. J. B. Morgan and H. Van. Y. Caldwell were elected president and secretary, respectively, of the Cleveland Academy of Medicine. It should have read: "At a recent meeting of members of the Academy of Medicine of Cleveland, a golf association was formed, electing Dr. J. B. Morgan president and Dr. H. Van. Y. Caldwell, secretary."

Government Services

The Medical Officers' Reserve Corps

The status of the Medical Section of the Officers' Reserve Corps as of Nov. 10, 1923, shows the relative inadequacy of the present organization to meet the requirements of a major emergency. There are, at present, enrolled in the Medical Section 6,700 officers, as follows: brigadier generals, 17; colonels, 134; lieutenant colonels, 499; majors, 2,185; captains, 2,863; first lieutenants, 981. During the World War, approximately 37,500 medical officers served with the United States Army.

The War Department plan for six field armies calls for approximately 45,000 medical department officers. It is apparent that the progress made since the armistice in the reorganization of the Medical Reserve Corps does not satisfy the country's need. The War Department seeks the support of former officers of the Reserve Corps in the accomplishment of a well organized medical section. Perpetuation of a properly organized medical reserve demands that all graduates in medicine identify themselves with it by seeking appointment therein as soon after graduation as they become eligible.

Support of the medical program for national defense is the medical profession's obligation. This obligation will not be evaded in time of emergency, but it is wise to organize the profession in time of peace. The Surgeon General considers the development of the Reserve Corps his outstanding obligation in the interest both of the profession and of the military service, and desires to enlist the support of all physicians in the promotion of the medical program of the national defense policy.

MEDICAL DEPARTMENT RESERVE UNITS

In addition to completing the enrolment of officers, the present preparedness measures aim to assign these officers to war time positions while there is ample opportunity to determine their relative qualifications and adaptations. Three fourths of the medical officers who serve in war must be assigned to branch assignment units, and the Surgeon General is now engaged in organizing these units. In the organization of reserve hospitals, which constitutes a large part of the branch assignment project, the initiative is being placed in the hands of civil hospitals and medical schools. All general, evacuation and surgical hospitals are to be organized in this way. Each reputable institution of sufficient size is asked to adopt a unit, which will be representative of the institution's staff and will bear the institution's name. These units are simply groups of officers deliberately and intelligently placed and available to step out as the staffs of military hospitals in case of war.

The following is a list of medical department units already authorized and under organization with the name of the commanding officer when there has been one assigned:

General Hospital No. 1, Bellevue Hospital, New York.
General Hospital No. 4, Western Reserve University, Lakeside Hospital, Cleveland.
General Hospital No. 6, Massachusetts General Hospital, Boston; Lt.-Col. James Howard Means.
General Hospital No. 8, New York Post-Graduate Medical School and Hospital, New York; Lt.-Col. John Joseph Moorhead.
General Hospital No. 10, Pennsylvania Hospital, Philadelphia; Col. Charles Franklin Mitchell.
General Hospital No. 21, Washington University Medical School, St. Louis; Lt.-Col. Malvern Bryan Clopton.
General Hospital No. 25, University of Cincinnati College of Medicine and Cincinnati General Hospital, Cincinnati; Lt.-Col. Arthur Charles Bachmeyer.
General Hospital No. 26, University of Minnesota and University Hospital, Minneapolis.
General Hospital No. 27, University of Pittsburgh School of Medicine, Pittsburgh, Lt.-Col. James Delavan Heard.
General Hospital No. 28, Christian Church Hospital, Kansas City, Mo.
General Hospital No. 32, Indiana University School of Medicine, Indianapolis.
General Hospital No. 38, Jefferson Medical College, Philadelphia; Lt.-Col. Henry Keller Mohler.
General Hospital No. 43, Emory University, Emory University, Ga.; Lt.-Col. Frank K. Boland.
General Hospital No. 46, University of Oregon Medical School, Portland, Ore., Major Richard B. Dillehunt.
General Hospital No. 48, Metropolitan Hospital, Dept. of Public Welfare, Welfare Island, New York.
General Hospital No. 50, University of Washington, Seattle, Lt.-Col. James Beaty Eagleson.
General Hospital No. 51, Georgetown University School of Medicine, Washington, D. C.
General Hospital No. 52, Syracuse University School of Medicine, Syracuse, N. Y.; Lt.-Col. Edward Seguin Van Duyn.
General Hospital No. 53, St. Louis University School of Medicine, St. Louis; Col. Hanau Wolf Loeb.

General Hospital No. 54, State University of Iowa College of Medicine, Iowa City; Lt.-Col. Lee Wallace Dean.
General Hospital No. 55, Creighton University College of Medicine, Omaha; Lt.-Col. Hermann Von Wechlinger Schulte.
General Hospital No. 56, University of Oklahoma School of Medicine, Oklahoma City, Lt.-Col. LeRoy Long.
General Hospital No. 57, Western Reserve University, Cleveland City Hospital, Cleveland.
General Hospital No. 60, Iowa Methodist Hospital, Des Moines, Iowa; Major Charles Francis Smith.
General Hospital No. 61, Latter-Day Saints Hospital, Salt Lake City.
General Hospital No. 62, St. Luke's Hospital, Jacksonville, Fla.; Lt.-Col. Stanley Erwin.
General Hospital No. 70, City Hospital, Worcester, Mass.; Lt.-Col. Frank W. George.
General Hospital No. 73, Franklin Square Hospital, Baltimore.
General Hospital No. 75, George Washington University Hospital, Washington, D. C.
Evacuation Hospital No. 1, Johns Hopkins Hospital, Baltimore.
Evacuation Hospital No. 2, St. Luke's Hospital, New York.
Evacuation Hospital No. 4, Washington University School of Medicine, St. Louis.
Evacuation Hospital No. 18, Methodist Episcopal Hospital, Indianapolis; Col. Carleton Buel McCulloch.
Evacuation Hospital No. 19, Davis-Fischer Sanatorium, Atlanta, Ga.
Evacuation Hospital No. 20, Flower Hospital, New York; Lt.-Col. Frederick M. Dearborn.
Evacuation Hospital No. 21, St. Anthony's Hospital, Terre Haute, Ind.
Evacuation Hospital No. 22, Milwaukee Surgical Society, Milwaukee.
Evacuation Hospital No. 24, St. Vincent's Infirmary, Little Rock, Ark.; Col. Francis Vinsonhaler.
Evacuation Hospital No. 25, West Suburban Hospital, Oak Park, Ill.
Evacuation Hospital No. 63, St. Margaret's Hospital, Kansas City, Kan.
Surgical Hospital No. 4, Washington University Medical School, St. Louis.
Surgical Hospital No. 5, Western Reserve University, St. Vincent's Charity Hospital, Cleveland.
Surgical Hospital No. 6, Peter Bent Brigham Hospital, Boston; Major Elliott Carr Cutler.
Surgical Hospital No. 7, Hahnemann Hospital, Scranton, Pa.
Surgical Hospital No. 15, Italian Benevolent Institute and Hospital, New York.
Surgical Hospital No. 16, Southern Pacific Hospital, Houston, Texas.
Hospital Train No. 3, Pennsylvania State; Major Matthew Joseph Shields.
Hospital Train No. 4, Alabama State; Capt. William Ernest Warren.
Hospital Train No. 7, Oklahoma State; Capt. Fred. Fenton Jones.
Hospital Train No. 8, New York State; Capt. Joseph Parsons Comegys.
Hospital Train No. 9, Virginia State; Capt. Veolo Oglesby Caruthers.
Hospital Train No. 10, Illinois State; Capt. John Letherman Tombaugh.
Hospital Train No. 11, Pennsylvania State; Capt. William Herbert Kelsea.
Hospital Train No. 17, New York State; Major William Nicholas Maloney.
Hospital Train No. 18, Massachusetts State; Capt. William Bradford Blanchard.
Hospital Train No. 26, New York State; Capt. Robert Spencer Familton.
Hospital Train No. 40, New Jersey State; Major Edward Porter Essertier.
Hospital Train No. 44, California State; Major Daniel Henry Keller.
Hospital Train No. 46, Illinois State; Capt. Francis Theodore Rollins.
Hospital Train No. 48, Oklahoma State; Capt. Richard Franklin King.
Hospital Train No. 54, Kentucky State; Major William Darwin McFaul.
Hospital Train No. 56, Georgia State; Capt. Albert Ferguson Brawner.
Hospital Train No. 60, Missouri State; Major Morgan Leland Clint.
Hospital Train No. 63, Arkansas State; Major Sherod Arnold Drennen.
Hospital Train No. 66, Arkansas State; Major William Granville Baird.
Hospital Train No. 67, Illinois State; Major Leon George Brackett.
Hospital Train No. 68, Indiana State; Capt. Irving Henry Willett.
Hospital Train No. 70, Pennsylvania State; Major John Walter Goodsell.
Station Hospital No. 1, Connecticut State; Lt.-Col. Louis Irving Mason.
Station Hospital No. 2, Cook County, Illinois; Lt.-Col. James Alexander Harvy.
Station Hospital No. 4, Indiana State; Major Flavius Jasper Beck.
Station Hospital No. 5, Minnesota State; Major Frederick Edwin Kraft.
Station Hospital No. 6, Michigan State; Lt.-Col. Henry George Berry.
Station Hospital No. 7, Pennsylvania State; Major Clarence Hogue Ingram.
First Army Medical Headquarters, Second Corps Area.
Hospital Center Headquarters "A," New York City.
Convalescent Camp No. 1, Maryland State.
Convalescent Camp No. 2, Virginia State; Major Adam T. Finch.
Hospital Center Laboratory "B," Pennsylvania State; Lt.-Col. Allen John Smith.
General Medical Laboratory No. 1, Slee Laboratories, Swiftwater, Pa.; Col. Richard Slee.
Army Medical Laboratory No. 5, New York State; Lt.-Col. David Marine.
Army Medical Laboratory No. 6, Sixth Corps Area; Major Walter Gelvin Bain.
Aviation Medical Laboratory No. 2, California State; Major Charles Gaskill Stivers.
Aviation Medical Laboratory No. 4, Texas State; Major Albert Fitzhugh Beverly.
Aviation Medical Laboratory No. 5, California State; Major Peter de Obarrio.
Aviation Medical Laboratory No. 6, New Jersey State; Capt. Louis Raymond Burnett.
Aviation Medical Laboratory No. 7, Tennessee State; Major George Edward Campbell.
Aviation Medical Laboratory No. 8, Indiana State; Capt. William Louis Culpepper.
Aviation Medical Laboratory No. 10, Iowa State; Major Murdoch Bannister.
Aviation Medical Laboratory No. 12, Virginia State; Major Joseph Nicholson Barney.
Aviation Medical Laboratory No. 14, Tennessee State; Major Louis Levy.
Aviation Medical Laboratory No. 15, Pennsylvania State; Major Ephraim Ezra Campbell.
Aviation Medical Laboratory No. 16, Pennsylvania State; Major Carl Williams.
Medical Supply Depot (C. Z.) No. 1, New York State; Lt.-Col. Harrie Sheridan Baketel.
Medical Supply Depot (C. Z.) No. 2, Fourth Corps Area.
Medical Supply Depot (C. Z.) No. 3, Illinois State; Lt.-Col. John William Hobbs Pollard.
Medical Supply Depot (C. Z.) No. 4, New York State.
Medical Supply Depot (C. Z.) No. 5, Iowa State.
Army Medical Supply Depot No. 16, Fourth Corps Area.
Army Medical Supply Depot No. 17, Eighth Corps Area.
Army Medical Supply Depot No. 18, Eighth Corps Area.

The foregoing represents a small part of the end to be accomplished. For example, the mobilization plan, based on an army of two million men, calls for seventy-two surgical hospitals, ninety evacuation hospitals and 300 general hospitals. The Surgeon General must have the full cooperation of the country's medical institutions in accomplishing this objective, which is imperative if a reasonable position of readiness is to be attained. The profession will fully appreciate that the manifest embarrassment of preparation in time of strained relations, the likelihood of being thrown entirely on our own resources at the outset, and the appalling measures of gas attack being evolved by military nations, demand full peace time preparations for a national emergency.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Nov. 2, 1923.

Imposition of Fine for Error in Diagnosis

In previous letters (The Journal, Dec. 16, 1922, p. 2099, and June 2, 1923, p. 1628) I referred to a decision of the court of appeals of Rouen, imposing a penalty on Dr. Vallet of Vernon for an error in diagnosis, as the result of which he operated on a woman for fibroma when in reality she was pregnant. The fact that Vallet had not made a roentgen-ray examination seems to have influenced the court seriously against him. The decision was thus expressed:

> It is justifiable to consider whether or not Dr. Vallet, in view of the present status of roentgenology, was guilty of neglect in that he did not take advantage of the diagnostic help that roentgenology affords in doubtful cases. Although Prof. J. L. Faure testified before the court that the use of this method of exploration under the existing conditions seemed to him debatable, it is impossible to deny that roentgenology is a means of investigation that is becoming more and more common. From reliable authority, notably, Professor Potocki, Drs. Delherm and Laquerrière, and other well qualified roentgenologists, it appears that, in the matter of disclosing the fetus in utero, while it is true that roentgenography is not applicable during the first months of pregnancy, it does furnish a more or less distinct picture of the fetus from the fifth month on, and especially during the last two months.

At a recent session, the Société d'obstétrique et de gynécologie of Paris raised the question whether or not, in the present state of roentgenography, a surgeon may be justly censured for failing to make a roentgen-ray examination. Dr. L. Bouchacourt, director of the electroroentgenologic laboratory of the Maison municipale de santé, asserted that in the foregoing case the court went too far in declaring the omission of a rentgenographic examination a tort. If Vallet had refused to operate unless he secured a roentgenogram, negative as regards pregnancy, and the patient had consented and had been examined by a roentgenologist, the error would not have been avoided with certainty. Any one with even a moderate experience with obstetric roentgenology knows that in examinations of this kind a negative finding is valueless unless the roentgenologist not merely is skilful but also is provided with a high-power equipment and modern accessories; even under the best conditions, errors are still possible. For instance, Dr. Sejournet recently exhibited before the Société d'obstétrique et de gynécologie of Paris a negative roentgenogram whereas, several days later, the fetus of six months, dead and macerated, was found. The negative roentgenogram had been made in a laboratory of the Saint Antoine Hospital, which has been justly considered, for many years, the alma mater of French roentgenology.

Bouchacourt maintains, therefore, that the court of Rouen was in error in holding that the omission of a roentgen-ray

examination constituted culpable negligence on the part of Dr. Vallet. This method of diagnosing pregnancy is not in current use at the present time in France—not even in Paris. Under these circumstances, the court was not justified in imposing a penalty on a practitioner in a small town for not having insisted on a roentgen-ray examination before the operation.

The Control of Venereal Disease in the Army of the Rhine

Dr. Escher, of the army medical corps, recently published in the *Annales des maladies vénériennes* an interesting article on the control of venereal disease in the army of the Rhine. The prophylactic measures adopted include: (1) education and instruction of the men, and (2) regulation and repression of prostitution.

Instruction of the men is accomplished by means of lectures given by the regimental physicians and talks by noncommissioned officers. As a guide for the latter, a syllabus has been prepared which consists of questions and answers. Copies have been sent to each army corps. Each center or subcenter has been provided with a complete equipment of charts, a series of models and colored plates (collection of the Museum of Social Diseases in Dresden), a projecting lantern and a collection of pictures of the American type, with a view to making the lectures more attractive. This combination gives the lecturer an opportunity to stir the imagination of his hearers and to vary the illustrations so as to make the lectures interesting. The Foyer du Soldat (resembling somewhat the Y. M. C. A.) also organizes lectures by civilians, which are also illustrated by films of American origin. In fact, all forms of propaganda are employed in the antivenereal campaign organized by the German prophylaxis groups in the cities of the occupied region: museums, films, etc. The men are assembled in groups and the corps physicians act as guides and give necessary explanations. The regulation of prostitution is not very effective, as regulated prostitution is a small matter as compared with clandestine prostitution, which is widely prevalent in the occupied countries.

As far as possible, the French military authorities endeavor to cooperate with the Germans in the campaign against venereal disease. A joint committee on prophylaxis has been created for each province. The French and German committees study separately the problems of prophylaxis that arise, and then a joint meeting is held, and a plan of action is decided on. Resolutions are then drawn up and presented to the French and German authorities, and on acceptance acquire the force of law. This cooperation extends to each garrison; the French army physician and a physician representing the German government together determine the measures needed to check the spread of venereal disease. Dr. Escher states that collaboration between the physicians of the two nations is excellent. The results obtained during the past year have been so satisfactory that the German authorities have recently expressed the request that meetings of the joint committees be held more frequently on fixed dates.

A Relic

At the recent meeting of the Academy of Medicine, Professor Letulle presented the copy of the doctoral thesis of Laënnec which the latter used in defending his contentions before the examining body. It contains many marginal notes by the author of "Traité de l'auscultation médiate."

Concessions to Japanese Students

The council of the University of Paris has decided, at the suggestion of the president, to grant special concessions to Japanese students whose resources have been diminished or suppressed by the recent earthquake. Japanese students, therefore, who have suffered such losses but who wish, nevertheless, to begin or to continue their studies in the University of Paris will be relieved of all dues that would otherwise be collected for the benefit of the university.

The Selection of Hospital Externs

The Association professionnelle des externes et anciens externes des hôpitaux of Paris has recently addressed to the director of the Assistance publique a letter setting forth the difficulties that confront externs. The situation of students in general is highly unfortunate owing to the increased cost of living. The items of expense of a student in Paris in 1921 were estimated as follows:

A Student's Annual Expenses in Paris in 1921

	Francs
Cost of board and room at 500 francs a month	6,000
Clothing	1,000
Donations for charitable purposes	1,000
University dues (tuition, etc.)	190
Examination fees	55
Total	8,245

This estimate is below rather than above the actual cost today. The price of an exceedingly modest room for a student has risen from 150 to 200 francs, with an extra charge for heat during the winter months. An inquiry during the session of a recent congress elicited the information that, of the 25,000 students attending the university and various higher schools of learning in Paris, more than 11,000 were in need of help. The situation of medical students is especially unfortunate because of the duration of their daily studies, which leaves them no time to earn extra money as do students in other branches. The financial difficulties are still further increased for hospital externs. In view of the existing conditions, the Assistance publique allots to externs the sum of 4 francs a day. Estimating carfare at 3 francs, the daily compensation for the services of an extern amounts to 3 francs, or 1 franc for each hour of active service. The Association des externes requests that the compensation for externs be increased to 300 francs a month. The letter of the association adds that the externs would not have made this request, so natural did it seem to them to give their services gratuitously, were it not for the fact that half of the patients now pay the Assistance publique a relatively high price for the services they receive.

In Memory of Prof. Paul Reclus

M. Léon Bérard, minister of public instruction, in a speech at the dedication of the monument erected in honor of the fallen heroes of Orion, department of Basses-Pyrénées, paid homage to the memory of Dr. Paul Reclus, professor at the Faculté de médecine of Paris, who for many years, was mayor of the commune of Orion and general counselor for Basses-Pyrénées. During the course of the ceremonies, at which Prof. J. L. Faure and Prof. Marcel Labbé of the Faculté de médecine of Paris assisted, Bérard recalled the eminent services that Reclus had rendered to surgery, both operative and educational.

Personal

During the ceremonies to be held in connection with the annual reopening of the University of Paris, November 24, eight foreign scholars and scientists will be granted the title of doctor *honoris causa*. Physicians so honored are: Dr. C. Golgi, professor at the University of Pavia, and Dr. William Williams Keen, formerly professor in Jefferson Medical College, Philadelphia.

American Affairs Seen from Afar

It is curious to note the predilection with which certain journalists discuss matters of which they know little. Journalists of this type are found, unfortunately, even on the staffs of medical journals. I have referred in several letters to fantastic items on America that have appeared from time to

time in the *Vie médicale*, of which Dr. François Helme, until his recent death, was managing editor. Now the *Temps*, one of the principal dailies in Paris, has published an article by Dr. Henri Bouquet on insulin, for the general information of the public: "The discovery was made in America, where such discoveries are numerous; sometimes the inventions are supposed to be new over there when they concern things we have known for a long time. Other actual discoveries, when they have crossed the Atlantic, are found to have much less importance than was ascribed to them in America." Those who depend on the daily journals for information in regard to American discoveries may perhaps meet with such experience, but the daily press is notoriously not the place to seek exact information on scientific subjects.

LONDON

(From Our Regular Correspondent)

Nov. 5, 1923.

The Panel Struggle

The panel struggle has reached a further stage. The panel physicians have forced the government, as represented by the minister of health, to yield ground, although he had declared that his terms were final. This move will probably lead to a settlement. The Insurance Acts Committee of the British Medical Association, in conducting negotiations for the profession, had its hands greatly strengthened by resignations from the panel, amounting to 94 per cent. of the total physicians. The minister, appreciating the importance of an amicable settlement, made every effort to realize the standpoint of the profession and to arrive at one fair to all parties. In a letter to the British Medical Association, he has made these proposals:

1. He accepts the formula that medical benefit is, with sickness, disablement and maternity benefits, one of the primary benefits under the National Insurance Acts. Other benefits are additional and contingent on the foregoing being first provided. The question as to proper remuneration of the physicians is one to be determined on its merits by the government after due inquiry and negotiation with representatives of the profession. The foregoing is evidently intended to assure the profession that there is to be no control by the friendly societies, which, as stated before, is the main point on which the profession is fighting.

2. An impartial royal commission will be appointed to investigate and report on the whole system, the terms of reference to be agreed on with the profession.

3. Provided the Insurance Acts Committee of the British Medical Association appoints an actuary of suitable standing, the government actuary is prepared to meet him in consultation with a view to satisfying him that all relevant considerations have been taken into account in ascertaining the maximum that can be charged to insurance funds.

4. In England and Wales, $1,250,000 will be provided for the mileage fund and to meet other points raised with regard to rural physicians. These rural physicians, because of the distances they have to travel in visiting patients, have always been worse paid than town physicians—an example of the bungling that always follows government interference in private affairs.

5. A capitation fee of $5 is to be paid for five years (an advance of 12 cents on the previous offer) provided that, if during this period the commission mentioned suggests any material alteration in the conditions of service, the profession shall be free to reopen the question of remuneration.

As an alternative, the minister offers a special court of inquiry to report as soon as possible, hearing any evidence tendered on the part of the ministry, the profession, the approved societies, or other interested parties. This letter has been passed on to the panel physicians by the British Medical Association without any comment or suggestion. A further conference of panel physicians' representatives will take place, November 14, to consider the revised offer.

This offer is considered a victory by the panel physicians and a defeat by the friendly societies. The latter have been saying that if the physicians get more it must be subtracted from their additional benefit. The first declaration by the minister, given hereinbefore, makes clear that no one is entitled to additional benefits unless medical benefits are first satisfied. The societies, on the other hand, describe the minister as having been "brought to heel" by the physicians and as having given away part of the birthright of insured persons. They were promised by the government that if they managed their business prudently they would be able to grant additional benefits to their members, but they consider that this promise has been put behind whatever the physicians demand as remuneration. In a long statement addressed to the minister of health, the Emergency Committee of the societies declares that the allegation that the profession is fighting against domination or control by the societies is merely a cloak to obscure the real object—to secure money. They allege that the government has capitulated to the physicians, not because it was convinced of the merits of the case, but because it was faced with a strike. On no occasion from 1912 onward, when the physicians' fee was a matter of controversy between the profession and the government, were the societies consulted, nor was it proposed to take out of their fund, contributed for other purposes, any sum which might be agreed on between the contending parties. They declare that this is sheer spoliation, and that the sum which the minister proposes to take out of the societies' funds would provide the insured with an addition to their sickness benefit, or, alternatively, would provide the whole insured population with dental treatment. The sums paid in 1920 and 1921 to the physicians exceeded the sums paid in sickness benefit to the insured. The chairman of the committee described the minister's proposal as one to take away from the workers' fund $3,800,000.

The Nobel Prize and the Chair of Physiology at University College, London

The appointment of a young physiologist, Prof. A. V. Hill, F.R.S., of Manchester, to the chair of physiology at University College, London, is an event of the first importance in the medical world. In recent years, by the variety and importance of its original work, the Cambridge school, founded by Michael Foster, has been a leader. Next to it in this country is University College. Here, in succession, the chair of physiology has been held by a line of distinguished men whose names are written deep in British physiology—Sharpey, Burdon-Sanderson, Schäfer and Starling. On vacating his chair and introducing Professor Hill, Professor Starling described him as the leading British physiologist of his generation. Therefore a brief account of his unusual career and outlook should be of interest. Educated at Trinity College, Cambridge, where he was third wrangler in the mathematical tripos in 1907, he was led by Sir Walter Fletcher, F.R.S., then tutor of the college, to take up physiology. J. N. Langley, professor of physiology at Cambridge, suggested that he should investigate the oxidative removal of lactic acid by measurements of the heat production. Fletcher and Hopkins had just published their fundamental work on the formation of lactic acid in muscles during exercise, and its removal during recovery. Hill continued their work; but, approaching it as a mathematician and physicist, adopted a totally different technic. In 1911 he worked for six months in Germany. He visited Bürker at Tübingen, and studied the technic of myothermic observations. There he met Paschen (professor of physics), from whom he obtained the galvanometer used in his later work. Returning to the physiologic department at Cambridge, then in the zenith of

its fame, he worked side by side with a distinguished galaxy —Langley, Gaskell, Keith Lucas, Hopkins (who was discoving vitamins), Barcroft and others. Like Hopkins, Hill worked in a disused coal cellar. Professor Hill would like to regard the Nobel prize as a recognition of the Cambridge school and the wonderful collection of celebrated men among whom he worked in the laboratory. In spite of the inadequate accommodation, he regards the Cambridge Laboratory in 1912-1914 as the finest physiologic department that has ever existed. During the war, he did remarkably varied work. He was first an instructor of musketry. Then he formed and became director of the Anti-Aircraft Experimental Section of the Ministry of Munitions, in which he collected a number of physicists, mathematicians and engineers, who worked on the various problems of ordnance and instruments, fuses, range finders and sound locators, which were raised by the development of aircraft attack and defense. After the war, he resumed the investigation of muscular activities, working (by a different technic) along lines parallel to those of Meyerhof of Kiel. Hill had scarcely begun his duties at University College when the announcement was made that the Nobel prize for medicine had been divided between him and Meyerhof. Other researches which have added to Hill's reputation are on the physical chemistry of the carriage of gases by the blood, the nature of nervous excitation, the elasticity of living arteries and the calorimetry of animals.

Professor Hill brings to physiology the unusual training of the expert mathematician and the physicist, and therefore much is expected from the school over which he presides. Thanks to the Rockefeller Foundation, the physiologic department of University College has been rebuilt and considerably extended, and is the best equipped in this country. Many American students resort to it and receive a warm welcome. In his inaugural lecture, entitled "The Present Tendencies and Future Compass of Physiological Science," Hill attributed the present high standard of physiology in this country largely to the fact that here it is not the handmaiden of medicine, any more than physics is the handmaiden of chemistry. It has "its own needs, its own inspiration, its own problems, its own methods. Physiology is fundamentally the science how the living creature works, and should no more be led by apparent utility than physics is." But he is not indifferent to the needs of medicine in its "grievous and urgent problems." Of the present tendencies of physiology, the unparalleled advance in biochemistry in the last few years represents perhaps the most important one. Indeed, some enlightened and progressive chemists see the future development of organic chemistry partly in the realm of physical chemistry, but largely in that of biochemistry. In the past, biochemistry has dealt with comparatively simple problems, mainly with the analysis of the material of which the living cell is composed after it is dead. But when alive the cell presents a far more complex problem, to which biochemistry is now turning.

"Modern physics is getting inside the almost visible structure of the atom, chemistry inside the visible structure of the molecule, anatomy inside the visible structure of the tissue, and biochemistry inside the visible structure of the cell." Other tendencies which he described are toward a redistribution of duties between physiology and anatomy, toward the study of comparative physiology on the zoological side, toward a development of instrumental technic, and toward recognizing the importance of investigating normal man as the "experimental animal."

Humane Slaughtering

"Humane Slaughtering in Relation to Public Health" was the subject of the second annual Benjamin Ward Richardson memorial lecture, given by Sir Arthur Newsholme. He referred to Richardson as a chief promoter of the human regard for suffering, which distinguished the last from the preceding centuries. Newsholme advocated the closing of the smaller slaughter houses, where the maximum cruelty, nuisance and demoralization were found. He considered that a vast mass of avoidable suffering was associated with animal slaughtering in this country. There was more cruelty in the preliminaries of slaughtering than in the actual slaughtering itself. It ought to be possible to devise a method of slaughtering, possibly electrical, which would obviate the terrors of anticipation and avoid the uncertain cruelties of the present methods.

The Urine of the Monotremata

At a meeting of the Medical Sciences Club of South Australia, held at Adelaide University, Prof. T. B. Robertson made a report on the urine of a monotrema, *Echidna aculeata*, which is of great interest because it shows another connecting link between the lowest order of mammals, and birds and reptiles. It may be remembered that, like the latter, this curious Australian group has a single genito-urinary and intestinal aperture (cloaca), and lays eggs. Robertson's analyses show that the urine of *Echidna aculeata* is of the mammalian type in that 88 per cent. of the total nitrogen output is in the form of urea. But it differs from that of the majority of mammals in containing a considerable quantity of uric acid, 36 mg. per hundred cubic centimeters. In all mammals, except man and the chimpanzee, of which the urine has been investigated from this point of view, it has been found that uric acid is wholly or almost wholly absent, its place being taken by allantoin. The urine of *Echidna* could not be obtained in sufficient quantity for the direct determination of allantoin. The urea was determined by the urease method; and by autoclaving another specimen with concentrated hydrochloric acid, the ammonia derived from urea and allantoin was determined. The difference between the ammonia determinations in the two cases afforded a measure of the content of allantoin. Allowing for experimental errors, the uricolytic index, or percentage of uric acid converted into allantoin, did not exceed 25, whereas in other mammals it exceeds 90. The lowest uricolytic index previously observed in mammals, other than man and the chimpanzee, was obtained in a marsupial, the American opossum, which has been found to have an index of 79. *Echidna aculeata* therefore resembles mammals in that the greater part of the nitrogenous output is in the form of urea; but it resembles birds and reptiles in its inability to convert uric acid into allantoin.

MEXICO CITY

(From Our Regular Correspondent)

Oct. 27, 1923.

Research on the Wassermann Test

In the thesis required of all new members of the Academy of Medicine, Dr. G. González Aréchaga took as his subject some experiments on the technic of the Wassermann test. With each of his 178 subjects, he used three different methods: (1) alcoholic extract of syphilitic liver as antigen, and complement fixation at 37 C.; (2) the same antigen with complement fixation at 12 C. for four hours, and (3) Kaplan's cholesterinized antigen and complement fixation at 12 C. Among the subjects were twenty-four apparently healthy persons, and 154 patients with various stages of congenital or acquired syphilis. In addition, a similar comparative study was made with the cerebrospinal fluid of thirty-three of these patients. The results showed no errors in the positive reactions obtained with cholesterinized antigen and icebox incubation. Both modifications of the original technic yielded a rather significant increase in the proportion of positive tests, as the positive results with the three methods amounted, respectively, to 42.8, 52.5 and 62.9 per cent. While these fig-

ures appear low, they are really representative, as the group included patients under treatment and a number in the tertiary stage of the disease. Among the tests on the cerebrospinal fluid, the results with the three different methods were 54.5, 72.7 and 93.9 per cent., respectively. The hemolytic system used in all three methods was rabbit-antisheep. While the number of cases studied was small, its real importance consists in calling the attention of physicians in this country to the advantages of the Jacobsthal-Kaplan technic. This method has not been much used in laboratories here, as many workers, in accordance with European views, fear the danger of false positives and unnecessary complications of serologic work.

Congress on Criminology

As announced in advance in The Journal, there has just been held a national congress on crime, at which a number of the subjects discussed were closely related to preventive or curative medicine. Stress was laid on the need of vigorous measures to suppress the use of habit-forming drugs in prisons; and to facilitate medical examination of all criminals, and jail hygiene. Among the resolutions approved, some favored the establishment of juvenile courts and the suppression of the death penalty. It should be added that police reports show that murders and assaults have somewhat increased, especially in the last five years. The question of the sterilization of criminals was treated rather superficially, and ignorance of the subject among editorial writers is so great that the newspapers attacked the proposal, assuming that castration was intended as a substitute for other forms of punishment. They even overlooked the fact that at the recent congress on child welfare, the section of eugenics had already gone on record as favoring the measure. There was some surprise that the congress did not discuss the subject of medical experimentation in human subjects, as the second congress on tabardillo (typhus fever) approved a resolution recommending such experimentation, provided the prisoners consented. It seems, however, that no such measure can be enforced in Mexico, as the present criminal code specifically forbids it.

More Wizardry

Not many months have elapsed since a physician from San Francisco gave, in one of the dependencies of the National University, a lecture advising the use of electronic apparatus. Now, one Eugenio Leante has used the same place to exploit, in two lectures, his revolutionary views on medical subjects. The lectures by this so-called physician would be ludicrous, were it not for the fact that they were given on the university premises and had, in a way, official approval; one lecture was dedicated to the present secretary of education. Among other things, Leante asserted that: "pathogenic germs are not the cause of disease"; "to keep well one must guard against vices and not microbes"; "there is only one disease," and "smallpox vaccination should not be compulsory." He referred to Coué, whom he does not consider a pioneer; to Abrams, with whom he found fault for devoting too much importance to diagnosis, and finally to Pasteur, whom he attacked bitterly, explaining that the famous scientist was not a physician.

Dr. Ricardo Rode, a bacteriologist, was kind enough to take "Dr." Leante seriously, inviting him, since he did not believe in bacterial pathogenicity, to submit to an operation minus the usual aseptic precautions or to an inoculation with tetanus or diphtheria germs. The lecturer, however, declined graciously, flattering his foe with the designation "illustrious." In their eagerness to please Secretary Vasconcelos, of the department of education, several newspapers advertised Leante freely, published his picture on the front page, and stated that he had been appointed an "honorary doctor" by the Free School of Homeopathy. It must be pointed out that this free homeopathic school is a rudimentary institution to which a few tired working men go in the evenings to receive a few lessons, and where they obtain a degree in one or two years. It is regrettable that Mr. Vasconcelos should encourage propaganda against vaccination in a country such as Mexico where it is so much needed, and should destroy the harmony that ought to exist among government authorities. Antagonism must inevitably result between the department of public health, which is urging enforcement of vaccination as provided in the sanitary code and has even advised and ordered revaccination, and the department of education, which is pleading through unqualified lecturers for the spread of smallpox, a disease that was attacked by King Charles IV, more than a century ago.

Unconstitutionality of Industrial Compensation Law

The state of Vera Cruz enacted some time ago several laws compelling employers to furnish complete medical assistance and full pay to industrial workers who might be sick or injured, regardless of the nature of the disease or injury. Physicians employed by the state were sole judges when employers and employees disagreed as to the duration of the sickness or possible malingering. The employers, however, took a case to the federal courts, and the district judge for the state of Vera Cruz has decided that the law is unconstitutional.

BUDAPEST

(From Our Regular Correspondent)

Oct. 22, 1923.

Handicapped Children in Hungary

The annual meeting of the Hungarian Medicopedagogic Society was held, October 16 and 17. The first speaker was Dr. Paul Ranschburg, professor of neurology at the University of Budapest, who spoke on the means for combating the bodily deficiencies of children. He stated that in Hungary the number of children who are blind, deaf and dumb, insane, crippled, bodily and mentally deficient, or suffering from severe speech defect exceeds 100,000. The total population is only about 8,000,000. Many of these defects are preventable, and some are curable. Only a minority are attributable to pathologic conditions; the remainder are caused by poverty and neglect. Restoration of defective sense organs is still a utopian dream, but the situation is not quite without hope. The experimental transplantation of eyes by Koppanyi, in Vienna, affords a glimpse of possible new roads. Dr. Ranschburg related the case of a soldier, who lost a hand from a shrapnel wound. In its place one of his feet was sutured. This "hand" acquired a capacity of sensation within a relatively short time, and later, after prolonged exercise, such motor function that the man could work with a scythe and a hoe. Deafmutism is frequently associated with cretinism, and may recover with cure of the latter.

M. Philipp Rokenbiller, state secretary of the ministry of justice, discussed morality in the community. He related the case of a small girl who was obliged to undertake the care of the family in consequence of the death of her mother, and who killed a brother and sister to prevent them from dying of starvation. When interrogated by the police magistrate, she replied: "Well, you blame and curse me now, and you weep; but when we were starving, nobody did anything to help us." It is impossible to change morals by street patrols and police raids. To illustrate the effects of social conditions, he quoted the example of a drunken English woman. Of her 834 descendants, 106 were illegitimate, 187 prostitutes, 142 beggars, 64 workhouse inmates, 76 criminals and 7 murderers. Professor Joseph Imre, teacher of ophthalmology at the University of Budapest, spoke on blindness. He deems it absolutely necessary that the vision of school children be examined at stated intervals. Many children dis-

continue school because the parents do not know that proper glasses would enable the children to learn successfully. Prof. Michael Horwath spoke on the prevention of lameness. Many bodily deformities could be improved and some of them entirely cured; all are of slow development, and there is ample time for recognition and diagnosis. The worst evil is the stupidity of parents, who follow the advice of a neighbor to do nothing, as the child will "outgrow it."

Dr. Leopold Szondi, assistant at the pediatric clinic, spoke on the prevention of mental deficiency. About 45,000 such children are registered in the country, and the number of those not registered is probably as large. About one out of every eight or nine of these deficieneies is inherited from defective parents or is due to parental syphilis. If both father and mother are defeetive, 99 per cent. of the offspring will be defective. In countries where mental and physical examination is a legal prerequisite to marriage, the number of imbeciles is diminishing.

David Geguss, the chief justice of the juvenile court, discussed the community causes of the demoralization of children. The children of Budapest are surrounded on the streets by dirt, miserable dwellings, cold, illness, starvation and famine. Life on the streets is undisciplined and immoral; prostitution is carried on openly. For ten years, Geguss has fought for the erection of a juvenile detention home, in which young delinquents may be segregated from adults, from whom they learn only immorality and the hatred of work. He has suggested a special juvenile police force, which, however, has remained a plan only. From 80 to 90 per cent. of the young women are infected. The police refrain from making raids because the hospitals cannot accommodate the vast numbers.

Dr. Edmund Gangel, lecturer on forensic medicine at the University of Debreczen, spoke on the causes of lowered moral standards. They are due, he said, to faulty social adjustments: adverse family conditions, unemployment, and misery combined with alcohol, primitive intelligence of parents, brutal treatment, litigation between parents, and the neglect of children eonsequent on the employment of the parents. Motherlessness is a frequent cause. He asked for the development of a social policy, a radical change in dwellings (the state should build new homes), and prohibition of the sale of immoral books to children. If the next generation is to be educated properly, there must be fewer criminals and prostitutes permitted in their midst.

BERLIN

(From Our Regular Correspondent)

Oct. 27, 1923.

Pediatric Congress

At the recent congress of the Deutsche Gesellschaft für Kinderheilkunde, the principal topic on the program was "Internal Secretions." Professor Birk of Tübingen discussed the thymus gland. He asserted that in the anatomic structure of the gland there is no evidence of an endosecretory funetion. The results of experimental research are contradictory. Many investigators regard the gland as essential to life; others, however, including Birk, declare that loss of the thymus is unimportant; and the changes in the bones that have been observed are due to operative trauma, infeetion, and other causes. The tetanic manifestations Birk ascribes to a disturbance of endocrine balance, though he admits that there may be a remote effect of loss of the thymus on the parathyroid glands. Retardation of growth alone seems to have any direet connection with loss of the thymus. A seeretion of the thymus gland also has a hypotonic effect on the heart and blood vessels, and a stimulative action on lymphocytes.

According to Thomas of Cologne, the central layer of the suprarenal gland degenerates during the first months of life, and its function is assumed by the medulla. In anencephalic monsters this change has already taken place during the fetal period; the immediate eause is always malformation of the brain. If certain portions of the brain are lacking, the embryonic suprarenal does not develop normally. Later ehanges in the brain exert no influence. Thomas discussed also the relations of the suprarenals to the gonads, the changes in the suprarenals in infections and avitaminoses, and the epinephrin eontent of the suprarenals under various cireumstances, including hypo-adrenalism.

Schiff of Berlin diseussed the function of the thyroid gland, and emphasized the inactivity of the colloid-free and iodin-free thyroid as shown by experiments on tadpoles. He considered also the question whether thyroidal hormones occur in the mother's milk. According to Schiff, thyroidal affections of childhood may be divided into two groups, according as there is or is not evidence of changed activity of the gland. He discussed aequired myxedema, the influence of the thyroid on growth, the importance of roentgenographic examinations to determine whether the myxedema is congenital or acquired, the relations between the thyroid and the nervous system, and the effects of the thyroid on metabolism. He showed, from experiments, that thyroidal substance exerts no influence on catabolism in infants, as it does in adults. He admitted that the thyroid is affected in endemic goiter, but asserted that the pathogenesis of endemic cretinism is different from that of sporadic cretinism. Hypothyroidism is rare in children. In many cases in which the elinical findings seem to point to hypothyroidism, no objective proof can be furnished. For purposes of diagnosis, Schiff attaches the greatest importanee to the progression of the symptoms. Exophthalmic goiter is rare in children. Whether hyperthyroidism is more frequent has not been shown. The benign adenomas, which have been observed more frequently since the war, present no demonstrable disturbanees in thyroidal secretion. Estimations of basal metabolism are the best test of the existence of hypothyroidism or hyperthyroidism. In hypothyroidism, the eleetrocardiogram also has some diagnostic value. Finally, the therapeutic use of thyroid substanee was discussed. In nephroses it has been employed with varying success. Schiff has never suceeeded, by administration of thyroid, in relieving the edema of spasmophilic children. Thyroid extract may be used in treating obesity, but Schiff is not eonvinced that there is such a thing as thyreogenic obesity. He has observed no improvement from the use of thyroid in anemia, but in benign adenomas the results are good. In myxedema the improvement, even with prolonged administration, progresses only to a certain point and then ceases.

Gött of Munich regards the anterior lobe of the pituitary body as one of the most important of the glands that influence growth; disturbanee in its activity may result in dwarfism; hypersecretion leads to gigantism. Aeromegalous changes oceur in children, but true acromegaly has been diagnosed with certainty in only one case. Obesity, of typical distribution, is related to loss of funetion of certain parts of the pituitary body. In this form of obesity basal metabolism is not diminished, but the specific dynamic effect of the food intake is reduced. Gött called attention to the correlation of the pituitary body with the other endosecretory glands. The administration of extract of the anterior lobe has a favorable effect in some cases.

Free Consultation Service for Students

At the State Academy of Music in Berlin, a free consultation serviee has been opened for students suffering from affections incident to their profession. The service is in charge of Dr. Kurt Singer, who will also lecture on the medical aspects of music. Dr. Singer is director of the Berlin physicians' glee club.

Marriages

THOMAS JOHNS ROBINSON, Taunton, Mass., to Miss Eileen Roach Curley of East Bridgewater, October 30.

WILLIAM D. STROUD, Philadelphia, to Miss Agnes Hutchinson Shober of Rosemont, Pa., September 19.

EUGENE WEATHERLY, Athens, Ga., to Miss Amanda Lee Thurman of La Fayette, recently.

T. PERCEVAL GERSON, Los Angeles, to Miss Vera Daniels of Pasadena, Calif., November 3.

WILLIAM EDWARD GROVE to Miss Lucy Mellinger, both of Johnstown, Pa., September 20.

JOSEPH A. CARR, Olyphant, Pa., to Miss Eleanor M. Bonner of Philadelphia, October 27.

DANIEL CARSON GOODMAN to Miss Alma Rubens, both of New York, recently.

THOMAS G. SCOTT, Norwood, Ohio, to Miss Hazel Boaz of Cincinnati, recently.

ALBERT J. BOWLES to Miss Lillian Anderson, both of Portland, Ore., recently.

Deaths

Charles Gray Wagner, Binghamton, N. Y.; Medical Department of Columbia College, New York, 1882; lecturer on insanity at the Sage School of Philosophy (Cornell University) 1896-1900; member of the Medical Society of the State of New York; the American Psychiatric Association; formerly president of the American Medico-Psychological Association; superintendent of the Binghamton State Hospital since 1892; formerly on the staffs of the Presbyterian Hospital, New York, and the Utica (N. Y.) State Hospital; associate editor of the *American Journal of Insanity,* 1884-1892; aged 67; died, November 5, of chronic nephritis.

John Walter Perkins ⊕ Kansas City, Mo.; Medical School of Harvard University, Boston, 1886; formerly professor of surgery at the University of Kansas School of Medicine, Rosedale; superintendent of the University Hospital; at one time on the staffs of St. Margaret's Hospital, Kansas City, Kan., and St. Joseph's Hospital, Kansas City, Mo.; aged 63; died, November 2, of pneumonia.

Robert Graham Wiatt ⊕ University, Va.; Medical College of Virginia, Richmond, 1914; assistant professor of roentgenology at the University of Virginia Department of Medicine, Charlottesville; served in the M. C., U. S. Army, during the World War; aged 39; was instantly killed, November 2, in an automobile accident.

Alexander E. Garrow, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1889; assistant professor of surgery at his alma mater; on the staff of the Royal Victoria Hospital; aged 61; died, November 8, of heart disease.

George Bancroft Gale ⊕ Newark, N. J.; Medico-Chirurgical College of Philadelphia, 1896; member of the American Psychiatric Association; served in the M. C., U. S. Army, during the World War; aged 55; died, October 6, of heart disease.

Jose Lugo Vina, San Juan, P. R.; National School of Medicine, Mexico City, 1884; secretary of the Porto Rico Insular Board of Health; veteran of the Spanish-American War; aged 67; died, October 1, following a long illness.

John L. Priestman, Neponset, Ill.; Chicago Medical College, 1881; member of the Illinois State Medical Society; president of the State Bank of Neponset; aged 66; died, November 9, at Los Angeles, of cerebral hemorrhage.

Ezekiel Price Murdock, Chicago; Rush Medical College, Chicago, 1880; Civil War veteran; formerly superintendent of schools in Streator, Ill., Shelbyville, Ill., and Memphis, Mo.; aged 78; died, November 14.

Edison George Blaisdell, Bridport, Vt.; University of Vermont College of Medicine, Burlington, 1871; member of the Vermont State Medical Society; aged 76; was killed, October 16, when he fell from a tree.

George H. Turner, Douglasville, Ga.; Southern Medical College, Atlanta, 1898; served in the M. C., U. S. Army, during the World War; aged 45; died, October 23, at New Orleans, of cerebral hemorhage.

Joseph Jeremiah Flannery ⊕ Des Moines, Iowa; Medical Department of Drake University, Des Moines, 1900; on the staff of the Mercy Hospital; aged 46; died, November 3, of bronchopneumonia.

Charles Harvey Zellner, Allentown, Pa.; Johns Hopkins University Medical Department, Baltimore, 1904; died, September 13, in New York, of injuries received in an automobile accident.

Robert Christian King, Hellertown, Pa.; Bellevue Hospital Medical College, New York, 1878; member of the Medical Society of the State of Pennsylvania; aged 67; died, September 30.

Lincoln P. Parkhurst, Grand Rapids, Mich.; Rush Medical College, Chicago, 1886; member of the Michigan State Medical Society; aged 58; died, November 3, following a long illness.

Nathan Silverstein, Scranton, Pa.; Jefferson Medical College of Philadelphia, 1909; member of the Medical Society of the State of Pennsylvania; aged 38; died, September 22.

Albert H. Simmons, Girard, Ill.; American Medical College, St. Louis, 1882; member of the Illinois State Medical Society; aged 67; died, November 1, of cerebral hemorrhage.

George Clarence Bluestone, New York; Syracuse (N. Y.) University College of Medicine, 1920; aged 26; died, September 6, of injuries received in an automobile accident.

Clarence Elmer Barton ⊕ Baker, Ore.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1905; aged 48; died, October 26, at St. Elizabeth's Hospital, of tuberculosis.

Curt Edwin Hildebert Nicolai ⊕ New York; University of Leipzig, Germany, 1881; on the staff of the Isabel Home; aged 66; died, October 25, of cerebral hemorrhage.

Wales Buel, Walesville, N. Y.; Bellevue Hospital Medical College, New York, 1867; formerly health officer of Whitestown; aged 87; died, October 23, of heart disease.

James H. McLain, Eaton, Ill.; Kentucky School of Medicine, Louisville, 1888; aged 58; died, October 8, of tuberculosis of the intestine and cirrhosis of the liver.

Clement A. Stone, Hastings, Neb.; John A. Creighton Medical College, Omaha, 1900; member of the Nebraska State Medical Association; aged 47; died, October 30.

Daniel B. Henry, Northville, Mich.; Detroit College of Medicine and Surgery, 1896; aged 51; died, October 29, from injuries received in an automobile accident.

James Foster Scott, Jr., Clovis, N. M.; Tennessee Medical College, Knoxville, 1896; formerly city physician of Knoxville, Tenn.; aged 51; died, October 24.

Stephen Douglas Large, Hopkins, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1887; aged 62; died, October 30, of cerebral embolism.

Arthur Benjamin Harding, Castile, N. Y.; University of Buffalo (N. Y.) Department of Medicine, 1884; aged 64; died, October 20, of heart disease.

Lewis James Frink, Providence, R. I.; Dartmouth Medical School, Hanover, N. H., 1889; aged 70; died, October 31, following a long illness.

Cornelius Joseph Dacey ⊕ Brocton, Mass.; Tufts College Medical School, Boston, 1901; aged 44; died, October 3, at Boston, of tuberculosis.

Alfred Crane, Brownville, Neb.; Northwestern Medical College, St. Joseph, Mo., 1881; aged 67; died, August 24, at Richmond, Va.

John H. Calvert, Milton, Ky.; University of Louisville (Ky.) Medical Department, 1881; aged 62; died, October 28, of pneumonia.

W. S. Sanderson, San Saba, Texas; Atlanta (Ga.) Medical College, 1875; aged 72; died, October 28, following a long illness.

James Calvin Thompson ⊕ Pittsburgh; Bellevue Hospital Medical College, New York, 1882; aged 64; died, September 14.

Henry J. English, Grindstone, Pa.; Jefferson Medical College of Philadelphia, 1873; aged 74; died, October 25.

George D. Custer, Scio, Ohio; Columbus (Ohio) Medical College, 1884; aged 71; died in September of senility.

Thomas Leo Stanton, Boston; Medical School of Harvard University, Boston, 1894; aged 53; died, October 24.

George S. Catlin, Hartville, Wyo. (licensed, Wyoming, 1899); aged 79; died, September 9.

B. F. Jones, Muddy Fork, Ark. (years of practice); aged 87; died, October 27, of senility.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

IRIDINOL

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report. W. A. PUCKNER, Secretary.

About fifteen years ago, the idea occurred to nostrum manufacturers to exploit iridium as a medicament. "Iridium (Medicinal)" was put on the market by the Platinum Co. of America (THE JOURNAL A. M. A., April 23, 1910, p. 1389), and the same company manufactured "Iridinol," which was marketed by the P. H. Potter Chemical Co. (now P. H. Potter and Sons, Inc.), New York. Both products were, at that time, claimed to contain iridium and were marketed for a high price with grossly misleading therapeutic claims. Iridium (Medicinal) seems to have been abandoned, but Iridinol, advertised by P. H. Potter and Sons, Inc., as an "ethical preparation" continues to be sold to physicians as well as to the laity when occasion offers.

In the earliest advertising, Iridinol was claimed to be a "nontoxic preparation of iridium." At the time this claim was made, an examination made by the Chemical Laboratory of the A. M. A. revealed that the specimen contained iron, probably in the form of chlorid, and ammonium salts. Tests for iridium were negative. In view of the difficulty of detecting iridium, it is possible that traces of that metal may have been present, but the amount certainly was not very large. Regardless of the presence or absence of traces of iridium, there is not the slightest evidence for the therapeutic value of this metal in the conditions for which it is recommended by its exploiters. No reference to iridium can be found in such standard works on pharmacology as Sollman's, Cushny's, Meyer and Gottlieb's, Wood's and Bastedo's.

No longer in the printed advertising is a definite claim made for the presence of iridium in Iridinol. Instead the agents merely imply its presence as the following indefinite and meaningless statements show:

"Iridinol is a perfected aqueous solution of *one metallic element* (Italics ours.—ED.), containing within itself a radiant energy not absolutely definable, but proven to be non-toxic in any amount given. . . ." and "This *6% solution of the metallic element* (Italics ours.—ED.) represents 30 grains of the element to the ounce of aqua."

The claims for the use of Iridinol have also undergone a change. Specific statements of its curative value have become general. Among the early claims were:

"Cases of anemia respond promptly to its blood-building action, and cases of rheumatism of long standing and extreme degree, show almost startling improvement from the first dose. Tertiary forms or the sequelae of syphilis are cured."

Iridinol was formerly exploited as an antiseptic and curative agent in gonorrheal infections, and was recommended in typhoid fever, influenza and as a "systemic alterative and antiseptic of similar action to gold and mercury, but with the very important advantage that *it is absolutely free from toxic or deleterious effect.*" Today the advertising material can be classed in two groups, that printed and that written by the promoters to the prospective users of Iridinol. In the printed advertising, at least, the claims for the use of Iridinol are less specific than formerly. It is recommended in anemia, rheumatism, specific blood diseases, diseases of the nose and throat, of stomach organs, liver and kidney, of the nervous system, diseases of children and as a systemic alterative. Such absurd claims are put forward as:

"Iridinol in its activities enters at once into the circulation, lowering the temperature, if too high, raising the temperature, if too low, in other words bringing it to normal. The same effect is noted on the pulse, bringing the pulse to normal, whether too low or too high."

The word "ethical" is used extensively in the Iridinol advertising in spite of the fact that, first, the preparation is of secret composition; second, the claims for the therapeutic value are not supported by any real evidence, and finally the methods of advertising are questionable. In one of the circulars, for instance, a quotation from "Rational Therapy" by Dr. Lereh of Tulane University is so used as to imply a recommendation by him for the use of Iridinol as a blood purifier, when, in reality, his statement is of the most general character and in no way connected with Iridinol. Again, in a letter written to a physician, Iridinol is recommended most strongly for the treatment of epilepsy. Further, there is evidence that the firm will sell Iridinol to the laity. A woman who wrote the firm regarding the product received in reply a letter which prescribed Iridinol for her only half-disclosed ailments and offered her the nostrum at $12 an ounce.

In view of the long-continued activities of P. H. Potter and Sons, Inc., in the promotion of Iridinol, the Council has authorized publication of this report for the information of physicians who may be importuned to use it.

Correspondence

EXCISION OF A V-SHAPED PIECE OF THE LOWER LIP VERSUS ROENTGEN-RAY OR RADIUM TREATMENT

To the Editor:—This morning (Nov. 3, 1923) a patient presented himself with a mass the size of an egg in the submental area and apparently somewhat fixed to the lower jaw. In March, seven months ago, a small ulcer on the lower lip was subjected to radium treatment and has healed, leaving a slight, umbilicated scar. The lesion, whatever its nature, had been present three months. It occupied the mucocutaneous border of the middle third of the left lower lip. It had apparently begun as a smokers' burn in a patient with bad teeth.

These cases are increasing in number. That is, the lesion on the lip heals, or apparently heals, after the application of roentgen rays or radium, and then, a few months or years later, glands appear in the neck, which, when removed, prove to be metastatic carcinoma.

I would appreciate an opportunity to present to the larger audience of the readers of THE JOURNAL the following facts:

Some years ago I made one report on the operative treatment and results of cancer of the lip, and there is in preparation a second report on a larger number of cases. The conclusions of the first report are confirmed by the restudy of both old and new material, and the ultimate results up to date.

If the lesion on the lip can be excised with a V-shaped piece and the wound closed without a plastic operation, there has never been a local recurrence, irrespective of the pathologic condition, whether the lesion was benign or malignant. This operation can be done under procain within one-half hour, and the patient should not lose more than a few hours from work.

The cost of such a minor operation in material and in time of patient and operator is small as compared with that of any other treatment, and it is my opinion that the results are the best.

The piece excised from the lower lip is subjected to microscopic study, and if the sections show cancer, the glands of the neck are removed (this can also be done under procain). When these glands show no evidence of metastasis, the percentage of cures has been 100. When the glands have shown metastasis, the percentage of cures in the first report was 50, and in the second report will be somewhat larger.

Now that the community is educated to seek advice early, the moment the lesion is observed on the lower lip, I am able to divide the cases observed and reported by me into the following classes:

1. The lesion on the mucocutaneous border of the lower lip is small, of short duration—a few days up to two weeks; it is of the type of a burn, a fever blister, a vesiele, keratosis or a wart. The patient smokes or chews; the teeth may be ragged and dirty. The majority of these lesions heal by removal of the causes—tobacco and ragged, dirty teeth and instrueting the patient to keep the teeth clean and the lip lesion eovered with petrolatum.

2. The lesion is of longer duration, but still distinctly benign—leukoplakia, or the chronie chapped lips of the smoker. Sueh lesions disappear when tobacco in every form is removed.

3. The lesion of the first group does not disappear under treatment, or, when seen, is of longer duration. In this group one cannot distinguish between the benign and the malignant, clinically.

4. The lesion is distinctly benign—a wart.

5. The lesion is distinctly cancer.

Groups 3, 4 and 5 should be subjeeted to immediate local excision under procain, and the operation on the glands of the neck performed, if the mieroscope pictures carcinoma in the primary lesion.

If, instead of operation, these patients are subjected to radium, roentgen rays, caustic paste, fulguration, cautery—all without mieroscopic study—the lesion in the first group will be permanently cured, but the treatment deserves no more eredit than the treatment by the removal of the cause and cleanliness.

In Group 2, no treatment is of any value, unless the cause (tobaeco) is removed, and if this is done any other treatment is unnecessary.

In Group 3, any other treatment that does not permit a microscopic study will lead to the false eonclusion, in many of the cases, that the treatment has cured a local cancer; and if the local lesion is malignant, just as in Group 5, the removal by operation, or the destruction or healing by any other treatment, is but a minor part of the treatment. It is essential to ascertain whether the loeal lesion is cancer, and if it is, to remove completely the glands in the submaxillary and submental areas. Today there is every evidence that complete removal of the glands of the neck offers more than any other known treatment. There is apparently no objection to irradiate, either with roentgen rays or with radium, the lymphatic area before and after the thorough removal of the glands; but there seems no question that the removal of the glands is the essential feature. In those eases in whieh the microscope fails to show metastasis, postoperative irradiation is unnecessary.

I am willing to submit the accumulated evidence in the Surgical Pathological Laboratory of the Johns Hopkins Hospital to any investigating committee for comparison with roentgen-ray, radium or any other type of treatment. This second paper will soon be published. In view, however, of the growing tendency of members of the medical profession, not surgeons, to refer their patients with early lesions of the lower lip for roentgen-ray and radium treatment, it was my opinion that this warning, based on thirty years' experience with more than 500 cases, should be made, if possible, with the largest publicity.

At the present time more than 60 per cent. of the lesions that I have exeised from the lower lip are microscopically benign, and of the remaining 40 per eent., in more than 75 per cent. the glands, when removed, show no evidenee of metastasis.

Joseph Colt Bloodgood, M.D., Baltimore.

A USEFUL TRIFOCAL LENS COMBINATION FOR ELDERLY PERSONS

To the Editor:—A number of ear and throat specialists have found advantage in using trifoeal lenses—a distance lens, the requisite presbyopie segment, and another segment cemented at the upper part of the distanee lens to give the proper correction when looking through the perforation of the head mirror. Every person whose accommodative power has considerably declined finds that his vision beyond the near point for which his reading glass gives good vision, and inside the distanee of 20 feet, is measurably dimmed. This is especially true of persons past 60 years of age. In experimenting with my own eyes, I found that my vision of objects around the office and of persons across the dinner table was much improved by making my distance eorrection half or three quarters of a diopter stronger than the normal. I then found that street car signs a block away as well as the faces of acquaintances were dimmed. To correet this I had some eoncave cements (—.75 D.) placed on the upper part of the distance lenses. With a lens 38 mm. high, this gives a middle space about 8 mm. high, which is ample. When one wishes to see a distant street car sign or the face of some person clearly, a slight dropping of the ehin gives clear vision through the upper full distance correction.

I have found this combination a great satisfaction, and as opticians and physicians tell me they never heard of it before, I wish to pass it along.

Edward J. Brown, M.D., Minneapolis.

"AN OVARIAN HORMONE"

To the Editor:—In The Journal, September 29, Dr. R. T. Frank of Denver criticized our preliminary report on "An Ovarian Hormone" (The Journal, September 8). That only one of his criticisms is justified will be seen when our experimental data and protocols are published. This critieism eoncerns our mistaken use of "hyperemia" for "hyperplasia" in a quotation from Dr. Frank's paper. This happened inadvertently in the revision of our manuscript for publieation. We wish to acknowledge the error and sincerely apologize to Dr. Frank for our mistake. A copy of this letter is being sent to Dr. Frank.

Edgar Allen, Ph.D.,
Edward A. Doisy, Ph.D.,
St. Louis.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PARADICHLOROBENZENE AS INSECTICIDE

To the Editor:—Who has had the best chance to know the physiologic effect of Paradichlorobenzene, especially the local effect on the skin and the effect of its inhalation? It is now recommended by the government for peach borer. It is placed underground about trees to kill worms. Would it also destroy the scabies bug in the skin? What could come from such use, and how would you suggest that it be used?

L. J. Sharp, M.D., Commerce, Ga.

Answer.—Paradichlorobenzene was found by Galewsky (*Ztschr. textil. Ind.* 1915, p. 506) to be more efficient as a moth exterminator than any of the other commonly used insecticides. Duckett has reported that *p*-dichlorobenzene is an excellent insecticide when used as a fumigant (Bull. 167, U. S. Dept. Agric., 1915). Sollmann (*J. Pharmacol. & Exper. Therap.* **12**:133 [Oct.] 1918) found it toxic to earthworms, its effectiveness comparing favorably with that of oil of chenopodium. No toxic effects were noted in dogs, even after large doses internally (*J. Pharmacol. & Exper. Therap.* **14**:243 [Nov.] 1920). Under the proprietary name "Globol,"

p-dichlorobenzene has been considerably used in Europe against head lice, but it has been reported sometimes to cause blister.

We have no information about its use in scabies.

MIGRAINE AND EPILEPSY

To the Editor:—Will you please answer the following questions? 1. Are there any statistics showing the numerical incidence of migraine in any definite area, such as a state or a country? 2. Are there any statistics showing (*a*) the incidence of epilepsy among the descendants of all the migrainous persons in any country, state or locality, and (*b*) the numerical relation of epileptics and nonepileptics among such descendants? The point, which I see I have not made quite clear, is to determine the percentage of probability that epilepsy will develop in any descendant of an individual who has migraine but not epilepsy. 3. Recent writers on heredity assert, without qualification, that migraine and epilepsy are both simply different manifestations of one and the same mendelian character, which obeys the mendelian laws of heredity, such as the characters of tallness or shortness in peas. In the absence of any demonstrable pathology in the case of either disease it would seem that the identity of these two diseases, so different in their symptomatology and their effects on the welfare of the patient, can only be based on a very extensive study of statistics. Has the statistical study of these two symptom groups been sufficiently thorough and extensive to warrant the positive assertion that they are nothing more nor less than two modes of manifestation of one and the same pathologic—or biologic—entity? Please omit name. ———, M.D., Colorado.

ANSWER.—1. No.

2. No.

3. No, but that there is apparently some relationship between epilepsy and migraine, has been noted by many writers, on the basis of the close clinical relationship between some forms of migraine and epilepsy, and also on statistical analysis, though the latter has not been checked against a census of migraine in a normal population. That the migraine attack may alternate with epilepsy or precede it or follow it in an orderly sequence is a common observation and best illustrated by Gowers, in his "Borderland of Epilepsy." The most recent statistical analysis is by Buchanan (*Minnesota Med.* **3**:536 [Nov.] 1920; *M. Rec.* **98**:807 [Nov. 13] 1920; *New York M. J.* **113**:45 [Jan. 8] 1921). He has studied the incidence of epilepsy and migraine in migrainous and epileptic groups of patients at the Mayo clinic, and finds a definite mendelian ratio in which migraine and epilepsy are inherited like unit characters, dominant and recessive. He believes that if two "pure strains" of migraine are crossed, the children will all have migraine; if a migrainous and an epileptic are crossed, the children will all have either or both, and that from the migrainous, epilepsy can be inherited.

PEPPERS IN THE DIET

To the Editor:—As a layman who has done some reading on the subject of diets, I am, of course, much interested in anything of this kind. In looking over the different diets, I do not see the mention of bell peppers or green peppers. I have rather come to regard these as of considerable value in the diet, especially for furnishing roughage. This roughage, furthermore, seems to retain more moisture, or retain moisture better, than the roughage furnished by many other fruits and vegetables, and I have been rather prone to urge the use of peppers in my own family; in fact, I consume them liberally myself. I am wondering, therefore, what objection, if any, there may be to their more general use in the diet? E. W. B———, Florida.

ANSWER.—Peppers probably have the same value in roughage as many other of the coarser vegetables. However, they would seem to have one disadvantage: They are foods which many people do not enjoy. Some cannot digest peppers, and in such persons they have a tendency to produce gastric distress.

HELEN KELLER

To the Editor:—I am not sure whether you have the information or not, but I do not know of another place to get the facts. Please inform me whether the statement is true that Helen Keller was made blind and deaf by quinin. I was under the impression that her misfortune was due to cerebrospinal meningitis.

A. D. STRICKLER, M.D., Lebanon, Pa.

ANSWER.—Helen Keller says in her book "The Story of My Life" that the physician's diagnosis of the illness that led to her condition was "acute congestion of the stomach and brain." According to Appleton's encyclopedia, "An attack of scarlet fever when she was 19 months old left her blind and deaf." Hitz says in the *American Journal of Anthropology*, "an acute attack of gastritis followed by a malignant fever." It seems, therefore, that Helen Keller's illness was due to some infectious disease, which, however, was not definitely determined. Forty years ago, bacteriology was just developing into a science. It seems doubtful that an accurate diagnosis can be established on the present available evidence. The diagnosis "congestion of the stomach and brain" means nothing. The more likely diagnosis would be scarlet fever or encephalitis.

WHOOPING COUGH VACCINE

To the Editor:—I am very anxious to have the following queries answered: What is the present status of the treatment of whooping cough with vaccine? What is the present view as to the prophylactic treatment, and the permanence of the immunity created, if any? Please omit my name and address. H. A., Missouri.

ANSWER.—In a series of articles on biologic therapy prepared under the auspices of the Council on Pharmacy and Chemistry, W. C. Davison (THE JOURNAL, Jan. 22, 1921, p. 242) concluded a review of the use of pertussis bacillus vaccine thus: "In summing up the prolific and somewhat contradictory literature on this subject, it may be concluded that injections of Bordet-Gengou bacillus vaccines may have a slight though unreliable prophylactic effect, and that therapeutic inoculations are of practically no value. Further experiments are necessary to raise this procedure from the limbo of nonspecific therapy."

The Council on Pharmacy and Chemistry has accepted pertussis bacillus vaccine for New and Nonofficial Remedies, but states in regard to the usefulness of the product: "The evidence indicating that it is of value for either prevention or treatment is very questionable, and the reports are conflicting."

SALIVATION IN PARALYSIS AGITANS

To the Editor:—I have a patient with paralysis agitans, and one of the most troublesome symptoms is excessive salivation. Could you suggest anything that will check this condition, not including belladonna?

F. VELA GONZALEZ, M.D., Monterrey, N. L., Mexico.

ANSWER.—The salivation of paralysis agitans is apparently due to overaction of the autonomic nerve supply, and the only group of drugs that are known to depress the function of these stimulant fibers are the alkaloids of the belladonna group, which include scopolamin and duboisin as well as atropin. Individual idiosyncrasies can sometimes be met by employing one of the alternatives. The symptom is often extremely annoying and may be impossible to control.

MORTALITY STATISTICS OF PHYSICIANS

To the Editor:—Where can I find something about the average age at death of physicians, the average length of time they have practiced, and the principal cause of death?

N. M. WHITEHILL, M.D., Boone, Iowa.

ANSWER.—In the first issue of THE JOURNAL each year appears an editorial analysis of the deaths of physicians during the previous year. From these analyses, it appears that the average age at death, during the last fifteen years, is 60. The greatest number of deaths occurred between 61 and 70. The average age at graduation is 26 years, and the average years of practice is thirty-three. The principal causes of death are: (1) diseases of the heart and circulatory system, (2) senility and (3) cerebral hemorrhage. The average annual mortality rate for the period from 1902 to 1922 was 15.52 per thousand.

PREADOLESCENT HYPOPITUITARISM

To the Editor:—In view of the fact that oral administration of pituitary extract is valueless, what is the present treatment of preadolescent hypopituitarism, accompanied by adiposity, etc.?

J. L., M.D., Mich.

ANSWER.—Hypophysial adiposity is sometimes the result of congenital syphilis; in such cases, antisyphilitic treatment will give good results, if given early. Other cases are due to hydrocephalus, the surgical treatment of which has so far not been satisfactory.

The Fecundity of Mediocrity. — Society may accomplish much by checking the multiplication of the feebleminded, the criminals and the insane; but how to keep from being swallowed up in the fecundity of mediocrity is a much more difficult problem.—Holmes: Studies in Evolution and Eugenics, New York, 1923.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Delaware: Wilmington, December 11-13. Sec., Reg. Bd., Dr. P. S. Downs, Dover; Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington St., Wilmington.

Kentucky: Louisville, December 11. Sec., Dr. A. T. McCormack, State Board of Health Bldg., Louisville.

Louisiana: New Orleans, December 13-15. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

Maryland: Baltimore, December 11-14. Sec., Dr. J. McP. Scott, 141 W. Washington St., Hagerstown.

North Dakota: Grand Forks, January 1-4. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

Ohio: Columbus, December 5-7. Sec., Dr. H. M. Platter, Hartman Hotel Bldg., Columbus.

Oregon: Portland, January 2-4. Sec., Dr. Urling C. Coe, Stevens Bldg., Portland.

Virginia: Richmond, December 11-14. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

CONNECTICUT'S BOGUS DIPLOMA INVESTIGATION

The Connecticut investigation in regard to bogus diplomas and loose methods of issuing licenses to practice medicine has had the result of bringing certain individuals into the limelight. The reports regarding one of these is as follows:

Donald W. Stewart

Dr. Donald W. Stewart of Broad Brook, Conn., has been brought prominently into the investigation. Stewart is reported to have failed at an examination held by the West Virginia Board of Medical Examiners in January, 1921, but passed the examination of the Connecticut State Board of Eclectic Medical Examiners in July, 1921. When he applied for examination in West Virginia, according to the report, he claimed to be a graduate of the Southern College of Medicine and Surgery of Atlanta, Ga., in 1914. A complete list of the matriculants and graduates of the school named, at the headquarters of the American Medical Association, does not include Stewart's name. A letter received under date of March 8, 1921, from Stewart states that his diploma from the Southern College of Medicine and Surgery was issued "in 1914, before the college ceased existence." After the college ceased to exist in 1914, however, it is known that diplomas were issued to several individuals whose names do not appear in the list of those who were regularly enrolled in and graduated from this school. If a diploma was issued to Donald W. Stewart, therefore, it was evidently issued in the same manner. Stewart has thus far failed to furnish a statement showing in what college and in what years he obtained his medical instruction.

According to present reports, when in 1921 Stewart applied for examination before the Connecticut Board of Eclectic Medical Examiners, he is reported to have sworn to the statement that he was a graduate of the "Atlanta Eclectic Medical College" in 1914. There is no record of any medical school having ever existed, reputable or otherwise, bearing that particular name. Documentary evidence in the files of the American Medical Association show that Stewart enrolled in the *freshman* class of another medical school less than a year prior to the date when he claims to have graduated from the Atlanta institution. A letter dated June 4, 1921, from the dean of the Lincoln Memorial University, Knoxville, Tenn., states that Stewart was matriculated in that institution in the fall of 1913, but that he "remained only a few days"; that he "completed no work," and that he did not return at any later time. Furthermore, a letter from the dean of the Hahnemann Medical College and Hospital of Philadelphia states that Stewart was enrolled in the *premedical* class of that institution in the fall of 1914, but that he did not finish the year and, therefore, received no credits. In the light of these statements, it is quite evident that Stewart did not complete the four years of study in any bona fide medical school which would entitle him legally to receive a degree in 1914. In that year, meanwhile, he was evidently only 21 years of age, since the records show that he was born (at Beaver, Pa.) in 1893.

It is reported that at the time Stewart applied for his Connecticut license, in his sworn statement, he claimed to have been in practice at Old Point Comfort, Va., for five years. Evidently, therefore, he did not go to Connecticut until in 1921, when he took the examination given by the Connecticut Board of Eclectic Examiners. Nevertheless, Stewart appears to have been welcomed with open arms by the Connecticut Eclectic Medical Society, since the reports now refer to him as a "former vice president" of that organization. In September, 1921, Stewart is said to have secured an internship in the New Britain (Conn.) General Hospital, but that shortly thereafter, owing to certain "alleged discrepancies in his statements of qualification," he was dropped from the staff, but in order that he might have "reasonable notice," was "allowed to withdraw from the hospital on December 1st after a due try-out."

Stewart was named in the validating bill[1] introduced in the 1923 session of the Connecticut legislature. The state health department is said to have canceled his previous license because the Atlanta Eclectic Medical College was not on the list of institutions approved by the Eclectic Board. The license appears to have been restored since, according to the report, the Eclectic Board promptly placed the school on its approved list—in spite of the fact that there is no evidence or record to show that any medical school by the name of the Atlanta Eclectic Medical College, bona fide or otherwise, ever existed at Atlanta. Through the restoring of Stewart's license it became unnecessary to include his name in the validating bill, so it was stricken off the day before the bill was called up for final action in the house of representatives.

The foregoing shows how easily one unqualified person (there were evidently many others) was enabled to secure legal authority to treat the sick in Connecticut. Stewart may have his license revoked, but how about the safeguards to prevent future scandals in licensure in that state?

NEEDED IMPROVEMENTS IN GRADUATE MEDICAL EDUCATION

The following general statement will make more clear the position of the Council on Medical Education and Hospitals in relation to graduate medical instruction. The Council's chief desire is to cooperate with the various postgraduate teaching institutions in bringing about certain improvements, in accordance with the principles concerning graduate medical education which were adopted by the House of Delegates of the American Medical Association last June.

The Council is not attempting to prevent any physician from getting any course he needs, nor is it trying to assume authority over any individual or graduate teaching institution, or to prevent them from offering to physicians any courses they see fit. If an institution desires to have the Council's endorsement of its work or of any particular course offered, however, it should not be unwilling to comply with the principles which have been laid down and which are believed to be fair and just.

The principles provide more abundant facilities for the further training of general practitioners; the fact being recognized that any course of instruction which will improve the physician's knowledge or skill will be of service, both to him and to his patients. At the same time, however, it is believed that he will secure much better courses of instruction if those courses are arranged in a graded series whereby he can progress from one course to another and know that he is continually advancing in his work instead of being forced, as at present, to make a selection from a maze of unstandardized short courses, which may or may not provide him with the instruction he most needs.

In regard to courses leading to the specialties, the Council is merely withholding its approval from the present-day tendency whereby many physicians are being permitted to rush into some specialty regardless as to whether or not they have developed the knowledge and skill which would justify such action. Here again, there is no attempt to prevent any physician from taking any course he desires, nor to hinder

1. List published last week in Further Diploma Mill Investigations in Connecticut, J. A. M. A. **81**: 1714 (Nov. 17) 1923.

an individual or institution from offering instruction in any course. The Council merely asks that such courses be given in accordance with certain principles if they are to have the Council's endorsement.

The principles adopted in regard to courses for the training of specialists are being applied chiefly to certain groups of courses which, to a deplorable extent, are being used as short cuts to the practice of specialties by many who have not attained the essential qualifications which should be required. Neither the American Medical Association nor any other body of self-respecting people would endorse such a procedure; nor should they appear to do so by failing to do what they can to prevent it. The Council is urging that such steps be taken, and is withholding its approval from certain courses until adequate safeguards against their abuse have been established by the institutions offering such courses. These safeguards can be established without much difficulty by the graduate medical schools, (*a*) by having their courses properly graded; (*b*) by ascertaining the educational and professional qualifications of the physician-students, and (*c*) by admitting to any course only those students who are found to possess the essential prerequisite work or training. Such grading is, indeed, more essential for graduate students than for undergraduates, since the qualifications of the former now vary to a greater extent.

The courses which are most commonly utilized as short cuts are as follows:

Operative Surgery* (except emergency surgery*).
Surgical* Pathology.
Surgical Laboratory Technic.
Dog and Cadaver Surgery.*

* Or like courses in orthopedic surgery, urology, gynecology, ophthalmology and otolaryngology.

As now given, most of these courses fail to provide even the minimum requisite knowledge of diagnostic, laboratory or operative technic, much less the essential review courses in the preclinical sciences; the needed experience in the examination of patients; the diagnosis of the diseases covered by the specialty, and particularly the recognition of conditions which require operative treatment. Furthermore, the courses offered are independent of and make no provision for residencies or advanced internships where the graduate student can subsequently develop skill in applying his special knowledge in the care and treatment of human beings while still under the supervision of a physician who is recognized as an expert in the particular specialty before he begins his operative procedures in his own independent practice. These principles apply particularly to the surgical specialties and to the application of operative procedures, since a surgical operation, on the eye, for example, may needlessly handicap a patient for the balance of his lifetime. The portion of the principles regarding graduate medical schools which bear on this particular matter are as follows (paragraph 4):

> Any institution offering work in any specialty, therefore, should provide (*a*) review courses in anatomy, pathology, and the other basic preclinical sciences which apply to the respective specialties; (*b*) clinics in which students can have the opportunity personally to examine patients in hospital wards and outpatient departments and in which various therapeutic and operative procedures can be demonstrated; (*c*) courses of operative and laboratory technic, and (*d*)—to be assigned only when the student's previous training will warrant—assistantships in which, under the supervision of a physician already having recognized skill in the particular specialty, he can gradually assume responsibility in the diagnosis and therapeutic or operative treatment of the sick.

In this paragraph also it is provided that the courses of instruction should be "so graded that the student, if he desires, can obtain progressive work in a continuous course of two or three years," or if he prefers he can secure the same work in a series of shorter courses "so graded that, in effect, they would be segments of and, in total, the time and educational equivalent of the longer courses."

Where courses leading to specialization in any of the subjects enumerated are properly graded, and where the graduate school carefully investigates the previous training of the individual physician before assigning him to courses of instruction, it will not matter so much whether the student is merely preparing himself for better work in his general practice, or whether he is intending later to practice as a specialist.

The investigations during the last few years of the various postgraduate medical schools show the deplorable lack of courses to which any standardizing body could give an unqualified approval merely because they are not graded and are not being administered in accordance with any definite principles or standards. It is gratifying to know that already the majority of the postgraduate teaching institutions have abandoned, or expressed their willingness to abandon, the giving of higher degrees or diploma-like certificates to students taking short courses. It is the Council's desire to cooperate most heartily with any institution in an effort to develop their graduate teaching so as to provide in the United States more well organized and well administered opportunities for graduate instruction. This is clearly the greatest need in medical education today.

Social Medicine and Medical Economics

NATIONAL RESEARCH COUNCIL COMMITTEE FOR RESEARCH ON SEX PROBLEMS

A Statement of Purpose and Policy

EARL F. ZINN
Executive Secretary of the Committee
NEW YORK

This statement concerning the Committee for Research on Sex Problems, Division of Medical Sciences of the National Research Council, is presented primarily to record the fact of a serious attempt to further systematic research on sex problems. The report, however, may be of interest not only with reference to specific information relating to research on sex problems but also as an example of a method by means of which a comprehensive research project may be attacked by the cooperation of various institutions and individuals through the National Research Council.

This committee was organized in November, 1921, for the purpose of promoting, coordinating and systematizing research on sex problems to the end that conclusions now held might be evaluated and a better understanding of human sexuality obtained. The committee consists of:

Dr. W. B. Cannon, professor of physiology in the Medical School of Harvard University.

Dr. E. G. Conklin,* professor of biology in Princeton University.

Dr. Katharine Bement Davis, general secretary, Bureau of Social Hygiene, New York.

Dr. Thomas W. Salmon, professor of psychiatry in the Columbia University College of Physicians and Surgeons, formerly medical director for the National Committee for Mental Hygiene.

Dr. R. M. Yerkes, chairman of the division of research information of the National Research Council, formerly professor of psychology in the University of Minnesota (chairman).

Mr. Earl F. Zinn, formerly in charge of research promotion for the American Social Hygiene Association, was appointed executive secretary of the committee.

Though this project was motivated originally by the need for a better understanding of sex in its human aspect, this was not interpreted by the National Research Council or the committee to mean that investigations were to be limited to those of a technological nature determined by the needs of medicine, education and hygiene. The pressing need for useful knowledge was realized; and while it was agreed that these problems should be given all possible consideration, it was the opinion of those responsible for the project that its objective should be more inclusive; that in addition to contributing to the alleviation of current individual and social sex problems, it should also aim at a better understanding of the underlying factors—biologic, physiologic and psycho-

* Professor Conklin resigned from the committee, July 1, 1922, and Prof. F. R. Lillie, professor of embryology in the University of Chicago, was appointed in his place.

logic—which are basic to any real understanding of human sexuality. This conception markedly extended the scope of the project, and brought the realization that its systematic development would be a matter of years.

After a brief study of the problem, the purposes and policy were tentatively defined as follows:

In formulating the purpose and policy of the Committee for Research on Sex Problems, it is not implied that no work of value on sex problems is being done, or that biological research is unsystematic and uncoordinated. Much valuable work on sex has been done or is in progress, and there is constant effort to systematize and coordinate biological research in terms of each science, as rapidly as development of method and resources permit. It is in relation to sex problems per se that no concerted effort to stimulate, systematize and coordinate research has been made. From this angle, research on sex problems is sporadic, and, as a result, our knowledge is chaotic. Much that is of value will undoubtedly be learned from research as conducted at present, but, from the standpoint of urgent sex problems, it will be incidental. More rapid progress toward an understanding of sex in its many phases will result, if, in addition to the work now being done, a systematic attack from the angles of all related sciences, with knowledge of sex as the central objective, is made. This is the main purpose of the committee. Stated concisely, it is: *To conduct, stimulate, foster, systematize and coordinate research on sex problems, to the end that the conclusions now held may be evaluated and our scientific knowledge in this field increased as rapidly as possible.*

It is the policy of this committee:

1. To interest scientific workers in this project to the end that their cooperation and aid in the formulation of problems and technic for their study may be secured.
2. To utilize existing agencies in the study of such problems.
3. To be responsible for the wise expenditure of funds secured for this work.
4. To conduct types of research not requiring laboratory facilities. (Utilizing its secretary and clerical staff here.)
5. To encourage younger workers of promise to shape their training for work in this field.

A preliminary survey of the research situation elicited an enthusiastic response from scientific workers, and revealed a number of investigations of obvious fundamental importance in progress or proposed. Some of these, it was found, could be disproportionately extended with financial aid. Others could be undertaken whenever funds were available. An appropriation was made by the Bureau of Social Hygiene, whereupon the committee voted grants to the following institutions:

University of Minnesota, work under the direction of Dr. K. S. Lashley. Problem: Investigation of the sensorimotor and glandular components of sexual behavior in the rat.

Harvard University, work under the direction of Dr. Roger I. Lee. Problem: Inquiry into the norm of sex life of university students.

University of California, work under the direction of Dr. Herbert M. Evans. Problem: A study of nutritional and glandular factors in relation to the œstrous cycle in the rat.

Cornell Medical School, Cornell University, work under the direction of Dr. C. R. Stockard. Problem: A study of glandular factors in relation to the estrous cycle in the guinea-pig.

Johns Hopkins University, work under the direction of Dr. D. R. Hooker. Problem: A study of the effects of roentgen irradiation on reproduction.

University of Chicago, work under the direction of Dr. F. R. Lillie. Problem: A Study of the sex hormones and the effects of castration and gonad transplantation, with special reference to birds and mammals.

University of Texas, work under the direction of Dr. T. S. Painter. Problem: Mammalian and human spermatogenesis.

State University of Iowa, work under the direction of Dr. B. T. Baldwin. Problem: To determine the relation of pubescence in boys to the appearance of sperm cells.

Phipps Clinic, Johns Hopkins Hospital, work under the direction of Dr. Adolf Meyer. Problem: Collation of replies to a sex questionnaire to medical students and other persons; and organization of detailed observations of the sex life of selected groups over a period of time.

Stanford University, work under the direction of Dr. Calvin P. Stone. Problem: A study of the sexual behavior of white rats as correlated with known anatomic and physiologic changes induced by chronic and acute inanition.

While it was realized that the adoption of an opportunistic policy such as that which determined the selection of the investigations mentioned above would tend to stimulate research on sex problems, it was apparent that it could not contribute directly to the task of coordinating and systematizing research in relation to the major objective, namely, a better understanding of human sexuality. It was evident that major lines of investigation must be marked out if the project were not to flounder hopelessly in this complex field. The following subdivisions were selected, with recognition, however, that they would have to be further subdivided as the study progressed:

1. Biology of sex (systematic and genetic aspects).
2. Physiology of sex and reproduction.
3. Psychobiology of sex (infrahuman).
4. Psychobiology of sex (human, including individual, anthropologic, ethnologic, sociopsychologic aspects).

To facilitate coordination, it was decided to bring related investigations together in a single institution or laboratory wherever possible. During the past year this plan has been followed with the biologic investigations, this work centering in the University of Chicago under the direction of Dr. F. R. Lillie. It has been partially followed in the physiologic investigations, the major support going to Dr. Herbert M. Evans in the University of California and to Dr. C. R. Stockard in the Cornell University Medical College. A suitable center in which to concentrate the infrahuman psychobiologic investigations does not exist in this country at present. Hence it has been necessary to continue to support isolated investigations. This is also the case with the human studies.

The committee is continuing its study of the general problem with a view toward defining with increasing clarity the field in which research should be fostered and promoted, and is endeavoring to coordinate this work by bringing together related investigations in suitable centers as rapidly as conditions warrant. This does not mean, however, that individuals working outside such centers may not qualify for support from committee funds. Qualified investigators are invited to submit research plans and estimates of costs, which will be considered on the basis of merit in relation to the program as outlined thus far. For the support of this program to June 30, 1925, the Bureau of Social Hygiene recently appropriated the sum of $100,000.

A more detailed statement of the development and progress of this work is being prepared, and will be issued as a separate bulletin by the National Research Council. Research projects submitted for the consideration of the committee, and requests for more detailed information regarding its work, should be addressed to the Committee for Research on Sex Problems, Earl F. Zinn, Executive Secretary, 370 Seventh Avenue, New York City.

THE LAW OF LIBEL: A LESSON FOR PHYSICIANS

A lesson of interest to physicians is embodied in the case of *Middler* v. *Hamilton*, recently decided in the Transvaal Division of the Supreme Court, as reported in the *South African Medical Record* (**21**:409 [Sept. 8] 1923). The defendant, the medical officer of the Randfontein Hospital, complained to the finance committee of the hospital that the matron was incompetent. Thereupon she sued him for libel. The defendant pleaded justification and that the communication was privileged. Judgment in his favor in the lower court was reversed on appeal, and damages and costs were awarded against him. The court apparently found the plea of justification not supported by the evidence. The defendant's complaint to the finance committee was held not to be privileged, because the finance committee had no power to deal with such complaints and the defendant took no steps to bring the matter before the general committee, which did have such power. Apparently the fact that the defendant took no steps to make his complaint effective by bringing it to the attention of the committee that might have acted on it afforded grounds for the inference that the complaint to the finance committee was not made with the best interests of the hospital at heart, but from other motives. A communication of this kind, to be privileged, must be not only privileged in substance but must be addressed to the proper party.

Book Notices

NON-SURGICAL DRAINAGE OF THE GALL TRACT. A Treatise Concerned With the Diagnosis and Treatment of Certain Diseases of the Biliary and Allied Systems, in Their Relation to Gastro-Enterology and General Clinical Medicine. By B. B. Vincent Lyon, A.B., M.D., Chief of Clinic, Gastro-Intestinal Department of the Jefferson Hospital. Cloth. Price, $10. Pp. 640, with 185 illustrations. Philadelphia: Lea & Febiger, 1923.

Dr. Lyon here presents a description of his method of nonsurgical drainage. In collaboration with other clinicians, he includes a consideration of clinical methods of diagnosis, such as history taking, laboratory methods of examination and physical examination. He gives an elaborate description of his technic, and concludes with a citation of numerous case histories in which his procedure has been used. The book is well written, and were it not for numerous statements that cannot be passed by the skeptic without challenge, it would be almost convincing. Dr. Lyon believes that his procedure is based on scientific principles that are soundly established. This is questionable. Dr. Meltzer's theory of the law of contrary innervation has never been positively established. Yet the author accepts it as a proved fact. Later on in his book he states as an accepted fact that the gallbladder empties itself by contraction. Contractile power of the gallbladder has never been shown. On the contrary, the gallbladder empties itself slowly. The statement that removal of the gallbladder tends to a dilatation of the bile tracts, a forcing open of the sphincter of Oddi as a result of muscular exhaustion and changing a normal intermittent to a continuous discharge of bile, leading to possible grave disturbances in certain cases, has neither clinical nor experimental foundation. Nor does a review of the literature, and the opinion of surgeons in large hospitals, warrant the extravagant statement that in the direct evidence it furnishes us, his procedure far surpasses any diagnostic method yet available. It is true that a flow of bile may follow the administration of magnesium sulphate or olive oil. The treatment of gallbladder disease by olive oil or Epsom salt is an old method. The statement, however, that Epsom salt is changed in the stomach by hydrochloric acid has no proof. These statements are quite in line with such unscientific statements in a modern textbook as "lazy liver" and "biliousness." It would seem as if the author were contradicting himself by the use of such terms. If the liver were really at fault, then certainly gallbladder drainage would be of no avail. What is really wanted is liver drainage. This does happen when the gastro-intestinal tract is stimulated to activity, and is not the result of the work of contrary innervation in the gallbladder. In his lengthy controversy with the opponents of his procedure, he will not convince the reader of the correctness of his contentions. The readily resorted to criticism of inexperience, inaccuracy of technic or unphysiologic surroundings, such as Franzen's work with a biliary fistula and other similar criticism, does not answer. As well say that Pawlow's work was unconvincing because it was done under unphysiologic surroundings. There are numerous statements that cannot pass without challenge that will only be mentioned. Physiologic block is considered a fact, even though no evidence of such a condition has been adduced. The author assumes a difference between catarrh and infection of the gallbladder. A description of such a difference would be welcome. In another place the author speaks of feebly contractive power of an infected gallbladder as though the existence of a strongly contracting power subject to stimulation had already been established. Likewise, what is the difference between cholecystitis, etc., with and without infection? The author speaks repeatedly of draining empyema of the gallbladder. It is remarkable that a closed sac of pus should yield first to relaxation of Oddi's sphincter, and finally can be cured by biweekly or even daily aspiration, even with the tube continuously in place. More interesting than this is the statement, "If the microscopic picture of excessive necrosis suggests possible gangrene, the treatment should be stopped and resumed in a day or two if conditions permit." Gangrene of the gallbladder is associated with very acute symptoms and threatening results, unless surgical intervention occurs. Yet the author claims restoration of a gangrenous gallbladder to its normal condition by nonsurgical biliary drainage. This would, indeed, be a wonderful cure, were it not fraught with dire consequences to the patient. The diseases amenable to treatment by this method range from simple gallbladder atony (?) through all the grades of gallbladder and liver diseases to pernicious anemia, melancholia and biliary migraine (?). Chronic biliousness is also an indication for treatment, although what it is would be welcome information to the physician. Even the pancreas can be drained by nonsurgical measures. In addition to biliary drainage, Dr. Lyon places his patients on restricted diets, and administers various and numerous nonaccepted, proprietary preparations, as senna agar, gastron, caroid, antacids, Gude's peptomangan, bile salts for torpid livers, and veracolate pills, as indications for their use arise. He has had no favorable results with intestinal antiseptics. Treatment is further supplemented by the high frequency current to the lower thoracic and lumbar vertebra, sparking in atonic, and close contact in spastic constipation. It is not for the reviewer to condemn the method and show it to be without any virtues. The book is a good exposition of diseases of the gallbladder. If the method is generally accepted as a form of treatment on its merits, it will be to the credit of Dr. Lyon. Extravagant and unscientific statements, however, should find no room in such a book.

TUBERCLE BACILLUS INFECTION AND TUBERCULOSIS IN MAN AND ANIMALS. Processes of Infection and Resistance. A Biological and Experimental Study. By Albert Calmette, Associate Director of the Pasteur Institute, Paris. Authorized translation by Willard B. Soper, M.D., and George H. Smith, Ph.D. Second edition. Cloth. Price, $8. Pp. 714, with 56 illustrations. Baltimore: Williams & Wilkins Company, 1923.

The second French edition of this book has already been reviewed in these columns. We may repeat that in it we have the product of an able investigator who has given many of the best years of his life to the study of tuberculosis in a broad, scientific way. The point of view from which the book is written is that of the experimental pathologist rather than the clinician, but no field is neglected that bears on the essential nature of tuberculosis. Special emphasis is laid on immunology, and unusual attention is devoted to bovine tuberculosis and preventive vaccination against it, a subject that must have loomed large in the author's mind in the four terrible years of internment following the closure of his experiments in this direction, forced by the German occupation of Lille.

FIRST AID X-RAY ATLAS OF FRACTURES AND DISLOCATIONS, INCLUDING ILLUSTRATED DESCRIPTION OF THE SKELETON. By H. C. Orrin, O.B.E., F.R.C.S., Surgeon, Ministry of Pensions Orthopaedic Hospital. Cloth. Price. $1. Pp. 77, with 46 illustrations. New York: Paul B. Hoeber, Inc., 1923.

This production has followed the author's "First Aid X-Ray Atlas of the Arteries." The subject matter is brief and concise. The attempt has been made to supplement, with roentgenograms, the diagrams of the skeleton used to illustrate the positions of the bony fragments in fractures and dislocations. The cardinal signs and symptoms in diagnosis are stated in each type of fracture. This is followed by the emergency method of treatment best suited for the case. No new method has been brought forth in this book. To the practitioner it is of little value. It might be of some service in the primary instruction of undergraduates, nurses, and public agencies dealing with the emergency care of injuries.

CHIRURGIE DE LA TÊTE ET DU COU. Par Ch. Lenormant et Pierre Broeq. Sixth edition. Cloth. Price, 12 francs. Pp. 338, with 245 illustrations. Paris: Masson et Cie, 1923.

This volume is one of a series on surgical practice, and is limited to the head and neck. The surgical anatomy and one operative procedure of proved merit are considered for each of the various regions. For the most part, fairly standardized operations are followed. The chapter on plastic work is good. A little more space might be given to operations on the thyroid. There is no mention of cervical rib, diverticulum of the esophagus, thyroglossal cyst or several other conditions not infrequently encountered. A few virtually obsolete operations are included. The illustrations are fairly well chosen.

Medicolegal

Insured Leaving House to Go for Medical Treatment

(Mutual Ben. Health & Acc. Ass'n v. McDonald (Colo.), 215 Pac. R. 135)

The Supreme Court of Colorado, in affirming a judgment in favor of the plaintiff on a policy of indemnity issued by the defendant association, says that the policy provided that any accidental injury resulting in septicemia should be classed and paid for as sickness as set forth in paragraphs which made a distinction between total disability resulting from sickness and "confining the insured continuously within doors," and that which did not confine him continuously within doors. The plaintiff was attacked and bitten by a ferocious dog, thereby sustaining bodily injuries which resulted in septicemia, as a result of which he had been totally disabled from the day that he was bitten, and prevented from attending to any business. He did not leave his home or go out of his house for about eight weeks, but during that period was treated at his home by a physician. After that, approximately once each week, he left his home and rode in the street cars to Denver, a distance of about 6 miles, for the sole purpose of receiving medical treatment for his injury. The defendant contended that from the time the plaintiff first left the house and went to Denver he was no longer entitled to full indemnity. But the court is of the opinion that the interruption or break in the confinement of the insured within doors was not such a departure from the contract, or in such violation of its provisions, as to defeat a recovery of full indemnity.

If an insured may not, without violating his policy, leave his house for any purpose, but must continuously or strictly stay within doors every moment of the period for which full indemnity is asked, then he could not leave it in case of fire or destruction, or even step out on a porch or veranda for fresh air, or take "outdoor" treatment for tuberculosis, acting under the advice of his physician. These are extreme illustrations, but they show the necessity of applying reasonable, not harsh, unnatural rules of construction to such words. Again, this policy contained the additional provision that it did not cover disability while the insured was not continuously under the professional care and regular attendance, at least once a week, of a licensed physician or surgeon. Limiting clauses should be construed in connection with all other provisions of the contract, including in this case the one just mentioned, which makes it imperative for the insured to have professional care and attendance. He is supposed to follow, and would be justified in obeying, his physician's advice and directions. The "care and attendance" are not required to be given in the house. It might be, as when some unusual surgical operation, or a roentgenographic examination, is imperative, that only at the physician's office or at a hospital could the patient receive their benefits; but, if the construction of the defendant was correct, the insured, even though so directed by his physician, if he left his house to ride in a street car to go to Denver to undergo the operation or to submit to the examination, would forfeit his right to full indemnity from the moment he left his house to make the journey, even though during all the weeks within the time limit of the policy he was totally unable to pursue his usual vocation. No such construction should be put on a clause of limitation as would make it repugnant to, or inconsistent with, another provision of the same contract with which the insured must comply in order to be entitled to any indemnity at all.

Fees for Waiting Experts Not Required to Testify

(Jones v. Antrim Circuit Judge (Mich.), 193 N. W. R. 873)

The Supreme Court of Michigan says that in this proceeding the plaintiff sought an order requiring the defendant, circuit judge, to retax the costs awarded against her in an unsuccessful will contest, in which the trial judge had, among other things, fixed the sum to be taxed for three expert medical witnesses at $25 a day each. The will contest involved the mental competence of the testatrix, but late in the trial that issue was abandoned. Usually expert medical witnesses are asked hypothetic questions, and there is no need of their sitting in court to listen to the evidence. These experts, however, were from a distance, and the exigencies of the trial might have required calling them at almost any time, and the contestant of the will in raising the issue of want of mental capacity on the part of the testatrix could not complain on being taxed with the cost so incurred to meet that issue. But, it was said, the experts were not sworn as witnesses. The contestant's withdrawal of the issue of mental incompetence of the testatrix rendered the evidence of the experts unnecessary.

The order of the court fixing the sum to be paid the experts was made about nine months after the trial and, it was contended, without notice or showing of the character of their proposed testimony, and the attention of the supreme court was directed to Section 12559, Compiled Laws of Michigan of 1915, which provides, in substance, that expert witnesses shall receive extra compensation only when they testify to matters of opinion and not to established facts or deductions of science. The record before the supreme court did not disclose the character of the testimony the experts would have given had the contestant stood fast to the issue calling for their attendance, but this court may assume that the trial judge had a pretty fair inkling that they were present to testify to matters of opinion. It appeared from the return of the circuit judge that the order fixing the compensation to be paid the expert witnesses was made by a judge of another circuit presiding at the trial, and was actually made on application in open court, during the trial of the cause, and was opposed by the contestant, but later the order was signed by the judge presiding and filed in the case. The order so made stood unappealed and was authorized by Act 404, Public Acts of 1919, which provides that:

> No expert witness shall be paid, or receive as compensation in any given case for his services as such, a sum in excess of the ordinary witness fees provided by law, unless the court before whom such witness is to appear, or has appeared, awards a larger sum, which sum may be taxed as a part of the taxable costs in the case.

Certainly it would not be contended that a party desiring to call an expert witness and to have the court "before whom such witness is to appear" fix his compensation, must give notice to his adversary so he can be heard and also make a showing of the character of the testimony such expert is to give. Nor does the statute contemplate notice and opportunity to be heard when the compensation is fixed after the expert witness has appeared. The same right prevails to tax, as a part of the costs, compensation permitted by the court to be paid to expert witnesses in good faith made to attend, and deemed material and necessary on an issue presented, though not sworn as witnesses by reason of the abandonment of the issue summoning them, as prevails in the case of other witnesses in good faith subpenaed and deemed material and necessary, and by turn of the case not sworn.

Society Proceedings

COMING MEETINGS

American Pathological Society, St. Louis, Dec. 27-29. Dr. Wade H. Brown, Rockefeller Institute for Medical Research, New York, Sec'y.

American Physiological Society, St. Louis, Dec. 27-29. Dr. Charles W. Greene, University of Missouri, Columbia, Mo., Secretary.

American Society of Biological Chemistry, St. Louis, Dec. 27-29. Dr. Victor C. Myers, New York Post-Graduate Medical School, New York, Secretary.

District of Columbia, Medical Society of, Washington, Jan. 2. Dr. C. B. Conklin, Medical Science Bldg., Washington, Secretary.

Isthmian Canal Zone, Medical Association of, Ancon, Dec. 21. Dr. J. J. Moore, Ancon Hospital, Ancon, Secretary.

Porto Rico, Medical Association of, San Juan, Dec. 14-16. Dr. Augustin R. Laugier, Box 1117, San Juan, Secretary.

Radiological Society of North America, Rochester, Minn., Dec. 3-7. Dr. M. J. Sandborn, Appleton, Wis., Secretary.

Society of American Bacteriologists, New Haven, Conn., Dec. 27-29. Dr. J. M. Sherman, Box 184, Washington, D. C., Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., Dec. 11-13. Dr. H. A. Royster, 423 Fayetteville Street, Raleigh, N. C., Secretary.

Western Surgical Association, Colorado Springs, Colo., Dec. 6-8. Dr. Warren A. Dennis, Hamm Bldg., St. Paul, Minn., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

32: 125-276 (Sept.) 1923

Hemosiderin Content of Choroid Plexus. M. D. Flather, Swarthmore, Pa.—p. 125.
*Studies on Lymphocytes. H. E. Jordan and C. C. Speidel, Charlottesville, Va.—p. 155.
Blood Stream in Labyrinth of Ear of Dog and of Man. G. E. Shambaugh, Chicago.—p. 189.
*Cause of Twinning and Abnormal Development in Birds. O. Riddle, Cold Spring Harbor, N. Y.—p. 199.
Effects of Hypotonic Solutions on Cell Morphology of Choroid Plexuses and Central Nervous System. L. H. Weed, Baltimore.—p. 253.

Nature of Lymphocytes.—The experimental results reported by Jordan and Speidel confirm the conclusion already reached from a study of the normal spleen of the frog, namely that the lymphocytes are the precursors of erythrocytes, granulocytes and thrombocytes.

Cause of Twinning and Abnormalities.—The results of Riddle's studies support and extend the conception that both abnormalties and twins owe their origin to alterations of the developmental rate, or, perhaps, the metabolic rate, at various and unequally susceptible developmental stages. But whether a stage is "critical" or "indifferent" is, in part at least, a question of whether the stage is subjected to a retarding or to an accelerating agent. And the stage of development at which twins or multiple embryos actually arise is variable and includes stages extending from the unsegmented egg to gastrulation.

American Journal of Diseases of Children, Chicago

26: 291-390 (Oct.) 1923

Study of Acute Secondary Anemias in Infancy. W. P. Lucas and H. R. Hoobler, San Francisco.—p. 291.
*Inorganic Constituents of Human Milk with Particular Reference to Racial Variations. C. W. Burhans and D. N. Smith, Cleveland.—p. 303.
*Etiology and Treatment of Herpetic (Aphthous and Aphtho-Ulcerative) Stomatitis and Herpes Labialis. H. J. Gerstenberger, Cleveland.—p. 309.
*Blood Serum Content of Inorganic Phosphorus and Calcium in Pneumonia. H. J. Gerstenberger, C. W. Burhans, D. N. Smith and N. C. Wetzel, Cleveland.—p. 329.
*Comparison of Value of Milk and Oranges as Supplementary Lunch for Underweight Children. M. S. Chaney, Berkeley, Calif.—p. 337.
Effect of Complemental Feeding in New-Born Infants. H. A. Bachmann, Chicago.—p. 349.
*Calcium and Phosphorus Metabolism in Rickets. Ultraviolet Ray Therapy. W. J. Orr, L. E. Holt, Jr., L. Wilkins and F. H. Boone, Baltimore.—p. 362.
Atresia of Esophagus, with Tracheo-Esophageal Fistula. R. H. McClellan and T. J. Elterich, Pittsburgh.—p. 373.
*Case of Hemangio-Endothelioma of Ileum. M. E. Blahd, A. S. Mashke and H. T. Karsner, Cleveland.—p. 379.
Subdural Effusion and Internal Hydrocephalus. Report of Case, with Recovery. W. G. Penfield, New York.—p. 383.

Inorganic Constituents of Human Milk.—Fifty-four specimens of human milk have been analyzed for calcium, potassium and inorganic and total phosphorus and chlorids by Burhans and Smith. The averages of the results are practically the same as those reported by others who have used mixed or twenty-four hour samples. In comparing the white with the colored race, it was found that the calcium and the inorganic phosphorus were decreased in the milk from the latter race. The chlorids were considerably increased in the milk from the colored race.

Vitamin B Treatment of Herpes and Stomatitis.—Gerstenberger found that the administration of the water soluble B vitamin produces in herpetic stomatitis, aphthous stomatitis, herpes labialis, acute gingivitis, and ulcerative stomatitis a remarkably rapid improvement and recovery. It is suggested that the primary etiologic factor in these cases is metabolic and nutritional, and that any rôle that bacteria or similar agents may play in the future development of the local lesions is secondary. This metabolic disturbance may be due to a disproportion between the water soluble B supply of the body and the metabolic requirements of the patient for this vitamin at a given time. The constant and liberal use of canned tomato is advocated as an economic and dependable source of the water soluble B vitamin.

Blood Phosphorus and Calcium in Pneumonia.—In nine of ten cases of pneumonia in nonrachitic children investigated by Gerstenberger et al., the inorganic phosphorus of the serum was decidedly reduced during the febrile stage and rose to normal during convalescence. The calcium was slightly reduced in some of the cases and normal in others. In those cases in which it was reduced, it rose to normal during convalescence, except in one instance. These findings may offer an explanation of the rôle played by respiratory infections in the development of rickets.

Value of Milk and Orange as Supplementary Lunch.—The evidence presented by Chaney indicates that a midmorning lunch is of value in overcoming a condition of underweight in children. Oranges seem most efficacious in producing a gain in weight. This may be due to the vitamin content of the orange. Milk, while it produces a favorable increase in weight, is not the only food valuable for the midmorning lunch. Concentrated bottled orange juice appears to be of marked value in stimulating growth in the underweight child. It is not equal to fresh oranges.

Calcium and Phosphorus Metabolism in Rickets.—Metabolism studies have shown that infants with active rickets fail to retain calcium and phosphorus, although an adequate amount is present in the diet. Ultraviolet radiation causes large amounts of these elements to be retained in the body. Increased amounts of calcium and phosphorus are found in the urine after ultraviolet radiation, indicating an increased absorption from the intestine. It is argued by Orr et al. that defective absorption from the intestine in active rickets is the cause of the low concentrations of calcium and phosphorus in the serum, and is the ultimate cause of the defective calcification of the bones.

Hemangio-Endothelioma of Ileum.—The authors assert that theirs is the only case of the kind on record. Clinically, it was a case of intestinal obstruction in a child, aged 2 months. The child died. At the necropsy a tumor was discovered 30 cm. above the ileocecal valve. The tumor was obviously a capillary angioma and the blood content of most of the capillaries justifies the term capillary hemangioma.

American Journal of Medical Sciences, Philadelphia

166: 313-468 (Sept.) 1923

*Prognosis of Syphilis. J. A. Fordyce, New York.—p. 313.
*Hemolytopoietic System in Primary Anemias. Value of Splenectomy. E. B. Krumbhaar, Philadelphia.—p. 329.
*Cause of Bothriocephalus Anemia: Report of Case. R. L. Haden, Kansas City, Kan.—p. 338.
*Cerebrospinal Fluid Pressures: Concerning Initial Fall in Pressure Readings and Method of Obtaining Standard Reading. H. C. Solomon, H. M. Pfeiffer, Boston, and L. J. Thompson, St. Joseph, Mo.—p. 341.
*Studies of Cerebrospinal Fluid in Infants and Young Children in Conditions Other Than Acute Meningitis. S. McLean, New York.—p. 350.
Value of Cranial Decompressive Operations. A. O. Wilensky, New York.—p. 365.
Bacteriology of Acute Respiratory Disease During Interepidemic Period, Conditions Favoring Streptococcus Epidemics. J. C. Small, Philadelphia.—p. 384.
Roentgenologic Study of Tuberculosis of Lungs and Intrathoracic Glands in Infancy and Early Childhood. I. E. Liss, Scarsdale, N. Y.—p. 396.
*Carcinoma of Esophagus. P. P. Vinson, Rochester, Minn.—p. 402.
Intestinal Indigestion in Eczema and Psoriasis. F. L. Burnett, Boston.—p. 415.

Prognosis of Syphilis.—Summarizing his paper, Fordyce says, that the future of the syphilitic patient depends on the knowledge and training of the physician first consulted. When the diagnosis is made, the physician should impress the patient with the necessity for vigorous and thorough modern treatment and endeavor to make him appreciate the seriousness of the disease. The author suggests that those who treat syphilis should acquaint themselves more accurately with the possible toxic effects of the modern arsenicals. Has the hypertension which is at times met with after prolonged treatment any relation to the known toxic action of arsenic on the blood vessels? How long is arsenic stored in the liver

after the cessation of the usual courses of the drug? Can jaundice be prevented by a low protein diet during treatment? Is the elimination of arsenic hastened by the simultaneous use of the iodids? To what extent do various methods of giving arsphenamin develop arsenic-fast strains of the spirochetes and thus render further therapeutic attacks less efficient?

Hemolytopoietic System in Primary Anemias.—Bone marrow, spleen, liver, lymph nodes and reticulo-endothelial apparatus, Krumbhaar says, combine to regulate the formation and destruction of blood cells in what may be termed the "hemolytopoietic system." The methods for studying the functioning of this system ("hemolytopoietic balance") and the results of splenectomy in various diseases affecting this balance are presented.

Cause of Bothriocephalus Anemia.—A case of bothriocephalaus latus infestation is reported by Haden. The patient had probably harbored the parasite for six years without showing any symptoms. There was an anemia of sudden onset which quickly disappeared after the worm was expelled. When recovered, a large part of the worm was in a state of decomposition. These findings lend support to the idea expressed by Faust and Tallvuist that the anemia of bothriocephalus infestation is due to absorption of hemolytic substance from the dead worm.

Variation in Cerebrospinal Fluid Pressure Readings.—Solomon and his associates call attention to the fact that when lumbar puncture is performed in the usual manner, with the patient lying on his side and well flexed, the pressure recorded shortly after the needle is inserted is apt to be two, three or four times as great as that obtained after ten minutes. Usually, a drop in pressure occurs, being quite rapid in the first two or three minutes, then less rapid for several minutes. From six to ten minutes after the puncture is performed, a stable equilibrium is reached and the pressure reading remains fairly constant from then on, if the patient is quiet. This is not invariably true, but occurs in the majority of instances. Several factors play a part in the production of the early high reading and subsequent fall. The most important are the position of the patient and the amount of tension under which he holds himself. When rigidly flexed and fearful, the pressure is always high. Relaxation and extension avoids this original fluid hypertension. If after the pressure has fallen the patient again makes himself rigid and flexes himself vigorously, the pressure will again rise and will fall once more. The rate of drop will be accelerated if the patient relaxes and extends himself. In order to have a standard for estimating cerebrospinal fluid pressure, it is necessary to observe these rules. Readings taken on patients who are fearful or struggling, which is often the case subsequent to head trauma, may be 300 or 400 per cent., or even more, in excess of the pressure existing during periods of rest and quiet.

Cerebrospinal Fluid in Infants.—McLean analyzes the findings on examination of 316 spinal fluids of children. In acute respiratory infections, the cerebrospinal fluid is usually normal. In certain cases which had an uninterrupted convalescence without sequelae, the cerebrospinal fluid showed a pleocytosis with or without a positive globulin reaction during the acute stage of the disease. It is believed that in certain of these cases the diagnosis of serous meningitis might be entertained. In acute and chronic intestinal conditions in infancy and early childhood the great majority of cases have a normal cerebrospinal fluid while a minority show a fluid with a slightly increased cell count. In all cases of tetany the cerebrospinal fluid was essentially normal; a small number only (five of thirty-one) showed a fluid with an average cell count of twenty-one. Even repeated convulsions bear no relation to the number of cells in the cerebrospinal fluid. Of four "neuropathic children" all had normal cerebrospinal fluids. It would appear from the variable findings in four cases of cerebral thrombosis that there is nothing pathognomonic in the cerebrospinal fluid. The fluid in congenital syphilis is clear and colorless (except in certain cases of syphilitic meningitis), and usually under normal pressure. The cytology is variable. There is some evidence in this series of cases to demonstrate that there may be involvement of the central nervous system without pleocytosis. The intensity of the clinical manifestations is apparently not a criterion of the cytology. In eleven of twenty-one cases of brain tumor the count was not higher than 10 cells per cubic millimeter. In seven cases the count was more than 100. Of fifteen cases tested for globulin only six were positive.

Carcinoma of Esophagus.—Dysphagia, hiccup and regurgitation were the early symptoms noted in the 152 cases analyzed by Vinson. Most of the patients gave histories of bolting food, meals at irregular intervals, and many used alcohol to excess. Dental sepsis was almost always present. Twenty-one of the patients had a metastasis. A history of previous trauma to the esophagus was not elicited in any case, but in a recent case there had been a burn of the esophagus from lye in infancy. Although no form of treatment will prolong life for many months or give great relief from dysphagia, dilation of the carcinomatous stricture with olives, graduated sizes, has given the greatest palliation in the Mayo Clinic. No evidence has been obtained in the clinic to suggest that dilatation in any way hastens metastasis. The mortality in untreated cases is 100 per cent., and surgery offers little as a curative or palliative measure. Radium or roentgen-ray therapy is practically valueless.

American Review of Tuberculosis, Baltimore

8: 1-92 (Sept.) 1923

*Tuberculosis of Intestines. H. Schwatt and M. M. Steinbach, New York.—p. 9.
*Associated Diseases in Pulmonary Tuberculosis. H. C. Sweany, Chicago.—p. 40.
*Syndrome Simulating Pulmonary Tuberculosis. A. L. Hart and W. A. Gekler, Albuquerque, N. M.—p. 53.
*Study of Limitation of Chest Movement, Chest Thickness and Muscle Spasm in Diagnosis of Pulmonary Tuberculosis and Their Relation to Pleurisy. A. M. Hoffman, New York.—p. 59.
*Experimental Observations on Intratracheal and Intranasal Injections in Rabbits. H. A. Robin and H. C. Sweany, Chicago.—p. 66.
Antigenic Properties of Lipoids of Tubercle Bacillus. L. Dienes and E. W. Schoenheit, Asheville, N. C.—p. 73.
Demonstration of Increased Numbers of Tubercle Bacilli in Excretions of Tuberculous Patients. S. Serkowski, Warsaw, Poland.—p. 85.

Tuberculosis of Intestines.—Schwatt and Steinbach studied the pathologic findings in 199 consecutive necropsies to determine the true incidence of tuberculous disease of the intestines. The small intestine was involved somewhat more frequently (109 times) than the large intestine (ninety-eight times). The small intestine alone was the seat of disease thirty times and the large intestine alone nineteen times. The small and the large intestines were ulcerated in eighty cases. In over 75 per cent. of the cases the lesions involved more than one subdivision of the tract. Duodenal ulcers occurred in three cases, with involvement once of the small intestine alone and twice of the small and large intestines. Ulceration of the jejunum alone, or of the jejunum and large intestine without involvement of the ileum, is infrequent, one case of each in this series. The ileum was the most frequently involved segment of the intestine. It was the seat of ulcers 105 times. Ulceration of the ileum without the jejunum was more frequent (sixty-three times) than of ileum with jejunum (forty-two times). The ileum was also the most frequent site of sole ulceration. It occurred in twenty of the 129 cases in which the location of the lesions was noted in detail. Extensive involvement with advanced ulceration occurred in only two cases, one of which presented several perforations in the middle portion. Two cases showed tubercles only. Disease of the cecum was next in frequency to that of the ileum. It was free from disease in only nine of eighty cases involving the small and large intestine. In four of these the appendix was ulcerated. In fourteen cases the ileum and cecum, and in four cases the ileum, cecum and appendix, were involved. Tuberculous disease of the appendix occurred forty-four times with ulcerative lesions in forty cases. Sole ulceration of the appendix was noted in two cases. The colon was the seat of ulceration in sixty-three cases. The rectum was involved fifteen times, practically always with extensive and advanced disease of other segments of the tract. Completely healed intestinal ulcers were rarely found. In the majority of cases the intestinal disease ran a latent course, irrespective of the

extent or severity of the ulceration. The presence of the complication cannot therefore be excluded because of the absence of symptoms. There is no symptom or group of symptoms pathognomonic of tuberculous enteritis. The prognosis of tuberculous ulceration of the intestine in advanced phthisis is invariably bad, and the onset of this complication ushers in the termination of the case within a period of from three to six months.

Associated Diseases in Pulmonary Tuberculosis.—Sweany reports three cases of tuberculosis, in which the concomitant diseases caused the dominant symptoms and the tuberculosis played a minor rôle, far less so than surface appearances would indicate. These cases illustrate the importance and frequency of associated conditions in tuberculosis. The importance of recognizing the true condition early is paramount in successful treatment. Emphasis is laid on the point that sputum-negative cases should be diagnosed as tuberculosis with a great deal of care. On the contrary, the same care should be used in calling sputum-positive cases nothing but tuberculosis, for tuberculosis may cause few or all the symptoms. It is a problem, therefore, of correct evaluation of the symptoms of the various concomitant diseases, and on this evaluation to base the proper treatment.

Syndrome Simulating Pulmonary Tuberculosis.—In three cases referred to Hart and Gekler with a diagnosis of tuberculosis, the true condition has been found to be a combination of mitral stenosis and hyperthyroidism. The patients had fever, cough, hemoptysis, rapid pulse, loss of strength and loss of weight. In each case prolonged and accurate study was necessary for correct diagnosis.

Limitation of Chest Movement, Chest Thickness and Muscle Spasm as Signs of Pulmonary Tuberculosis.—Limitation of chest movement as an index of the side and amount of tuberculosis was found by Hoffman to be correct in 87.5 per cent. of 200 cases studied. Limitation of chest movement is most reliable as a diagnostic sign in far advanced cases (95.6 per cent.); next, in moderately advanced cases (90.8 per cent.) and least reliable in minimal cases (53 per cent.); a reliability which is in inverse ratio to the need of diagnostic aid in tuberculosis. Muscle spasm was found to be an accurate diagnostic aid in 57.5 per cent. of the cases, an incorrect aid in 10 per cent. and absent in 32.5 per cent. As with limitation of chest movement, muscle spasm seems to be least reliable in minimal cases. Diminution in thickness of the chest cannot be depended on to indicate the side of involvement in tuberculosis. In only 12.8 per cent. of 148 cases was there a definite correspondence between limitation of chest movement, diminution of pleural movement and basal pleurisy on the same side of the chest.

Result of Aspiration and Insufflation of Foreign Matter.—Robin and Sweany have been able to produce massive infiltration by the aspiration of carbon (india ink) without the aid of an anesthetic. The material aspirated in this manner tends to gravitate to the dependent portions of the lungs. Dry soot, when insufflated, produces a uniform anthracosis throughout both lungs. When soot is inhaled, it tends to encapsulate the tubercle, but apparently does not inhibit the growth of tubercle bacilli in the lungs. No fibrosis was observed in the lungs of any of the animals in a period as long as ten weeks. When light anesthesia is given to an animal lying head down, on a board tilted at 30 degrees, no carbon is aspirated, but in deep anesthesia much carbon is found in the lungs.

Johns Hopkins Hospital Bulletin, Baltimore

34: 277-320 (Sept.) 1923

*Studies of Living Human Blood Cells. F. R. Sabin, Baltimore.—p. 277.
*Pathologic Anatomy of Corpus Luteum. E. Novak and R. W. TeLinde, Baltimore.—p. 289.
*Lipemia Retinalis. W. S. McCann, Baltimore.—p. 302.
*Gas Exchange in Diseases of Thyroid Gland. J. T. King, Jr., Baltimore.—p. 304.
Determination of Corpuscular Volume from Relative Viscosities and Conductivities of Blood and Plasma or Serum. B. S. Neuhausen and Z. T. Wang, Baltimore.—p. 311.
Study of Growth of Certain Micro-organisms on Reinoculated Mediums. L. D. Felton, Baltimore.—p. 313.
*Rôle of Lymphatics in Absorption of Bile Pigment from Liver in Early Obstructive Jaundice. W. Bloom, Baltimore.—p. 316.

Origin and Life of Leukocytes.—Sabin presents evidence favoring the view that the large mononuclear cell is the young form of the monocytic strain and that the large lymphocyte is the young stage of the lymphocytes. He used a method that offers a chance to distinguish cells which have been stimulated from those which are degenerating, thus opening a new phase of the physiology of the white blood cells.

Pathologic Anatomy of Corpus Luteum.—The study made by Novak and TeLinde disclosed that the corpus luteum exhibits individual variations within physiologic limits. The most important of these are cystic distention of the corpus and an excessive degree of hemorrhage into the lumen during the stage of vascularization. The most important pathologic conditions affecting the corpus luteum are (1) abscess formation, (2) cyst, (3) hematoma and (4) neoplasm. The authors' findings throw doubt on the prevalent impression that corpus luteum cysts have a tendency to delay menstruation, and that they bring about a clinical syndrome easily mistaken for that of tubal pregnancy (amenorrhea followed by prolonged bleeding, together with a one-sided mass). Various authors have described ovarian tumors of supposedly lutein origin. Novak and TeLinde see no reason why such tmors should not occur, and they have observed growths, chiefly carcinomas, in which, morphologically, such an origin was suggested. The condition spoken of as multiple lutein cysts of the ovary, found with some cases of hydatidiform mole and chorio-epithelioma and sometimes erroneously designated as multiple corpus luteum cysts, is said to be due to a widespread lutein-like transformation of the theca cells in the atretic follicles, which are greatly increased in size and number.

Lipemia Retinalis in Diabetes.—The case of a patient who had diabetes mellitus with lipemia and lipemia retinalis is described by McCann. Evidence is given to show that the appearance of the retinal vessels is not dependent on the total fat content of the blood, for the lipemia persisted after the retina has resumed its normal appearance. Moreover, a case was observed in which the total blood fat percentage was 8.9 without any change in the appearance of the retina. Direct observation of the capillaries of the nailbed showed them to be normal in appearance. The shed blood was red. No change in the structure of small skin vessels was observed on histologic study. A tentative explanation of the white appearance of the retinal vessels is offered, namely, that the vessel may be surrounded by fat containing lymph or fat deposited in the adventitia of the vessels so that light is abnormally reflected or refracted, and that the appearance might depend on the physical state of the fats or lipoids of the blood rather than on their total quantity.

Gas Exchange in Diseases of Thyroid.—The average results of forty-eight one-hour observations made by King on patients with thyroid disease in the "basal" state showed that (*a*) the average carbon dioxid elevation is 0.8 per cent. less than the elevation of direct calories, and there is an average error in correlation with direct calories from hour to hour of ± 5.2 per cent.; (*b*) the average elevation of indirect calories is 2.1 per cent. above direct calories for those experiments. The error in the correlation of direct and indirect calorimetry from hour to hour is ± 5.8 per cent.; (*c*) the average elevation of oxygen is 6.5 per cent. above the direct calories, and the average error in correlation from hour to hour is ± 5.8 per cent. The average gaseous ratio is 0.791 in the first hour and 0.796 in the second hour. In the third hour (four observations) it is 0.767. In observations made on quiet patients the gaseous ratio fell in the second hour in eleven cases and rose in sixteen. In restless patients it fell in five cases and rose in six. Therefore, carbon dioxid elimination affords the best index to the heat production in thyroid disease, as judged by direct calorimeter experiments.

Rôle of Lymphatics in Absorption of Bile Pigment in Obstructive Jaundice.—The results of his experiments, Bloom says, must cause a revision of some of the ideas held at present on the processes involved in early obstructive jaundice. In the first place, it has been shown that, contrary to the prevailing idea, but in accord with the work of Jagič and

Ogata, the fine intercellular bile capillaries are not ruptured before there is an appreciable bilirubinemia consequent to the occlusion of the common duct. In the second place, the blood serum of dogs in the first day or two after the blocking of the ductus choledochus gives the indirect Van den Bergh reaction, and in so far renders doubtful the interpretation of the indirect test when actual tissue icterus is not present. On the other hand, after the sclerae are definitely icteric, the direct test is always given. It is felt, moreover, that the ready applicability of the Van den Bergh test to the serum and the lymph, coupled with the removal of the kidneys and the gallbladder, has made it possible to decide much more definitely than has been done in the past that the removal of bile pigment from the liver in the earliest stages of mechanical jaundice is entirely by the lymph stream and not by the blood stream.

Journal of Comparative Psychology, Baltimore

3: 241-326 (Aug.) 1923

Hearing in Rattlesnakes. F. B. Manning, Boston.—p. 241.
Study of Behavior of Birds by Multiple Choice Method. M. P. Sadovinkova, Moscow.—p. 249.
Factors Affecting Duration of Postrotation Nystagmus. J. Q. Holsopple, Baltimore.—p. 283.
Yerkes Multiple Choice Method with Human Adults. W. Brown and F. Whittell, Berkeley, Calif.—p. 305.
Effects of Surroundings Upon Mental Work as Measured by Yerkes Multiple Choice Method. H. Wong and W. Brown, Berkeley, Calif. —p. 319.

Journal of Medical Research, Boston

44: 1-119 (Sept.) 1923

Pathogenesis of Experimental Pneumonia in Rabbit. H. H. Permar, Pittsburgh.—p. 1.
Mononuclear Phagocytes in Experimental Pneumonia. H. H. Permar, Pittsburgh.—p. 27.
*Electrolyte Content of Red Blood Corpuscles. Findings in Chronic Anemia and Polycythemia. T. E. Buckman, W. R. Ohler and L. L. Doherty, Boston.—p. 51.
*Relative Fragility of Reticulated Red Corpuscles. T. E. Buckman and E. MacNaugher, Boston.—p. 61.
New Principle Applied to Staining of Fibrillary Neuroglia. P. Bailey, Boston.—p. 73.
Stimulating Effect of Photocytolytic Products of Protoplasm. C. E. Barr, Boston.—p. 79.
Influence of High Partial Pressures of Oxygen on Bacterial Cultures. H. T. Karsner, H. H. Brittingham and M. L. Richardson, Cleveland. —p. 83.

Electrolyte Content of Red Blood Cells.—Buckman, Ohler and Doherty report the results of the determination of the plasma volume and the specific conductivity of the serum and solution of laked red corpuscles from seven normal men, fourteen cases of anemia of long duration, and four cases of persistent erythrocytosis. The plasma volume is not necessarily influenced by the level of hemoglobin or by the number of red corpuscles. The mean value for the cases here reported was 50.4 c.c. per kilogram of body weight. The specific conductivity of the serum is not necessarily altered by the level of hemoglobin or by the concentration of corpuscles and tends to approach a constant value of about 150×10^{-4}. In the series of cases reported, the specific conductivity of a 50 per cent. clear solution of the products of laked red corpuscles was proportional to the percentage volume of the red cells.

Fragility of Reticulated Red Blood Cells.—Evidence is presented by Buckman and MacNaugher to show that the reticulated cells from cases of pernicious anemia are less resistant to hypotonic salt solution than are the reticulated cells from cases of anemia due to hemorrhage. Defibrinated blood from normal subjects, from cases of anemia due to hemorrhage and cases of pernicious anemia in a stage of remission, with or without a marked increase in percentage of reticulated cells, does not undergo autolysis and does not show a diminution in the percentage of reticulated cells when incubated for twelve hours at 37 C. Defibrinated blood obtained from cases of pernicious anemia in a state of relapse showing a high percentage of reticulated cells undergoes autolysis and shows a marked diminution in the percentage of reticulated cells when incubated at 37 C. for twelve hours. It is suggested that the reticulated cells may contain proteolytic enzymes which would be liberated on destruction of these cells and thus effect autolysis of the serum.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

22: 59-138 (Sept.) 1923

*Standardization of Ergot Preparations. W. A. Broom and A. J. Clark, London.—p. 59.
*Erythropoietic Action of Red Bone Marrow and Splenic Extracts. C. D. Leake and E. W. Leake, Madison, Wis.—p. 75.
*Histologic Detection of Iodids. E. J. Stieglitz, Baltimore.—p. 89.
*Drugs and Basal Metabolism. W. M. Boothby and L. G. Rowntree, Rochester, Minn.—p. 99.
Leukocytic Reactions to Red Bone Marrow and Spleen Extracts. C. D. Leake, Madison, Wis.—p. 109.
Behavior of Rats After Injections of Bile Salts, Urea, Creatin and Creatinin. D. I. Macht, Baltimore.—p. 117.
Absorption of Drugs Through Eye, Ear, Teeth and Esophagus. D. I. Macht, Baltimore.—p. 123.

Standardization of Ergot Preparations.—The action of the ergot alkaloids in paralyzing the motor sympathetic endings in the isolated uterus of the rabbit, according to Broom and Clark, can be made the basis of a convenient method for standardizing ergot preparations. The method measures only the alkaloidal content of ergot and is not affected by the presence of amins such as histamin and tyramin. The results obtained by this method agree fairly well with the results obtained by the cockscomb method, and with the method based on the reversal of the epinephrin effect on the cat's blood pressure. Quite different results are obtained with the isolated uterus of the guinea-pig, and the uterus of the cat in situ. These methods measure very largely the amin content of ergot preparations. Liquid extract of ergot prepared strictly in accordance with the directions of the British pharmacopeia is said to be almost completely devoid of ergot alkaloids.

Erythropoietic Action of Red Bone Marrow and Spleen Extracts.—It is concluded by Leake and Leake that splenic and red bone marrow extracts are more powerful erythropoietic agents in combination than separately, and it is indicated that they act first, by increasing the rate of production or delivery in existing erythrogenic centers; and, second by causing an extension of functioning red marrow.

Histologic Detection of Iodids.—It is shown by Stieglitz that iodid ions may be detected histologically in tissue cells in very minute amounts by a relatively simple technic. The iodids, thus identified in the tissues, have a very characteristic distribution. They occur almost exclusively in parenchymatous secreting cells.

Effect of Epinephrin on Basal Metabolism.—Epinephrin was the only drug studied by Boothby and Rowntree which produced, in the doses used, a definite or consistent alteration in the level of the basal metabolic rate of an order exceeding 10 per cent. within two hours of administration. Epinephrin has a definite and intensive calorigenic action with its maximum effect a few minutes after administration. Insulin does not apparently possess a direct calorigenic action, although it causes an increase in the basal metabolic rate in the fasting individual if the blood sugar falls to a critical level associated with symptoms of hypoglycemia. In the clinical estimation of the basal metabolic rate neither epinephrin nor insulin should be given within several hours preceding the test. The administration of iodids does not affect the metabolism of a normal person, but may convert a case of adenomatous goiter without hyperthyroidism into one with hyperthyrodism, and the increased metabolism, when so produced, represents the intensity of the new syndrome.

Maine Medical Association Journal, Portland

14: 27-48 (Sept.) 1923

Unilateral Hydronephrosis. C. H. Jameson.—p. 27.
Who Should Practice Medicine in Maine. C. P. Barnes, Houlton.—p. 34.

New York Medical Journal and Medical Record

118: 397-468 (Oct. 3) 1923

Summary of Symptoms of Lethargic Encephalitis. F. X. Dercum, Philadelphia.—p. 397.
Catalepsy in Epidemic Encephalitis. J. H. Musser, Jr., and A. E. Bennett, Philadelphia.—p. 399.
*Incidence of Acute Epidemic Encephalitis in Bellevue Hospital in January, February and March, 1923. R. S. Crispell, New York.—p. 402.
Psycho-Analysis. J. Smith, New York.—p. 404.

Aseptic Meningitis in Combating the Dementia Praecox Problem. R. S. Carroll, Asheville, N. C.—p. 407.
Myotonia. Case of Paramyotonia, Limited to Orbicularis Palpebrarum. A. Gordon, Philadelphia.—p. 412.
Psychology as Factor in Practice of Medicine. H. W. Potter, Thiells, N. Y.—p. 414.
*Physiologic Diagnostic Dream. E. G. Mitchell, Boston.—p. 416.
Case of Optic Atrophy in Multiple Sclerosis. A. S. Maclaire, New York.—p. 418.
Atypical Amyotrophic Lateral Sclerosis. E. D. Friedman, New York. p. 422.
Ateriosclerosis of Nervous System. G. E. Price, Spokane, Wash.—p. 425.
Lumbar Puncture in Neurosyphilis. A. B. Cannon, New York.—p. 430.
Visceral Neurology in Relation to Clinical Medicine. J. H. Leiner, New York.—p. 434.
*Roentgen-Ray Signs of Increased Intracranial Pressure. L. J. Friedman, New York.—p. 437.
Tumors of Cerebellum. P. K. Menzies, Syracuse, N. Y.—p. 441.
Confused States Following Infections. I. J. Sands, Brooklyn.—p. 444.
Case of Chorea. R. Sheehan, New York.—p. 446.

Analysis of Cases of Acute Epidemic Encephalitis.—Forty-two cases were reviewed by Crispell. In only five cases was it noted that the patient had a preceding attack of influenza or other respiratory disease. In twenty-six cases the onset was gradual while in nine it was sudden. In the majority of cases the onset was attended with neuralgic pains, which often lasted throughout the disease and into convalescence. The most frequent sites of these pains were the back of the head, the neck and down the arms. The most constant symptoms were those referred to disturbance of movements of the eyeballs. Sluggish pupils were present in ten cases. Insomnia, especially at the beginning of but often lasting throughout the disease, was a complaint of ten or more of the patients. Delirium or clouded consciousness was present in ten cases. Except for myoclonic twitchings, there was little mention of adventitious movements. Dizziness was complained of in a few cases. Autonomic symptoms were not prominent. No case of the forty-two showed any pryamidal signs, with the possible exception that in several the abdominal reflexes seemed to be absent. In three cases a slight suggestion of rigidity of the neck was noted; in only one case was the neck described definitely as rigid. As diplopia was the most common subjective symptom, myoclonic twitchings constituted the most constant objective sign. They were definitely noted in twenty-three cases, most commonly in the abdomen, but also in the extremities. In several cases myoclonic twitchings were the outstanding factor and the factor on which the diagnosis of epidemic encephalitis hinged. The leukocyte count averaged between 11,000 and 12,000. Three cases having a count of 20,000 or more proved fatal. A slight pleocytosis, averaging from twenty to thirty cells, was the only constant spinal fluid finding. Twelve of the forty-two cases were fatal.

Physiologic Diagnostic Dream.—In the physiologic diagnostic dream, so termed by Mitchell, sex symbolism is a secondary matter. The beginning lesions are giving rise to pains or sensations so slight that they remain unnoticed during the distractions of the day. In sleep the stimulus produces a dream whose content corresponds absolutely to the type of sensation and to the location of the physical trouble. A characteristic of these dreams seems to be that they are repeated. Four cases in point are cited.

Roentgen-Ray Signs of Increased Intracranial Pressure.—In the examination of about 3,000 cases, of which 750 were examined for evidences of injury or pathology, evidences of intracranial pressure were observed by Friedman in about 75 per cent. Roentgenologically, intracranial pressure can be divided into acute, subacute and chronic. The acute type can readily be interpreted by observing a peculiar mottling of the skull field, better described as areas of increased illumination with intervening spaces of the normal brain shadow. This appearance justifies the diagnosis of a diffuse mild form of edema of the brain. This edema may arise not only from injury, but also from laceration of the brain which occurs in concussion. In every case in which lumbar puncture was performed shortly after an injury, bloody spinal fluid was found even though there was no evidence of a fracture. The subacute type of intracranial pressure is observed at a more remote period after an accident and is accompanied by certain subjective symptoms such as headache and vertigo. Roentgenologically, the presence of subacute intracranial pressure is also recognized by the presence of mottling, although not as extensive as that seen in the acute form. The roentgenologic characteristics of chronic intracranial pressure are evidences of crescentic osteoporotic areas of the inner table of the skull which may be general or confined to the frontal, parietal or occipital areas.

Northwest Medicine, Seattle

22: 301-336 (Sept.) 1923

*Experimental Prophylactic Inoculation Against Rocky Mountain Spotted Fever. H. Noguchi, New York.—p. 301.
Maintenance of Virus of Rocky Mountain Spotted Fever in Nature with Particular Reference to Conditions in Bitter Root Valley. R. R. Parker, Hamilton, Mont.—p. 303.
Clinical Importance of Vital Capacity of Lungs. F. W. Peabody, Boston.—p. 307. (To be concluded.)
*Innervation of Lung. O. Larsell, Portland.—p. 311.
Influenza and Influenzal Pneumonia. C. Frothingham, Boston.—p. 316.
Acute Empyema. J. C. Shields, Butte, Mont.—p. 320.
Treatment of Chronic Suppuration of Middle Ear by Ionization of Zinc. M. C. Fox, Portland.—p. 323.
Structure and Function of Acoustic Labyrinth, Etc. G. E. Shambaugh, Chicago.—p. 326.

Prophylactic Inoculation Against Rocky Mountain Spotted Fever.—The fact that it is possible at all to produce a certain degree of immunity against Rocky Mountain spotted fever by means of heated serovaccine, Noguchi asserts is of practical significance, and this mild mode of immunization, with killed virus as one of the components of the vaccine, is worth trying in human beings, since it involves no risk and yet is likely to produce a degree of immunity which, if not enough to prevent infection altogether, will, perhaps, be sufficient to modify the course of the disease to a less severe type.

Innervation of Lung.—Larsell follows only the nerve trunks and their branches from the point of entrance into the lung, at the hilum, to their various terminations, motor and sensory, with some attention to the intrapulmonary ganglions and the relations of the plexuses, with the hope of throwing light from an anatomic standpoint on certain obscure conditions and relations within the lung.

Philippine Journal of Science, Manila

23: 237-305 (Sept.) 1923

Diagnosis of Hainan Plants, II. E. D. Merrill.—p. 237.
Composition of Pili-Nut Oil. A. P. West and S. Balce.—p. 269.
Effect of Composition on Complete Hydrogenation of Some Philippine Oils with Nickel Catalyst. A. P. West and L. Gonzaga.—p. 277.
Some New Malayan Carabidae, Especially Philippine. K. M. Heller, Dresden, Ger.—p. 295.

South Carolina Medical Association Journal, Greenville

19: 579-606 (Sept.) 1923

Problem of Cardiovascular-Renal Disease. R. Wilson, Charleston.—p. 580.
Significance of Bladder Symptoms. M. Weinberg, Sumter.—p. 586.
Pharmacology of Certain Endocrine Glands. W. H. Zeigler, Charleston.—p. 590.

Tennessee State Medical Association Journal, Nashville

16: 157-196 (Sept.) 1923

Our Responsibility as Regards Better Vision for School Children of Tennessee. L. M. Scott, Jellico.—p. 157.
Peptic Ulcer. R. L. Sanders and C. C. King, Memphis.—p. 160.
Deductions from Review of One Thousand Roentgen-Ray Examinations of Gastro-Intestinal Tract. S. W. Coley, Memphis.—p. 165.
Version. R. O. Tucker, Nashville.—p. 170.
Country Obstetrics. K. S. Howlett, Franklin.—p. 176.
Improvement of Hearing. E. D. Watkins, Memphis.—p. 181.
Fibroma of Ovary. Report of Two Cases. F. W. Smythe, Memphis.—p. 184.

Wisconsin Medical Journal, Milwaukee

22: 151-192 (Sept.) 1923

Diagnosis and Treatment of Brain Tumors. W. E. Dandy, Baltimore.—p. 151.
Ectopic Gestation. Report of Cases. T. W. Nuzum, Janesville.—p. 154.
Surgical Aspects of Uterine Malpositions. J. A. Pettit, Portland, Ore.—p. 157.
Cystography in Diagnosis of Urologic Conditions. I. R. Sisk, Madison.—p. 160.
Barraquer Method of Cataract Extraction. V. A. Chapman, Milwaukee.—p. 164.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

17: 304-441 (Oct. 13) 1923

Treatment of Malaria. XXXII. J. W. W. Stephens.—p. 304.
Australian Cestodes. P. A. Maplestone and T. Southwell.—p. 317.
Ophiotaenia Punica (Cholodovski, 1908) La Rue, 1911. T. Southwell and S. Adler.—p. 333.
Pyrrhocorid Bug (Dysdercus superstitiosus, F.) Capable of Biting Man. B. Blacklock.—p. 337.
Typhus Fever in Greek Refugees. P. Hehir.—p. 347.
*Value of Sachs-Georgi Reaction in Serologic Diagnosis of Syphilis. G. Stuart.—p. 359.
Aedinus Amazonensis, Lutz. A. M. Evans.—p. 377.
*Treatment of Amebic Dysentery. R. M. Gordon.—p. 381.
*Relapsing Fever in Gold Coast. P. S. Selwyn-Clarke and A. Ingram.—p. 389.
*Carbon Tetrachlorid in Filariasis. S. Adler.—p. 427.
Yellow Fever in Gold Coast. Its Endemic and Epidemic Character. R. O. White.—p. 431.

Value of Sachs-Georgi Test in Diagnosis of Syphilis.—It is Stuart's belief that the Sachs-Georgi test cannot take the place of the Wassermann test, and should not be employed alone unless it is impossible to obtain the reagents necessary for the performance of the Wassermann test. The Wassermann reaction remains positive longer than the Sachs-Georgi reaction. A negative Sachs-Georgi reaction, then, in treated cases would not form a reliable index as to the cure of the patient. The Sachs-Georgi reaction remains negative in certain definitely established cases of syphilis, and for no apparent reason. It is justifiable, therefore, perhaps to conclude that a negative Sachs-Georgi reaction is of little or no value.

Treatment of Amebic Dysentery.—One hundred and fifty cases of amebic dysentery were given various forms of treatment and subsequently kept under observation for from one to six months or longer. Of these 150 cases, 101 (66 per cent.) relapsed. Among all the cases treated only six patients (4 per cent.) were observed to be passing *E. histolytica* cysts after treatment. Sixteen were given emetin periodid, 6 grains daily. Eight of these (50 per cent.) relapsed within one month. Giving this drug in gelatin capsules was found to be unsatisfactory as they frequently passed through the intestine without dissolving. When mixed with a little milk and given by the mouth the periodid did not produce vomiting. Owing to the inequality of the observation periods no attempt was made to compare the value of any two forms of treatment.

Spironema Causes Relapsing Fever.—This first recorded outbreak of relapsing fever in British West Africa was due to a spironema conveyed by lice. As regards inoculation experiments made by Clarke and his associates, monkeys and black and white rats became infected with the strain, but did not have a relapse; guinea-pigs and rabbits were refractory, while the pouched rat became infected and had a relapse. The vectors of the organism in this epidemic and inoculation experiments suggest that the parasite is not the *Sp. duttoni*, but corresponds more closely to *Sp. recurrentis (vel obermeieri)*, or a related strain.

Carbon Tetrachlorid in Filariasis.—After performing preliminary experiments with carbon tetrachlorid administered orally, it was decided to try the effect of the drug administered intravenously and intramuscularly to animals. Adler gave the drug to four adult patients each with a slight infection of *Filaria bancrofti*. None showed any marked diminution of the microfilaria in the blood after the treatment, but in view of the comparative safety with which the drug can be administered, both intravenously and intramuscularly, Adler suggests that carbon tetrachlorid be tried in cases of *Loa loa* infection.

British Journal of Anaesthesia, Manchester

1: 1-54 (July) 1923

Early Anesthesia. Sir D. Power.—p. 4.
Painless Childbirth by Synergistic Methods. E. P. Donovan and J. T. Gwathmey.—p. 8.
Sacral or Epidural Analgesia. J. Blomfield.—p. 22.
New Anesthetics: Ethylene; Acetylene. C. L. Hewer.—p. 27.

British Journal of Ophthalmology, London

7: 401-448 (Sept.) 1923

Congenital Miosis or Pinhole Pupils Owing to Developmental Faults of Dilator Muscle. S. Holth and O. Berner.—p. 401.
Binocular Choroidal Tuberculosis with Detachment of Retina in Two Kittens. J. B. Lawford and H. Neame.—p. 419.
Tournay's Reaction (Anisocoria). P. G. Doyne.—p. 420.
Wernicke's Pupillary Reaction. J. D. Cummins.—p. 421.

British Journal of Tuberculosis, London

17: 155-194 (Oct.) 1923

Swiss Health Stations for Consumptives and Other Tuberculous Subjects. T. N. Kelynack.—p. 155.
Psychophysiologic Aspects of Montana (Switzerland) Climate in Winter. L. Hill.—p. 175.
Montana. Climatic and Therapeutic Considerations. B. Hudson.—p. 176.
Visit to Danish Sanatorium. J. Johnstone.—p. 179.

British Medical Journal, London

2: 591-638 (Oct. 6) 1923

Problem of Success for Medical Women. H. Rolleston.—p. 591.
*Regulating and Reflex Process. P. T. Herring.—p. 594.
*Causes of Intestinal Obstruction. J. W. Thomson.—p. 597.
Case of Angiochorioma. O. J. Reid and A. N. Kingsbury.—p. 598.
*Hemophilia in Female. M. Warde.—p. 599.
*Insulin Treatment: Suggestion for Optical Method. W. F. Lloyd.—p. 600.
Use and Abuse of Obstetric Forceps. C. Berkeley.—p. 600.
Id. J. Fairbairn.—p. 604.
Unilateral Gynecomastia. A. A. Pomfret.—p. 609.
Hemorrhagic Disease of New-Born Treated Successfully by Injections of Father's Blood. F. W. Robertson.—p. 609.

Regulating and Reflex Process.—Herring contends that we must look for the first signs of ill health in the nervous regulating processes of the body. They are the basis of the vital activities and maintain the life of the organism as a unit. Disturbance of the vital processes is the first sign of ill health, and their failure is the ultimate cause of death.

Causes of Intestinal Obstruction.—Among the causes of intestinal obstruction enumerated by Thomson are: volvulus; duodenal hernia; gallstones; uterine fibroid and inguinal or femoral hernia.

Hemophilia Transmission.—According to family tradition the disease in this case was traceable through the paternal grandmother from her father to her son, the patient's father. The latter exhibited a great tendency to bruising and had epistaxis about every two weeks. Trivial injuries frequently caused swelling of the joints, one or other of which was almost constantly affected. Death is thought to have been due to hemorrhage connected with fracture of the leg, which occurred shortly before, "fragments of bone working out with much bleeding."

Determination of Sugar in Solutions.—Lloyd has made determinations of the amount of glucose in solutions by measuring the index of refraction of the solution. The instrument used depends on the measurement of the critical angle. The instrument is simple and only one or two drops of the liquid are required.

639-684 (Oct. 13) 1923

Some Changes in Obstetric Practice Since Foundation of Medical Society of London. H. R. Spencer.—p. 639.
Regulating and Reflex Process. Nerve Impulse; Importance of Receptors; Production of Pain. P. T. Herring.—p. 643.
*Pellagra in Children. R. Hutchison and D. Patterson.—p. 646.
Case of Fracture of Skull Causing Death (Cerebral Necrosis) after Eleven Years. S. Smith and M. Emara.—p. 647.
Roentgen-Ray Examination of Urinary Tract. R. W. A. Salmond.—p. 648.
Ophthalmology in Relation to Navy, Army and Air Force. D. Munro and C. Clements.—p. 654.
Vision in Gun-Layers. W. K. D. Breton.—p. 658.
Naval Lighting. R. J. E. Hanson.—p. 658.
*Pneumothorax. A. S. Hendry.—p. 659.

Pellagra in England.—In both the cases reported by Hutchison and Paterson the rash and affection of the nervous system appear to be typical. Apart from the fact that at some period prior to the onset of symptoms both children were fed large quantities of "corn-flour," there is nothing in the history which would fit in with the various theories of the causation of pellagra. In one case the diet seemed to have contained a sufficiency of protein of high biologic value. These children had both resided all their lives in England.

Traumatic Pneumothorax.—Hendrie's patient had pneumonia in 1914, followed by whooping cough. While playing football, Nov. 17, 1922, an opponent knelt on his chest. He felt a very slight pain, but no dyspnea. The next morning he complained of slight pain in the left side of the chest over the precordium. There was no evidence of fractured rib. In two days he felt perfectly well. He played football again, November 24, and, after the game complained of slight shortness of breath. Over the right lower lobe posteriorly there was an area of high pitched distant bronchial breathing. The roentgeon ray showed a moderate sized pneumothorax at the outer and lower side of the right pleural cavity.

Glasgow Medical Journal

18: 161-208 (Oct.) 1923

Tuberculin. J. Crocket.—p. 161.
*Results of Clinical Laboratory Tests in Diagnosis of Various Types of Jaundice. A. S. Barr.—p. 174.
Local Medical Diathermy. A. B. MacLean.—p. 187.

Value of Laboratory Tests in Diagnosis of Jaundice.—Barr discusses the urobilin test, the van den Bergh test, the Widal hemoclasic crisis test and the levulose tolerance test. He believes that it is a scientific duty to accept these tests with caution—if not, indeed, with suspicion—but at the same time to keep an open mind, and to use every possible opportunity to add to the list of experiences from which alone the value of any test can ultimately be judged.

Indian Medical Gazette, Calcutta

58: 401-452 (Sept.) 1923

Dengue Sand Fly Fever Problem. J. W. D. Megaw.—p. 401.
*Treatment of Malaria by Quinin in Combination with Magnesium Sulphate and Alkali. J. A. Sinton.—p. 406.
Failure of "Bayer 205" in Treatment of Kala-Azar. L. E. Mapier.—p. 415.
Outbreak of Diphtheria at Bishop Cotton's School, Simla. E. S. Phipson.—p. 417.
Schick Test and Immunization by Toxin-Antitoxin in Assam. E. C. R. Fox, E. J. C. McDonald and T. C. McC. Young.—p. 419.
Dissemination of Human Helminthic Infections by Animals in India. G. C. Ramsay.—p. 422.
Dietary of Scholars. J. L. Das.—p. 424.
*Effect of Intravenous Injections of Antimony Tartrate on Development of Vaccinia Virus. J. Cunningham and J. A. Cruickshank.—p. 427.
Occurrence of Balantidium Coli in Feces of Indian. J. A. Sinton.—p. 432.
Cancrum Oris Treated by Excision and Subsequent Tube Grafting. L. W. Hefferman.—p. 434.

Quinin-Magnesium Sulphate Treatment of Malaria.—On the basis that the malarial paroxysm is of the nature of an "anaphylactoid" phenomenon, Sinton developed what might be termed a combined quinin-alkali treatment, thus assisting the natural defenses of the body to combat any tendency to "acidosis" or diminished alkali reserve, making the reaction of the body fluid more favorable to the optimum parasiticidal action of the quinin and at the time helping to alleviate the symptoms of cinchonism. The alkaline mixture, per dose, consists of sodium bicarbonate, 60 grains, and sodium citrate, 40 grains in 1 ounce of water. The quinin mixture consists of quinin sulphate, 10 grains; citric acid, 30 grains, magnesium sulphate, 60 grains in 1 ounce of water. One dose of each mixture, from fifteen to thirty minutes apart, is given thrice daily for four or five days and twice on each of two successive days; 180 grains of quinin is given in seven days. Very favorable reports are made from the use of this treatment.

Effect of Antimony on Development of Vaccinia Virus.—The results of experiments reported by Cunningham and Cruickshank appear to show that the intravenous injection of potassium antimony tartrate has no effect on the development of vaccinia in the calf. It is, therefore, more than likely that it has little or no effect on the development of the virus of variola in the human subject.

Irish Journal of Medical Science, Dublin

291-338 (Oct.) 1923

*Transient Unilateral Hyperhidrosis Localis Immediately Following Eating of Highly Acid Food Stuffs. R. Hall.—p. 291.
Interpretations of Sulci on Certain Bones. A. K. Henry.—p. 295.

Transient Unilateral Hyperhidrosis Following Ingestion of Acid Foods.—Hall relates the case of a man who would have a reddish blush over his right cheek bone about midway between his eye and ear immediately after eating highly acid foodstuffs such as rhubarb, stewed gooseberries, baking apples or vinegar (either hot or cold), and this was quickly followed by small beads of sweat over the blush spot, which then gradually resumed its normal appearance. Nothing was found in the general condition to account for this.

Journal of General Physiology, London

6: 1-129 (Sept.) 1923

*Effect of Radioactive Radiations and Roentgen Rays on Enzymes. II. Effect of Radiations from Radium Emanation on Pepsin in Solution. R. G. Hussey and W. R. Thompson, New York.—p. 1.
*Id. III. Unit of Measure of Activity for Radium Emanation. R. G. Hussey and W. R. Thompson, New York.—p. 7.
Minimum Concentration of Oxygen for Luminescence by Luminous Bacteria. E. N. Harvey and T. F. Morrison, Princeton, N. J.—p. 13.
Rate of Growth of Dairy Cow. III. Relation Between Growth in Weight and Increase of Milk Secretion with Age. S. Brody, A. C. Ragsdale and C. W. Turner, Columbia, Mo.—p. 21.
Id. IV. Growth and Senescence as Measured by Rise and Fall of Milk Secretion with Age. S. Brody, A. C. Ragsdale and C. W. Turner, Columbia, Mo.—p. 31.
Rate of Senescence of Domestic Fowl as Measured by Decline in Egg Production with Age. S. Brody, E. W. Henderson and H. L. Kempster, Columbia, Mo.—p. 41.
Absorption of Ions by Plants, Including Observations on Effect of Light. D. R. Hoagland and A. R. Davis, Berkeley, Calif.—p. 47.
Changes in Stability and Potential of Cell Suspensions. I. Stability and Potential of Bacterium Coli. A. H. Eggerth, Brooklyn.—p. 63.
Function of Brain in Locomotion of Polyclad Worm, Yungia Aurantiaca. A. R. Moore, Naples, Italy.—p. 73.
Studies on Toxicity. E. I. Fulmer and R. E. Buchanan, Ames, Iowa.—p. 77.
Membrane Potentials and Colloidal Behavior. A. V. Hill, Manchester, England.—p. 91.
Id. Reply to Note by Professor A. V. Hill. D. I. Hitchcock, New York.—p. 93.
Combination of Deaminized Gelatin with Hydrochloric Acid. D. I. Hitchcock, New York.—p. 95.
Location of Forces Which Determine Electrical Double Layer Between Collodion Particles and Water. J. Loeb, New York.—p. 105.

Unit of Measurement of Radium Emanation.—Hussey and Thompson introduce a unit to express activity or power of a given preparation of radium emanation. They have named this unit the curie-power and defined it as the activity of 1 curie of radium emanation. They suggest the introduction of this unit in order that more comprehensive statements of experimental observation may be made.

Journal of Laryngology and Otology, Edinburgh

38: 513-564 (Oct.) 1923

Treatment of Large Foreign Bodies Impacted in Gullet. D. R. Paterson.—p. 513.
Case in Which Endoscopic Search for Fish Bone in Gullet was Followed by Cellulitis in Neck, and Abscess in Chest Wall. N. Maclay.—p. 518.
Diseases of Thyroid in Their Relation to Laryngology. F. H. Diggle.—p. 522.
Case of Hemangioma of Right Vocal Cord. J. A. Jones.—p. 528.

Journal of State Medicine, London

31: 401-450 (Sept.) 1923

*Diet Deficiencies in Relation to Public Health. H. P. Newsholme.—p. 401.
*Mineral Constituents of Milk. W. Godden.—p. 410.
Smallpox, Jenner and Vaccination. C. K. Millard.—p. 416.
Cancer. Its Prevention. J. Brown.—p. 427.
Medical Inspection of School Children in Natal. C. G. K. Sharp.—p. 437.

Deficiency in Diet and Public Health.—In general, Newsholme says, all is likely to be well if the modern diet is supplemented by a daily supply of foods rich in vitamins, in mineral matter, and in protein of good food value. The best foods for the purpose are milk and milk products, eggs, green vegetables and fruit. With a sufficiency of these there is no reason why the rest of the diet should not consist of the cheaper foods which bulk so largely at present. The great need at the moment is that by every possible means people should be educated to a knowledge of the defects in the national diet, and of the simple precautions which can counteract its evil effects. A good deal is already being done, through the education of school children in elementary hygiene, though cookery classes, through the work of health visitors and of infant welfare centers, and of voluntary

agencies. There is, however, scope for a vast expansion of activity in these directions, with results which will be far greater than the labor involved.

Mineral Constituents of Milk.—Godden stresses the fact that the mineral constituents of milk are of the highest importance to the growing animal. Deficiency of one or more of these constituents may result in arrested growth, rickets, or anemia. When artificial feeding is necessary, care should be taken to ensure an adequate supply of a properly balanced mineral mixture in the food, using the average composition of the ash of human milk as a guide. Attention should be paid to the ratio between the percentage of ash and of the organic constituents of such artificial foodstuffs. An adequate supply of fat has a marked influence on the assimilation of calcium.

Journal of Tropical Medicine and Hygiene

26: 297-312 (Oct. 1) 1923

Malaria in Transvaal. H. A. Spencer.—p. 297.

Lancet, London

2: 687-816 (Oct. 6) 1923

Founding of the Lancet.—p. 687.
Problem of Success for Medical Women. H. Rolleston.—p. 765.
Proper Utilization of Senses. H. J. Waring.—p. 767.
"Practice." E. B. Turner.—p. 769.
Team-Work in Nature. S. Hastings.—p. 774.
*Early Experiences with Insulin in Treatment of Diabetes Mellitus. N. Burgess, J. M. H. Campbell, A. A. Osman, W. W. Payne and E. P. Poulton.—p. 777.
*Silhouette Radiogram. A. P. Bertwistle.—p. 783.
*Results of Schick Method. B. A. Peters.—p. 784.
Pregnancy Complicating Fibroids in Primipara Aged Forty-Six. A. L. McIlroy.—p. 784.
Jaw-Winking. J. A. Wilson.—p. 785.
*Diphtheria of Big Toe. E. Emrys-Roberts.—p. 785.

Action of Insulin.—The treatment over a period of 108 days of a severe case of diabetes, requiring 75 units of insulin a day, is described by Burgess and others. Figures are given illustrating the effect of insulin in diminishing ketosis in diabetes and diabetic coma. Insulin had no effect when given by mouth mixed with sodium bicarbonate or by rectum. When mixed with gum and injected subcutaneously, the absorption was a little delayed and a larger dose was tolerated. Evidence, arising out of the administration of a very large dose of insulin, showed that it causes storage of carbohydrate in some form. When the depots are full, insulin does not have such a big effect in lowering the amount of the blood sugar. The marked rise in respiratory quotient with insulin is explained on Dale's hypothesis that insulin also caused carbohydrate to be burned in preference to other foodstuffs, and the fall in oxygen intake is explained by the low specific dynamic action of carbohydrate.

Silhouette Roentgenograms.—To make silhouette roentgenograms, Bertwistle scratches the negative with a pin, carefully following the skin outline. Then he makes a print and blocks out the background with India ink. Most negatives show a well defined skin outline. The actual result is a silhouette roentgenogram, a combination which has the properties of a roentgen-ray plate and a clean cut silhouette, displaying the deformity or otherwise of the soft parts. The advantages are said to be: (1) a more striking clinical picture, often rendering a photograph unnecessary; (2) the ease with which it may be obtained; (3) the position in which the limb is photographed is indicated and (4) the cause of the whole deformity may be analyzed at a glance.

Results of Schick Method.—Two hundred and twelve persons, all members of the staff of a hospital, were tested by the Schick method. Eighty-five, or 40 per cent., gave a positive or pseudopositive reaction. Among those who had had previous attacks of diphtheria, eighteen gave a negative test (one of these had diphtheria twice) and six a positive test (one of these had also had two attacks within three years). Among the older members of the staff who had been in contact with diphtheria for periods varying from a few months to five and a half years without contracting the disease, seven gave positive reactions varying from slight to very strong. Among those giving negative tests, two developed clinically follicular tonsillitis with a profuse growth of diphtheria bacilli in culture, and three developed a definite clinical attack of diphtheria, including the author who contracted the disease after fourteen years' daily contact with it, and the ward sister who had had eight years fever nursing. Among those inoculated with toxin-antitoxin mixture, two developed diphtheria, while being immunized (not then being in contact with known cases of diphtheria), and one two months after completion of an immunizing course. Out of 127 with negative Schick tests, five, or 4 per cent., contracted scarlet fever. This suggests some relationship in the susceptibility of the two diseases and is in accord with the well known fact that those suffering from scarlet fever are highly susceptible to diphtheria, and vice versa. These results suggest that the claims for these methods are decidedly exaggerated in the presence of heavy and repeated doses of a virulent type of infection, such as was present in this area during most of the time in which these observations were made.

Diphtheria of Toe.—In Roberts' case the diphtheric lesion was limited to the site of a blister on the big toe. Bacilli were found and prompt relief followed the administration of antitoxin.

2: 817-864 (Oct. 13) 1923

Some Changes in Obstetric Practice. H. R. Spencer.—p. 817.
*Manipulative Surgery. R. C. Elmslie.—p. 821.
*Relation of Gastric Ulcer to Carcinoma. J. Morley.—p. 823.
Glaucoma. G. P. Hawker.—p. 826.
Two Cases of Dipylidium Caninum in Children. J. Ferguson and G. R. Tudhope.—p. 828.
Use of Insulin in General Practice. H. MacLean.—p. 829.
Traumatic Rupture of Hydronephrosis. J. B. Macalpine.—p. 833.
Congenital Tumor (Fibroma) of Tibia. D. D. Pinnock.—p. 833.
Future of Drug Therapy. W. E. Dixon.—p. 845.

Manipulative Surgery.—Whenever there is a possibility of improvement by well judged manipulation Elmslie urges its trial. Whenever a joint or muscle is apparently normal, yet painful, manipulation is worth a trial. Disease and mechanical defect having been eliminated, no possible harm can result, and in nine cases out of ten some minor adhesions, undetectable by clinical examination, will be felt to give and the patient will be cured. Elmslie believes that surgeons fail to cure by manipulation most often by their failure to give the method a trial.

Relation of Gastric Ulcer to Carcinoma.—The cases on which Morley bases his conclusions have been under his care and the records have all been taken by him personally or by residents under his direct supervision. The cases fall into three groups. Group 1 was a series of fifty cases of chronic gastric ulcers, removed either by partial gastrectomy or local excision. Group 2, supplementary to Group 1, consisted of ten chronic ulcers treated by simple gastroenterostomy. Group 3 was a series of fifty-six cases of clinically proved cancer of the stomach. While it cannot be denied that cancer may develop in the edge of a chronic gastric ulcer, or in some part of a stomach that is or has been afflicted by a chronic gastric ulcer, Morley asserts that his investigation provides no evidence that the development of cancer on gastric ulcer occurs with anything like the frequency claimed by some authorities. The evidence set forth in this paper points to the conclusion that a patient with a chronic simple ulcer of the stomach is little, if at all, more liable to cancer than a healthy person. Roughly, 30 per cent., of cases of cancer of the stomach give rise to symptoms which simulate more or less closely those usually associated with simple ulcer, and Morley holds that it is this ulcer simulating cancer which is responsible for the belief in the cancerous degeneration of simple ulcers.

South African Medical Record, Cape Town

21: 413-436 (Sept. 22) 1923

Microscopy of Living Eye by Means of Gullstrand's Slit Lamp. W. Mulder.—p. 415.
Case of Diabetes Mellitus Treated with Insulin. F. W. P. Cluver.—p. 421.
Benign Tertian Malaria. D. M. MacRae.—p. 424.
Epidemic Cerebrospinal Meningitis. J. P. Johnson.—p. 426.
Edinburgh Gas Pipe Frame for Fractured Femurs. A. L. McGregor.—p. 426.

Archives Franco-Belges de Chirurgie, Brussels

26: 615-710 (July) 1923

*Denervation of the Kidney. E. Papin.—p. 615.
*Tuberculous Pyosalpinx. G. Gayet.—p. 644.
*Calculus in Lumbar Ureter. M. Soubeyran.—p. 663.
Anesthesia in Surgery of the Kidney. F. Cathelin.—p. 670.

Neurectomy of the Renal Nerves.—Papin has performed this operation in twenty-seven cases, and declares it is absolutely harmless. All his patients were permanently relieved of pains in the kidney or were materially improved, without the nephrectomy which would otherwise have been required. He describes the technic and the details of some typical cases of painful hematuric nephritis or neuralgia in the kidney. He does not cut but tears the nerves in the kidney pedicle. The operation in one case was done on the remaining kidney, two years after nephrectomy for hydronephrosis.

Tuberculous Pyosalpinx.—Gayet's two personal cases and several in the literature show that a tuberculous abscess in the right adnexa can perforate into the bladder insidiously. The pus in the urine was always a casual discovery. This explains, perhaps, the rarity of these cases, and teaches that the urine should be watched in women with tuberculosis in the genital tract. The intermittent appearance of the pus is characteristic of these fistulas; with rest the pus may disappear. The fistula may become obliterated at times, like a perianal fistula. In his cases, cystoscopy had to be repeated several times before the fistula was recognized by pus issuing when pressure was applied to the abdomen. Catheterization of the ureters eliminates disease of the kidneys. Radiography is instructive, especially when the contrast suspension is injected into the fistula through a ureteral catheter. In a third case there was a history of adnexitis, but the bladder was of normal aspect and the pus came from one kidney. The prognosis is excellent after removal of the tuberculous adnexa. In one of his cases, extirpation of one tube alone cured the patient. The laparotomy must be followed by drainage into the vagina. The high fistula usually heals spontaneously, with a self-retaining catheter, but in some of the cases on record the fistula was resected.

Calculus in Lumbar Ureter.—Soubeyran removed the calculus through a lumbar incision. It was impacted in the ureter about 5 cm. below the pelvis, and measured 7 by 35 mm. In aseptic conditions, drainage is not necessary. Otherwise he recommends a retention ureteral catheter. In case the kidney is large and inflamed, decapsulation may be advisable, and fixation, if there is a tendency to ptosis.

Bulletin Médical, Paris

37: 971-998 (Aug. 25) 1923

*Normal Tonus of Vegetative Nervous System. D. Daniélopolu.—p. 977.
Examination of Vegetative System in Man. D. Daniélopolu.—p. 980.
Classification of Abnormal Conditions of the Vegetative Nervous System. D. Daniélopolu.—p. 983.
Surgery of Vegetative System. D. Daniélopolu.—p. 988.

The Vegetative Nervous System.—This issue of the *Bulletin* is devoted to Daniélopolu's survey of the vegetative nervous system. His own contributions to the subject have already been reviewed in these columns.

Journal de Chirurgie, Paris

22: 113-224 (Aug.) 1923

*Mechanical Injury of Brachial Plexus. J. Sénèque.—p. 113.
Intraspinal Anesthesia. Oudard, Jean and Solcard.—p. 134.

Mechanical Injury of Brachial Plexus.—Sénèque's seven cases show the necessity of looking for changes in the transverse process of the seventh cervical vertebra in cases of apparent neuritis of the brachial plexus. A roentgen-ray examination may reveal the cause and lead to a surgical cure.

Journal d'Urologie Médicale et Chirurgicale, Paris

16: 81-176 (Aug.) 1923

Mesothorium in Treatment of Bladder Cancer. F. Legueu et al.—p. 81.
Syphilis of the Bladder. E. F. Choeholka.—p. 85.
*Treatment of Gonorrhea with Permanganate. L. Boulanger.—p. 99.
*Ureoseeretory Coefficient. Lanzillotta and Colombet.—p. 109.
Case of Pneumaturia. L. Thévenot and Lebœuf.—p. 117.
Hypernephroma with Milky Ascites. Pervès.—p. 121.

Treatment of Gonorrhea with Permanganate.—Boulanger favors potassium permanganate in the treatment of gonorrhea.

Formula to Express Factors Governing Excretion of Urea.—Lanzillotto and Colombet made fifty-five parallel determinations of Van Slyke's and Ambard's ureosecretory coefficients. They found that both estimations give the same results, the calculation according to Van Slyke being easier. Neither coefficient is an absolute index of the renal function.

Presse Médicale, Paris

31: 769-776 (Sept. 8) 1923

*The Suprarenal Apparatus. A. C. da Costa.—p. 769.
*Syphilitic Meningitis Simulating Malaria. H. Schaeffer.—p. 772.
Tibiotarsal Osteoplastie Arthrodesis. J. M. Vilardell.—p. 773.
Work of the Council on Pharmacy and Chemistry. Cheinisse.—p. 774.

The Suprarenals.—Da Costa summarizes existing knowledge of the embryology and histology of the suprarenals, and propounds several questions which press for solution. He says that the explanations accepted to date are untenable.

Tertiary Syphilitic Meningitis.—A tuberculous origin had been assumed at first, but the Wassermann reaction in the spinal fluid and the favorable course under arsphenamin treatment confirmed the syphilitic nature of the meningitis The case was peculiar in the ague-like attacks of chills, fever and sweating. These were evidently part of the meningitic syndrome as they disappeared with recovery.

31: 777-788 (Sept. 12) 1923

Surgery of Blood Vessels. J. Goyanes.—p. 777.
Puerperal Infection and Vaginal Hysterectomy. E. Douay.—p. 781.
*Kidney Function in Mental Disease. R. Targowla and M. Badonnel.—p. 782.

Renal Insufficiency in Mental Diseases.—Targowla and Badonnel determined the ureosecretory coefficient and the elimination of phenolsulphonephthalein in patients suffering from mental diseases. Though the two tests disagreed at times, they found that impaired function of the kidneys was frequent, especially in states of confusion, mania and melancholia. Diuretics are without effect, but function becomes normal with amelioration of the mental state. Among twenty-two cases of general paralysis, nineteen had insufficiency of the kidneys.

31: 797-804 (Sept. 19) 1923

*Action of Drugs on Gastric Secretion. T. Hernando.—p. 797.
Deficiencies of Artificial Pneumothorax. Hervé and Roussel—p. 801.
*Liver Function Test. W. Filinski.—p. 803.

Action of Drugs on Gastric Secretion.—Hernando found no essential differences between the gastric secretion after an Ewald test meal, or a 5 per cent. solution of alcohol or of ether, and pure water. Atropin given by mouth or subcutaneously or 0.125 mg. intravenously diminishes the secretion and acidity. If the intravenous injection was increased to 0.25 mg. and given half an hour after the water, it had, instead, a stimulating action. If it was given one hour before the meal, the secretion was diminished. Epinephrin given by mouth or intravenously increased the secretion and acidity. Intramuscular injections had an inhibiting effect.

Liver Function Test.—Filinski gives the patient 100 gm. of glucose or 150 gm. of honey in 300 c.c. of tea, on a fasting stomach, and observes the urine in two hour portions for twelve hours, during which no proteins are taken. In thirty cases of affections of the liver, there was an increase in urobilinogen in the urine after four to ten hours. Among thirty-five controls tested, only five were positive, and even in these, some disturbance of the liver function was probable.

31: 805-812 (Sept. 22) 1923

Malaria in France. L. Rivet.—p. 805.
*Intubation of the Duodenum. Gaston-Durand and Binet.—p. 806.
*Hebephrenia and Arsphenamin. M. Page.—p. 807.
Improved Cystoscopy. L. Phélip.—p. 808.
The Canal in the Heel. A. Raiga.—p. 808.
Panereas Extract in Treatment of Eczemas of Infants. L. Cheinisse.—p. 811.

Intubation of the Duodenum.—Gaston-Durand and Binet consider radioscopic control the only reliable technic. An alkaline fluid may come from the stomach and an acid from the duodenum.

Hebephrenia and Arsphenamin.—Page had excellent results with arsphenamin treatment in five cases of hebephrenia. Syphilis was present in the antecedents of each of these five patients. Three were girls.

31: 813-824 (Sept. 26) 1923

Relations Between the Ear and the Female Genitals and Endocrines. P. Dalché and M. Labernadie.—p. 813.
Diverticula of the Duodenum. R. Bonneau.—p. 817.
*Vasomotor Line in Gangrene. A. Cosacesco.—p. 819.
Pathogenesis of Tetany. J. Rouillard.—p. 820.

Vasomotor Line in Gangrene.—Cosacesco draws a line on the extremity with a fork. The redness of the vasomotor reaction (line) resulting as well as the speed of its appearance, its continuity, intensity and duration are good indexes of the peripheral circulation as tested at various levels.

Progrès Médical, Paris

421-432 (Aug. 25) 1923

*Cutaneous White Spot. Laignel-Lavastine.—p. 421.
Relations of Epidemic Encephalitis to Paralysis Agitans. C. Achard.—p. 424.

Cutaneous Sympathetic Syndromes and the White Spot.—Laignel-Lavastine reports his observations on the duration of a white spot produced by the pressure of a finger on the skin, and other details. The temperature of the room is important. He described this sign together with Hallion in 1902.

Schweizerische medizinische Wochenschrift, Basel

53: 769-788 (Aug. 16) 1923

*Simplified Sphygmobolography. H. Sahli.—p. 769.
Active Immunization Against Diphtheria. W. Loewenthal.—p. 773.
Radium in Treatment of Lupus of Nasal Mucosa. Baumgartner.—p. 775.
Capillary Circulation in High Altitudes. P. Liebesny.—p. 777. Reply. E. Luscher.—p. 778.
"Heart Shape and Height of Diaphragm." W. Knoll.—p. 778.

Simplified Sphygmobolography.—Sahli publishes a simplified model of his sphygmobolograph.

53: 789-812 (Aug. 23) 1923

*Clinical Hematology. Naegeli.—p. 789.
*Permeability of the Meninges. L. Stern.—p. 792.
Football Contusion of Colon. A. Ritter.—p. 795.
Determination of Lipoids. E. Herzfeld.—p. 797.
*Cardiovascular Disease in Mountain Population. B. Rocco.—p. 798.
Intoxication by Iodin. M. Kesselring.—p. 801.
Thyroid Treatment of Genital Pruritus. A. Bregmann.—p. 801.

Clinical Hematology.—Naegeli sees an important hematologic improvement in the investigation of qualitative changes of the blood corpuscles. The neutrophils are degenerated in sepsis and influenza, while they are intact in epidemic encephalitis and other affections of organs derived from the ectoderm. This speaks against an identity of influenza with epidemic encephalitis. Clinically similar affections, such as anginas for instance, can be differentiated by means of hematology.

Permeability of the Meninges.—Stern prefers the term "hemato-encephalic barrier," to "permeability of the meninges." This barrier protects the central nervous system from exogenous and endogenous poisons. She found with Batelli that the direct introduction of extracts of some endocrine glands may kill the animal. On the other hand, a too strong barrier might prevent the action of necessary hormones. Monakow attributes to this barrier certain forms of mental disease. The resistance of some animals to poisons is due to this barrier. A rabbit can stand subcutaneous injections of atropin, but if it is introduced into the ventricles of the brain, the animal is as intolerant as the dog. Intoxication by certain bacterial poisons (tuberculin, diphtheria toxin) increases the passage of the substances from the blood to the cerebrospinal fluid as long as the fever lasts. Drugs introduced into the lumbar sac rarely reach the ventricles. It is probable that a similar barrier exists between the blood and other organs. The hemato-encephalic barrier allows passage of certain drugs and not of others. Bromin passes, but not iodin; morphin, but not curarin.

Cardiovascular Disease in Mountain Population.—Rocco reports his experiences with heart affections at St. Moritz. A weakness of the left ventricle with dilatation and stasis indicates the necessity for leaving the mountains. Well compensated heart defects cause no disturbance.

53: 813-832 (Aug. 30) 1923

*Insulin Treatment. H. Sahli.—p. 813.
Pancreatic Extracts in Treatment of Diabetes. Guggenheim.—p. 819.
Fight Against Cancer of Female Genital Organs. Beuttner.—p. 823.
Friedmann's Vaccine. C. Fischer.—p. 827.

Insulin Treatment.—Sahli deals especially with Zülzer's results with pancreatic extracts in 1907. They had a good influence on acidosis, though they were toxic. He claims that if the medical world had taken sufficient notice of Zülzer's work, it might not have been necessary to wait sixteen years for insulin. Insulin is a supplement to dietetic treatment. It is essential in coma and in complications of diabetes. In tuberculosis care is necessary since Blum found an unfavorable influence in this complication.

Archivio di Patologia e Clinica Medica, Bologna

2: 337-447 (Aug. 15) 1923

Displacement of Mediastinum from Sclerosis. A. Sega.—p. 337.
Volatile Fatty Acids in Feces. A. Cecchini.—p. 361.
*Hemolysins and Antilysins in Urine. L. Condorelli.—p. 393.
Present Status of Inorganic Heart Murmurs. Sacconaghi.—p. 425.

Hemolysins and Antilysins in Urine.—Condorelli found in human urine a daily excretion of about 0.40 gm. of the esters of cholesterol (chiefly oleate) and 0.70 of fatty acids. The esters of cholesterol have a protective action against hemolysis. The fatty acids could be divided into two fractions, which differ in their hemolytic properties.

Riforma Medica, Naples

39: 817-840 (Aug. 27) 1923

Treatment of Tuberculosis with Calomel Ointment. N. Pane.—p. 817.
*Agglutination by Serums in Glucose Solutions. I. Jacono.—p. 817.
Interlobar Pleurisy. E. Musante.—p. 821.
Liver Cirrhosis and Splenomegaly from Amebic Dysentery. F. Galmozzi. —p. 825.
Syphilis Infection by Bite. F. Viola.—p. 828.
Diagnosis of Perinephritic Abscess. A. Ferrannini.—p. 828.

Agglutination by Serums in Glucose Solutions.—Jacono made emulsions of bacilli in a 4.7 per cent. solution of glucose. He found that such bacilli are agglutinated by normal serum, and that the titer of specific serums is increased. He warns, therefore, against the use of a 4 per cent. glucose solution for blood broth culture mediums.

Anales de la Facultad de Medicina de Montevideo

8: 445-618 (June) 1923

*Tertiary Syphilitic Lesions. J. May.—p. 445.
Albumin Milk in Infant Feeding. R. Berro.—p. 466.
Breathing Exercises. V. Escardo y Anaya.—p. 501.
Treatment of Hyperthyroidism. J. T. Case.—p. 546.
Sarcoma of Upper Jaw. J. Barnhill.—p. 551.
Treatment of Ureteral Calculi by Cytoscopic Manipulations. A. J. Crowell.—p. 554.
Tendon Transplants in the Forearm. R. Kennedy.—p. 558.
Insulin in Treatment of Diabetes. B. Varela Fuentes.—p. 559.
*Aneurysm of Hepatic Artery. J. H. May.—p. 574.
*Treatment of Carbuncle. D. Prat.—p. 576.

Tertiary Syphilitic Lesions.—May gives nineteen illustrations of various cases, saying that 87 per cent. of the women and 50 per cent. of the men in this category were unaware they had syphilis. Some with progressing tertiary lesions in skin or mucous membrane or both gave a negative Wassermann reaction.

Aneurysm of Hepatic Artery.—Two colored plates show the aneurysm, which was a necropsy surprise.

Treatment of Anthrax.—Prat has had a mortality of 18.77 per cent. in his 309 cases of anthrax since 1915. The mortality is much higher when the lesion is on the neck or face. Specific antiserum given intravenously in large doses is the most effective treatment.

Brazil-Medico, Rio de Janeiro

2: 69-88 (Aug. 4) 1923

*Spread of Heart Murmurs. J. A. G. Fróes.—p. 69.
Arsenicals in Treatment of Syphilis. E. Tornaghi.—p. 73.
The Mosquitoes of Province of Rio. C. Pinto.—p. 77.
*Preventive Treatment of Senility. E. Berger.—p. 81.

Extensive Propagation of Heart Murmurs.—Fróes refers to murmurs that are heard over the entire trunk, comparing several personal with some collected cases. These patients are generally children, with unusually large hearts and narrow chests.

Preventive Treatment of Senility.—Berger reviews the various prophets in this line from before Solomon to Steinach. He remarks that none of them lived to a great age. Metchnikoff and Dubois died at 68, and Brown-Sequard much younger. Berger himself tried the Metchnikoff treatment for years, but his health has been so poor that he had to retire from practice at 55. He adds that it is to be hoped that Armaingaud, Fletcher and Steinach prove in their own persons the value of their theories. [Fletcher died in 1919, at the age of 70.]

2: 105-116 (Aug. 18) 1923

*Parenteral Protein Therapy in Eye Disease. E. Campos.—p. 105.
Diuretic Action of Cassava Juice. J. Marques da Rocha.—p. 106.

Parenteral Injections of Milk in Ophthalmology.—Campos has been applying protein therapy since early in 1921 in treatment of disease of the eye, and regards it as great progress in suitable cases. The relief from pain is so great that the patients clamor for new injections. It is especially effective in inflammatory processes in the cornea and iris which drag along without healing, as also when used from the start. He has trained a nurse to collect and sterilize the milk and inject it in the hospital patients or outpatients. In rebellious eczematous keratoconjunctivitis in children, the change for the better was pronounced by the second or third injection in most cases. In a few no benefit was apparent, although conditions seemed to be equally favorable.

2: 117-136 (Aug. 25) 1923

Bothriomycosis. P. Severiano de Magalhães.—p. 117.
Intertrigo from Saccharomycetes. F. Silva.—p. 119.
Symptomatology of Base of Brain. W. Berardinelli.—p. 127.

2: 137-152 (Sept. 1) 1923

*Spastic Stenosis of the Esophagus. E. Vampré.—p. 137. Conc'n, p. 158.
Plastic Operation on the Hip Joint. J. Monjardino.—p. 144.
Disease in Fishes. G. Hasselmann.—p. 147.

Spastic Stenosis of the Esophagus.—Enjolras Vampré states that this affection, known locally as *mal de engasgo*, is so prevalent in certain portions of Brazil as to suggest almost an epidemic of spasmodic dysphagia. Once acquired it is never thrown off, although there may be long intervals between attacks. In some cases the difficulty in swallowing returns so often and so intense that fatal inanition may result. In a grave case he incised the circular muscle fibers of the esophagus in two longitudinal lines at the region of the stenosis without opening the mucosa, and the spastic dysphagia was cured at one stroke. He ascribes the dysphagia to intermittent spasm of the part of the esophagus below the diaphragm. In the case described, the esophagus for a stretch of 4 or 5 cm. was contracted to the size of an ordinary pencil, above which it was much dilated. The epidemic prevalence, the enlarged spleen, and the adhesions found at the operation, suggest an infectious parasitic origin, although bacteriologic examination has been negative to date. The cardiospasm seems to be due to a chronic juxtadiaphragmatic periesophagitis. It has been observed at all ages, from infancy to 80. The cause responsible for the affection is liable to induce nervous disturbances which may suggest polyneuritis.

Gaceta Médica de Caracas, Caracas

30: 49-64 (Feb. 28) 1923

*The Medical Geography of Tachira. C. J. Bello.—p. 49. Conc'n, p. 70.

The Medical Geography of Venezuela.—At the third National Medical Congress of Venezuela, in 1921, complete reports on the diseases, medical flora and other medical aspects of the various states of Venezuela were presented by different writers, and the *Gaceta* has devoted much space to these comprehensive monographs on medical geography. Bello's is devoted to the nosography of the state of Tachira. In conclusion he compares the death rate from various diseases with the death rate of Venezuela at large. Leprosy is endemic, but beriberi is unknown.

Gaceta Médica de Mexico, Mexico City

55: 435-686 (July) 1923

*Symphysiotomy and Pubiotomy. A. López Hermosa.—p. 435.
*Stenosis of Urethra. F. Castillo Nájera.—p. 455.
*Identification of Drugs. J. M. Noriega.—p. 465.
*Transient Alexia and Anarthria. J. de Jesus González.—p. 474.
Asses' Milk. M. Cordero.—p. 483.
Koepp's Contact Glass for Genioscopy. E. F. Montano.—p. 492.
Surgical Diseases Should Be Treated Surgically. U. Valdés.—p. 494.
The Ideals of Treatment. J. Terrés.—p. 499.
*The Ovary in Menstruation. E. Ramírez.—p. 504.
*Suppurative Hepatitis and Diarrhea. E. Escomel.—p. 532.
An Experiment in Mental Hygiene. W. A. Evans.—p. 543.
Presidential Address, Academy of Medicine, 1921. German Diaz Lombardo.—p. 603. Idem., 1922. N. Léon.—p. 609.

Symphysiotomy and Pubiotomy.—López Hermosa presents arguments to prove the superior advantages of subcutaneous pubiotomy, both as regards facility of execution and prognosis. He warns that it is contraindicated in cases of genital infection, with ankylosis of the sacro-iliac symphysis, and when the shortest diameter is less than 7 cm.

Stenosis of the Urethra.—Castillo Nájera analyzes 432 cases of stenosis of the urethra. There was recurrence after operation in twenty-three cases, and one patient succumbed to pericarditis secondary to a periurethral abscess. In another case, with recovery, hemolytic streptococci were cultivated from multiple complicating suppurative processes in joints and muscles. Experience with Desnos' cylindrical electrolysis has been favorable, but he insists on the necessity for prolonged dilatation, whether or not there is any operation.

Identification of Drugs.—Twenty-nine microscopic fields are reproduced to aid in recognizing different drugs in pulverized form.

Transient Alexia and Anarthria.—González describes a case of volitional and conscious hallucinations, with disturbances of speech, all of mental origin, which he has had under observation for twenty years. The man is now aged 50, and a brother presents the same pathologic exaggeration of the imagination.

Physiology of the Ovary in Relation to Cyclic Function.—Ramírez removed the corpora lutea in three patients during operations for displacement of the uterus, the fifth, ninth and seventeenth day after a menstrual period. Each of the women, three or five days after the operation, presented hemorrhage which seemed to be normal menstruation. The significance of the interstitial tissue of the ovary for the cyclic genital processes was studied in various animals, as he describes. These interstitial cells in the ovary are found not only in mammals, but also in birds, reptiles and other vertebrates. He argues that the interstitial gland is responsible for the secondary sexual characters, including rut and menstruation. It develops from the theca of the follicle after atresia, and the products of the interstitial gland have a wide-spread influence on various functions. This influence is manifest in the blood pressure during menstruation, as also in the different reaction to an extract of the menstrual secretion, applied to a scarified area, during or outside of a menstrual period. The fact that the premenstrual symptoms subside when the menstrual flow is under way, while they persist and become exaggerated if the menstrual flow is impeded or defective, suggests that these substances generated by the interstitial cells are eliminated in the menstrual flow.

Suppuration in the Liver Cured by Emetin.—Escomel's success with emetin in amebic suppurative hepatitis has already been recorded in these columns (THE JOURNAL, Aug. 18, 1923, p. 614). In some of his twenty-five cases, the liver had been infected by amebas from alveolar pyorrhea or from the stomach, without dysentery. He begins at once the daily subcutaneous or intravenous injection of 0.02 gm. each of emetin and spartein, in 2 c.c. of distilled water, reducing the dose for children. No incision, no puncture is required. The number of injections ranges from ten to thirty.

Turpentine Treatment of Diarrhea.—Summarized, Aug. 18, 1923, p. 614, when published elsewhere. Escomel reiterates here the necessity for destroying the micro-organisms in the rectum in liver disease and diarrhea. The rectum is the hotbed for micro-organisms like the ameba, and local sterilization is an important adjuvant to the emetin treatment.

Revista de la Asoc. Méd. Argentina, Buenos Aires

36: 283-425 (July) 1923

*Removal of Pituitary in Toads. L. Giusti and B. A. Houssay.—p. 283.
Nuttalia Equi in Blood of Horses. A. Bachmann et al.—p. 288.
Results of Vaccination Against Diphtheria. A. Bachmann and J. M. de la Barrera.—p. 290.
*The Cleft Forearm Amputation. G. Bosch Arana.—p. 295.
Congenital Papilloma of Tongue. M. Ruiz Moreno.—p. 298.
*Prosthesis for Reconstruction of the Face. Giovacchini.—p. 312.
*Treatment of Acute and Chronic Rheumatism. S. Libarona Brian.— p.319.
Pseudo Cancers of the Stomach. R. Novaro and L. Bravo Zamora.—p. 332.
*Treatment of Epidemic Encephalitis. Tiburcio Padilla.—p. 344.
*Ileus from Inherited Syphilis. P. Escudero and G. Peco.—p. 348.
Collargol in Infectious Diseases. R. A. Vaccarezza.—p. 355.
*Diplopia in Epidemic Encephalitis. J. M. Obarrio.—p. 371.
Collet's Syndrome. J. C. Montanaro.—p. 399.
Infiltration with Blood as Complication of Elliot's Operation. A. Oyenard.—p. 409.
Skin Implant in Symblepharon. J. M. Jorge and P. Satanowsky.—p. 411.
Amyloid Degeneration of Conjunctiva. E. Adrogue.—p. 417.
Lagleyze-von Hippel Retinitis. R. R. Gil.—p. 422.

Removal of the Pituitary in Toads.—In this third report of research on *Bufo marinus,* the effect on the skin and genital organs of removal of the pituitary was studied. Blackening of the skin and abortions were constant.

The Radio-Ulnar Gripper Method of Amputation.—This method of slitting the forearm to enable articles to be gripped in the long cleft has been described in these columns. Five illustrations show the effective grip thus realized, enabling the subject to feed himself, etc. It is generally called the Krukenberg-Putti forceps method.

Surgical Reconstruction of the Face.—Giovacchini's illustrations demonstrate the advantages of the application of the principles of dental prostheses to aid in reconstruction of the face, and fixation of fractures to avert deformity.

Treatment of Rheumatism.—Libarona Brian states that he has treated with a glycerin extract of thyroid gland tissue fully 700 of his 1,000 patients with rheumatism, and has found it most reliable. If there is no deformity, the outlook is always favorable, regardless of the duration of the rheumatism. He gives no details of the technic beyond stating that a daily subcutaneous injection of 0.06 gm. of the *extracto glicerico de glandotirina* is sufficient. The benefit is pronounced even in a few hours after the first injection.

Treatment of Epidemic Encephalitis.—Padilla comments on the reappearance of this disease in Buenos Aires.

Stenosis of the Rectum from Inherited Syphilis.—A gummatous cellulitis in the pelvis was responsible for the ileus in the man, aged 37, with inherited syphilis. The differential diagnosis was based on the results of treatment as for syphilis, the prostate declining in size, the tumor in the left iliac fossa disappearing, and the rectum and sigmoid becoming normally permeable. The Wassermann test had been constantly negative.

Physiologic Diplopia.—Obarrio explains that diplopia as the patient rouses and wakes in epidemic encephalitis is merely an exaggeration of the physiologic diplopia. It is distinct from paralytic diplopia.

Revista Médica del Uruguay, Montevideo

26: 293-344 (July) 1923

*Puerperal Infection. A. Turenne.—p. 297.
*Parkinsonian Syndrome After Epidemic Encephalitis. C. Brito Foresti.—p. 299.
Action of Bismuth on Syphilis. J. May.—p. 310.

Puerperal Infection.—Turenne injects pituitary extract, fractioned, through the twenty-four hours and applies an icebag to the hypogastrium, and that is all. He declares that the prospects of a cure are inversely proportional to the aggressiveness of our measures, and directly proportional to the respect we show for the spontaneous tendency to organic and functional recuperation.

Parkinsonian Syndrome.—The woman, now aged 32, has presented symptoms of paralysis agitans since 1921. At that time she had an attack of what was supposed to be influenza, but the parkinsonian sequelae stamp it as an unsuspected case of epidemic encephalitis.

26: 345-388 (Aug.) 1923

Pituitary Extract. A. Turenne.—p. 345.
*Early Acute Forms of Neurosyphilis. Nonne.—p. 350.
Fixation of Bismuth in the Tissues. May and Garmendia.—p. 360.
Bismuth in Treatment of Syphilis. J. Etchechury and J. Iglesias Castellanos.—p. 363.

Acute Forms of Neurosyphilis.—Nonne recalls that acute meningitis of syphilitic origin is rare, but he has encountered five cases. The extremely acute meningitis in one young woman developed four months after infection (from a kiss). The pressure in the spinal fluid was 500 mm., but under specific treatment it had returned to normal by the sixth week. The prognosis is generally favorable under specific treatment, but one of his patients in this group, a man aged 48, developed meningitis six months after infection for which he had been given mercury and sixteen injections of arsphenamin. Resumption of specific treatment failed to avert the fatal outcome, and the microscope revealed inflammation of the pia throughout the entire nervous system. In a fifth case the febrile meningitis developed four weeks after infection, but it apparently subsided under neo-arsphenamin treatment. Headache and convulsions returned two months later, and a third time after three months more. The spinal fluid responded to all the tests each time. Necropsy four weeks later revealed a gummatous meningo-encephalitis. The treatment had been apparently thorough in these two men; the three women recovered. Nonne's experience teaches that syphilis should always be considered in every case of acute cerebrospinal meningitis. There were no characteristic features in these cases; they seemed to be ordinary epidemic meningitis.

Revista de Medicina y Cirugía de la Habana, Havana

28: 529-554 (Aug. 10) 1923

*Total Rectosigmoidectomy. R. Menocal.—p. 529.
History of Medicine in Cuba. C. M. Trelles.—p. 532.
*Phototherapy in Dermatology. Sicilia.—p. 535.

Resection of the Rectum.—Menocal was unable to determine the nature of the stenosis of the rectum on account of the profuse suppuration, which involved also the sigmoid flexure. The patient was relieved from all disturbances by extensive rectosigmoidectomy. The segment of bowel resected was hard and fibrous. The stenosis was evidently secondary to syphilitic rectitis.

Phototherapy in Dermatology.—Sicilia defines the three main groups of skin and syphilitic disease which are peculiarly amenable to radiant energy and great heat: itching dermatoses or essential pruritus, affections with torpid secretion and vitality, especially with sluggish metabolism, but above all cases calling for absorption of effusions and suffusions.

28: 555-586 (Aug. 25) 1923

*Treatment of Genital Prolapse. E. Stincer.—p. 555.
Distomatosis of the Liver. W. H. Hoffmann and A. Guerra.—p. 558.
*Epidemic Nephritis? A. Chardiet.—p. 562.

Treatment of Genital Prolapse.—Stincer has been gratified by the satisfactory outcome in five cases in which after subtotal abdominal hysterectomy he applied Presno's method of fastening the stump. Stout catgut is passed diagonally through the stump of the cervix from each side. The two catgut threads cross in the center. The anterior and posterior ends of the catgut are passed through the rectus muscles and their sheaths. When the ends are tied, the stump is supported and is protected by the muscle; no by-effects have been observed.

Is There an Epidemic of Nephritis?—Chardiet is inclined to answer his question in the affirmative as he has encountered so many cases of nephritis recently. Several members of the household were affected at the same time with an acute nephritis for which no special cause could be discovered. He cites Osler's reference to an Italian epidemic of acute primary infectious nephritis, similar to the cases he has observed. In none of the cases had there been recent tonsillitis, scarlet fever or influenza to explain the kidney affection. The nephritis was of the edema type, with notable albuminuria and fever. Anuria was often pronounced from the first day, and uremia was the cause of death. To date, he says, only children have been affected.

Deutsche medizinische Wochenschrift, Berlin

49: 1039-1072 (Aug. 10) 1923

Testing "Bayer 205" in Africa. F. K. Kleine and Fischer.—p. 1039.
*Gradation of Specificity. M. Westenhöfer.—p. 1041.
*Nonspecific Agglutination. H. Curschmann.—p. 1045.
*Serotherapy of Cancer. Blumenthal and Halberstaedter.—p. 1046.
Possibilities with Intravital Staining. Seyderhelm and Lampe.—p. 1049.
Protein Therapy in Gynecology. F. Wolff.—p. 1051.
Isodose Charts in Roentgenotherapy. C. Gottlieb.—p. 1054.
Diagnosis of Pregnancy with Phlorizin. Dowig.—p. 1056.
Treatment of Mucosa of Uterus. A. Steiger.—p. 1057.
*Headaches After Lumbar Puncture. A. Calmann.—p. 1058.
Cantani's Diet in Treatment of Tendency to Oxalate Kidney Calculi. J. Fleischer.—p. 1058.
Medicolegal Questions Affecting the Profession. Ebermayer.—p. 1059.

Gradation of Specificity.—Westenhöfer considers a local augmentation of living and not living species-specific substances as the main feature of inflammation. He calls it gradation of specificity (*Artsteigerung*) and explains that it is only a stronger reaction than the necessary physiologic vital process. There is no teleologic view in his theory. It makes no distinction from the biologic standpoint between an inflammation that ends in restitution or in a caseous pneumonia. The gradation of specificity is most pronounced in the mesenchyma, though other tissues may be capable of it likewise (therefore he admits a parenchymatous inflammation.) Immunity is the result of an internal secretion of the mesenchyma. Inflammatory tumors present this gradation of specific character, while real neoplasms signify a loss of it.

Nonspecific Agglutination After Antityphoid Vaccination.—Curschmann finds that many influenza patients show an early rising and quickly passing agglutination of typhoid bacilli (up to 1:400), if they have been vaccinated against typhoid in the last three or four years.

Serotherapy of Cancer.—Blumenthal and Halberstaedter find that no method tested so far can compare with radiotherapy, though even this cannot be considered an unconditional cure. The only hope which such attempts give lies in the fact that they demonstrate that it is sometimes possible to influence malignant tumors—we do not know why some can be influenced while others are resistant.

Headaches After Lumbar Puncture.—Calmann reports a case of typical headache after five unsuccessful attempts to make a lumbar puncture. The contemplated intraspinal anesthesia was consequently abandoned, and the operation was done under general anesthesia. He believes therefore that the headache is caused by meningeal irritation and not by loss of cerebrospinal fluid, as no fluid had been drawn in this case.

49: 1073-1106 (Aug. 17) 1923

Treatment of Diabetes with Insulin. W. Ercklentz.—p. 1073.
*Structure of Polymeric Carbohydrates. P. Karrer.—p. 1074.
*The Blood After Phlorizin. L. Dünner and H. Berkowitz.—p. 1075.
*Movements of Capillaries. Schickler et al.—p. 1077.
Malaria and Blackwater Fever. Kuttner and Loewenberg.—p. 1080.
Psychopathology of Asthma. Schultz and Reichmann.—p. 1081.
*Arsenic in Cerebrospinal Fluid. C. Bruhns and H. Dittrich.—p. 1082.
Goiter in School Children. H. Franck.—p. 1084.
Treatment of Torpid Wounds. F. G. Meyer.—p. 1085.
Trichophytosis in Children. E. Langer and E. Rosenbaum.—p. 1086.
Interval Diagnosis of Epilepsy. L. Focher.—p. 1087.
Habitual Epistaxis. Boenninghaus.—p. 1088.
Chloroform Treatment of Typhoid. A. Eeck.—p. 1089.
Spasmophilia in Nurslings. G. Weyl.—p. 1090.
Wound Infection with Swine Erysipelas. Philippsthal.—p. 1090.
Chemotherapy with Acridin. Bieling.—p. 1090.
Collection and Distribution of Human Milk. O. Hilgenfeldt.—p. 1092.

Structure of Polymeric Carbohydrates.—Karrer reviews the new investigations on the constitution of polymeric carbohydrates. Starch and glycogen seem to be polymers of maltose, not of glucose. There are hardly any essential differences between the two substances.

The Blood After Phlorizin.—Dünner and Berkowitz found eukopenia after injections of phlorizin. Jungmann found that the relative number of erythrocytes decreases likewise. The refraction of the serum remains constant. It is therefore probable that the changes are due to a different distribution of blood corpuscles in the body, analogous to that of a hemoclastic crisis.

Movements of the Most Peripheral Part of Capillaries.—Schickler observed in local hyperemias rhythmic contractions of the capillaries at intervals of about ten seconds.

Arsenic in Cerebrospinal Fluid.—Bruhns and Dittrich found arsenic in the cerebrospinal fluid an hour and a half after intravenous injection of neo-arsphenamin in three only of twenty-five patients. When hypertonic salt solution was injected beforehand, no arsenic was found in any of another series of twenty-five patients.

Klinische Wochenschrift, Berlin

2: 1533-1580 (Aug. 13) 1923

Anaerobic Bacilli. J. Zeissler.—p. 1533.
*Daily Output of Bile. Brugsch and Horsters.—p. 1538.
*Tetany and Alkalosis. E. Freudenberg and P. György.—p. 1539.
Treatment of Diabetic Coma with Insulin and Epinephrin. M. Lauritzen.—p. 1540.
*Gastro-Enterostomy as a Disease. B. O. Pribram.—p. 1542.
*Blocking Nerve in Whooping Cough. C. B. Schroeder.—p. 1545.
Clinical Determination of Diastase. A. Adam.—p. 1548.
*Influence of Bicycle Riding on Size of Heart. H. Herxheimer.—p. 1549.
Differentiation of Circumscribed Shadows in the Apical Region by Swallowing. J. Erdélyi.—p. 1551.
Quantitative Determination of Bilirubin in Urine. E. Schilling.—p. 1552.
"Epinephrin Reaction in Man." F. O. Hess.—p. 1553.
Motor Innervation of Diaphragm. K. Schlaepfer.—p. 1554.
*Complement Fixation in Tuberculosis. G. Seiffert.—p. 1554.
Fusospirillar Phlegmon of the Floor of the Mouth. A. Niedermeyer.—p. 1555.
Sarcoma of Midbrain Simulating Epidemic Encephalitis. Sakorrafos.—p. 1556.
Management of Delivery in Atypical Positions of Fetal Head. A. Seitz.—p. 1556.
Pulmonary Tuberculosis in School Children. W. Stephan.—p. 1559.
Pharmacology of Uterus. Kochmann and de Veer.—p. 1560. Conc'n.

Daily Output of Bile and Means to Influence It.—Brugsch and Horsters call the secretion of bile "choleresis" (analogous to diuresis), and believe that it may partly substitute for insufficient excretion of urine. Hemosiderosis is due to an insufficient excretion of iron by the liver. Phenylcinchoninic acid has a marked "choleretic" action.

Tetany and Alkalosis.—Freudenberg and György consider changes in the ionization of calcium as the main factor in the pathogenesis of tetany. A lowering of the calcium ion level in the blood (not necessarily the total calcium content) may be due to changes in the hydrogen ion concentration (respiratory tetany), bicarbonate concentration (gastric tetany or bicarbonate feeding in insufficient kidneys) or the concentration of phosphate ions (in essential tetany). An acceleration of the respiration of the tissues causes an alkalotic tendency in the metabolism. The potassium and phosphate ions which accelerate breathing are augmented in the blood in tetany, while the depressing calcium ions are decreased. Injections of epinephrin may cause a paradoxic hypoglycemic reaction in alkalosis. The blood sugar is decreased in tetany.

Gastro-Enterostomy as a Disease.—Pribram has seen so many patients with disturbances after retrocolic gastro-enterostomy, that he considers the condition as a morbid entity. The mechanical explanations are not sufficient. It seems that the disturbances are due to functional and reflex changes. A paradoxic slowing down of the evacuation, in spite of the double opening (pylorus and anastomosis) and a hypersecretion after the meal has left the stomach, are frequent symptoms. The operation in ptosis is followed almost regularly by an increase in the disturbances. While an ulcer may heal spontaneously, or under dietetic or protein treatment, there is no help in such cases of gastro-enterostomy except by resecting and restoring simple conditions. Gastro-enterostomy does not prevent the two dangerous complications of ulcers (bleeding and perforation). It should be reserved exclusively for cicatricial stenosis.

Blocking Nerve in Whooping Cough.—Schroeder had bad results with injection of alcohol into the superior laryngeal nerve in children suffering from whooping cough.

Influence of Bicycle Riding on Size of Heart.—Herxheimer found that bicycle riders have larger hearts than men devoted to other sports (including runners and long distance ski runners).

Complement Fixation in Tuberculosis.—Seiffert found that an extract of beeswax prepared in the same way as Boquet and Négre's antigen (combined acetone and methyl alcohol extraction at 75 C.) has properties similar to those of extracts of tubercle bacilli. Lecithin does not seem to be important.

2: 1581-1628 (Aug. 20) 1923

Surgical Treatment of Pulmonary Tuberculosis. G. Baer.—p. 1581.
*Gallbladder Evacuation Reflex. W. Stepp and G. Düttmann.—p. 1587.
*The Peptone Gallbladder Reflex. E. Pribram.—p. 1590.
Sedimentation of Erythrocytes. G. Musa.—p. 1591.
Treatment of Migraine with Phenobarbital. J. Strasburger.—p. 1592.
Contrast Suspension Enema and Insufflation of Colon for Roentgen Examination. A. W. Fischer.—p. 1595.
Digestion Leukocytosis. F. Glaser.—p. 1598.
Calcium and Potassium Content of Blood in Eczema. E. Urbach and F. Simhandl.—p. 1600.
Galvanopalpation. A. Müller.—p. 1602.
"Smallpox in Switzerland." Ascher.—p. 1603.
*Inorganic Substances in Fine Dispersion. W. Heubner.—p. 1603.
Quinin Sensitiveness of Serum and Organ Lipases. Krömeke.—p. 1604.
Surgical Treatment of Hematometra. K. Hellmuth.—p. 1604.
Alveolar Pyorrhea. Present Status. H. Euler.—p. 1605.
Tuberculosis Dispensaries in Clinical Teaching. P. Krause.—p. 1610.

Gallbladder Evacuation Reflex.—Stepp and Düttmann obtained thick bile from the gallbladder by injecting a 5 or 10 per cent. solution of peptone into the duodenum. They observed the contraction of the gallbladder directly on dogs. An oil emulsion, magnesium and sodium sulphate, and certain mineral waters, had similar effects. A spasm of Oddi's muscle was not overcome by atropin, papaverin, or other drugs. Hot dressings applied on the gallbladder region seemed to accomplish the purpose better. The infusion of the peptone solution provoked sometimes a spasm of this muscle.

The Peptone Gallbladder Reflex.—Pribram observed contractions of the gallbladder after duodenal injection of peptone during operations on human subjects.

Action of Inorganic Substances in Fine Dispersion.—Heubner observed a typical intoxication with ascending paralysis in animals after calcium salts. Combination with phosphate enhanced both the antichemotic and the paralyzing action, especially when given as a very fine suspension of calcium phosphate. Other inorganic substances in a fine dispersion had a similar action.

Medizinische Klinik, Berlin

19: 1143-1180 (Aug. 19-26) 1923

*Toxemia of Pregnancy. H. Sellheim.—p. 1143.
*Changes in Leukocyte Count. Glaser and Buschmann.—p. 1144.
*Early Neurosyphilis. H. Pette.—p. 1147.
Results of Supravaginal Amputation and Castration in Tuberculosis. F. Siegert.—p. 1150.
Rare Injuries of Orbit; Two Cases. C. Holste.—p. 1151.
Megacolon. H. Zoepffel.—p. 1152.
Exophthalmic Goiter with Liver Atrophy. Raab and Terplan.—p. 1154.
*Catarrhal and Syphilitic Jaundice. E. Klopstock.—p. 1156.
Tracheotomy and Tuberculosis of Larynx. v. Tóvölgyi.—p. 1157.
Roentgen Treatment of Polycythemia. A. Mosenthal.—p. 1158.
Meinicke's Turbidity Reaction. G. Sato.—p. 1160.
Survey on Physiology and Pathology of Stomach. W. Wolff.—p. 1165.
Urological Survey. Paschkis.—p. 1166.
Experimental Radiologic Research. Holfelder.—p. 1168. Conc'n.

Toxemia of Pregnancy.—Sellheim points out that animals do not suffer from eclampsia. He believes that the reason for its occurrence in women lies in the fact that childbearing is a much greater strain than pregnancy in animals. The upright posture and the size of the brain of the fetus have contributed much to the difficulty of labor. The energy requirements for the development of a human fetus are much greater than for the same weight of an animal. Childbearing is such a strain that it borders on the pathologic. Overeating with proteins is one of the causes why eclampsia is more frequent in towns than in the country or among savages.

Spontaneous Changes in Leukocyte Count.—Glaser and Buschmann found in 55 per cent. of 333 patients spontaneous changes in the number of leukocytes (over 2,000 in 1 c.mm.). If they repeated the count on three different days, they found similar changes in 90 per cent. of their subjects. The changes are less frequently (in 25 per cent.) pronounced in the venous blood. These spontaneous fluctuations account for many findings of so-called digestive leukocytosis and hemoclastic crises.

Early Neurosyphilis.—Pette believes that the early syphilis of the central nervous system has become more frequent since the introduction of arsphenamin. All his patients, except three, had been treated with insufficient doses.

Catarrhal and Syphilitic Jaundice.—Klopstock finds that the speed of sedimentation of blood corpuscles is increased in syphilitic (and infectious) jaundice while it is decreased in simple catarrhal jaundice.

Monatsschrift für Kinderheilkunde, Leipzig

26: 433-544 (Aug.) 1923

Analysis of Buttermilk and Other Sour Milk. C. Meyer.—p. 433.
*Treatment of Dyspepsia. A. Adam.—p. 439.

Treatment of Dyspepsia.—Adam declares that the main aim in treatment of dyspepsia should be the suppression of colon bacilli. He reports good results with the use of milk poor in fat and rich in calcium.

Wiener klinische Wochenschrift, Vienna

36: 603-618 (Aug. 23) 1923

*Action of Iodin on the Thyroid. B. Breitner.—p. 603.
Acute Leukemia and Leukosarcomatosis. D. Scherf.—p. 605.
*Acetonuria in Pregnancy. Pritzi and Lichtmann.—p. 609.
*Tuberculosis of Skin as Systemic Disease. F. Fischl.—p. 611.

Action of Iodin on Thyroid.—Breitner believes that iodin activates the stored colloid in the goiters. In parenchymatous goiters it causes at first an inhibition of the output. The differences in the action of iodin in exophthalmic goiter may be due to a different etiology of the goiter.

Acetonuria in Pregnancy.—Porges and Novak found that acetone appears in the urine of pregnant women in a few hours after starting a diet free from carbohydrates. Pritzi and Lichtmann examined fifty-seven women and had only 10 per cent. of nonconcordant results.

Tuberculosis of Skin as Systemic Disease.—Fischl confirms Löwenstein's theory: The skin acquires a predisposition to tuberculosis, if the first infection occurred in it. Tuberculosis of the skin is rarely associated with a progressive tuberculous affection of other organs.

36: 619-634 (Aug. 30) 1923

*Tangential Percussion. L. Karczag.—p. 619.
Tuberculosis in Infants. K. Barchetti.—p. 622.
Action of Human Serum in Diabetics. R. Latzel.—p. 625.
Treatment of Anxious Conditions with Drugs. L. Stein.—p. 827.
Training of Physicians in the Care of Children. Gottlieb.—p. 628.

Tangential Percussion.—Karczag puts a finger or an ivory rod vertically on the body and taps it parallel to the surface of the skin. The percussion has to be light. The method has given him good results in the sternal region.

Zeitschrift für Kinderheilkunde, Berlin

36: 1-62 (Aug. 22) 1923

Coccygeal Teratoma in the New-Born; Two Cases. L. Heidenhain and G. B. Gruber.—p. 1.
*Anthropometric Examinations of Adolescents. E. Nobel.—p. 13.
Goiter in Children in Austria. E. Nobel and A. Rosenblüth.—p. 17.
Scurvy and Infection. R. Stern.—p. 32.
Diuresis Test in Infants. W. Lasch.—p. 42.
*Prognosis of Osteogenesis Imperfecta. L. Stecher.—p. 58.

Anthropometric Examinations of Adolescents.—Nobel measured 6,467 adolescents in Vienna in a manner similar to that employed in 1920 by the American relief commission. The figures indicate improved conditions, which he attributes partly to the American relief action.

Prognosis of Osteogenesis Imperfecta.—Stecher shows by three cases that the prognosis with idiopathic osteopsathyrosis is not absolutely bad as to strengthening of the bones.

Zentralblatt für Chirurgie, Leipzig

50: 1313-1344 (Aug. 25) 1923

Pylorectomy in Gastric Ulcer. M. Madlener.—p. 1313.
Nasopharyngeal Fibromas. Birkholz.—p. 1318. Comment. Coenen.—p. 1322.
Vaccine Therapy in Echinococcus Disease in Lung. Petrow.—p. 1322.
Nitroglycerin in Surgery. F. Franke.—p. 1325.
*Sedimentation of Erythrocytes in Surgery. E. Rothe.—p. 1328.

Diagnostic Value of Sedimentation of Red Corpuscles in Surgery.—Rothe points out that accelerated sedimentation of erythrocytes is usually present in oligocythemia and all processes in which the resorption of waste products is increased (all inflammatory processes, fractures, sterile wounds, pregnancy and malignant tumors). In surgery the reaction is important in the field of bone pathology. The method is of great value also for the diagnosis and prognosis of pulmonary tuberculosis. Normal sedimentation will usu-

ally exclude active tuberculosis. It remains to be seen whether it will be possible to make sedimentation findings, like the Wassermann test, relatively specific.

Zentralblatt für Gynäkologie, Leipzig

47: 1361-1392 (Aug. 25) 1923

*Serodiagnosis of Syphilis in Pregnancy. L. Handorn.—p. 1361.
A Rare Dermoid Formation of the Ovary. L. Schoenholz.—p. 1363.
Treatment of Puerperal Sepsis. Conrad.—p. 1374.
Eventration or Relaxatio Diaphragmatica in New-Born. A. Hillejan.—p. 1383.

Serodiagnosis of Syphilis in Pregnancy.—Opitz, Stühmer and Dreier, Esch and Wieloch report that they have often seen positive Wassermann reactions in healthy pregnant women and in puerperants. Handorn had each of seventy-two blood specimens from fifty-one healthy women (pregnant, parturients and puerperants) examined in three different laboratories. In two of the laboratories all the blood specimens gave in every instance completely negative reactions; in one laboratory one specimen gave a weakly positive reaction, and in five instances there was a doubtfully positive reaction. Handorn recommends in doubtful reactions that the clinician endeavor to have blood specimens examined in several different laboratories, unless he is sure that the laboratory that does his work has reached the point of accuracy where nonspecific reactions do not occur.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 557-660 (Aug. 11) 1923

*Blocking the Splanchnic Nerve. Hustinx.—p. 558.
Leukocyte Count Directly After Blood Transfusion. H. L. M. van der Hoff.—p. 571.
*Occupational Eye Disturbances. C. Bakker.—p. 576.
Relative Slowing of Pulse in Sepsis. H. B. Goettsch.—p. 585.
*Bacteriophagy. N. van der Walle.—p. 589.
*The Exudative Diathesis. C. de Lange and A. Lommen.—p. 624.

Blocking the Splanchnic Nerve.—Hustinx adds 119 cases to those on record which brings to 1,375 the number of operations done under anesthesia of the splanchnic nerves in the last two or three years. Four deaths have been recorded. The Braun technic is more certain, but the Kappis technic anesthetizes all viscera above the pelvis. A combination of the two seems to be preferable. Complications on the part of the respiratory organs are reduced to the minimum, but are not entirely done away with. The needle must be fully 14 cm. long, and it is a great improvement to introduce it in a sheath, pushing the tip beyond the sheath only at the deepest point.

Occupational Ocular Disturbances in Manufacture of Artificial Silk.—Bakker's experiments apparently exculpated sulphureted hydrogen as responsible for the superficial keratitis he describes. The smarting, photophobia and pain usually had subsided by the next day, but recurrences were frequent. He is inclined to incriminate the arsenic when ventilation is defective. Only the workers at the spinning machines were affected, and sometimes several were affected at once. The smoke and odor from frankincense strewed on live coals proved an effectual means for studying the air currents in the factory.

Bacteriophagy.—Van der Walle reviews the extensive literature on bacteriophagy which is still, he says, almost as much of a mystery as ever. The bacteriophage seems to be ubiquitous; it has been found in urine, in effusions, blood, Seine and sea water, and in soil. It stands heating to 58 C. for an hour, and contact with phenol in less than 10 per cent. solutions. It does not seem to be affected by emetin, caffein, strychnin or morphin. The results are conflicting in regard to its use in clinical therapeutics. Typhoid bacilli carriers have not been freed of their bacilli even by injection of large amounts of the bacteriophage. The by-effects from injection of the bacteriophage are slight and transient, and we must remember d'Herelle's experience that the toxicity progressively declines; the amount that might kill a rabbit in one day is borne without disturbance a month later.

Emetin in the Exudative Diathesis.—De Lange remarks that pediatricians have been using emetin in the exudative diathesis for some years. It sometimes proves useful. Lommen has found that it may occasionally render good service in rebellious scrofula in children. When it fails, he injects blood from a close relative. He has never witnessed untoward effects.

2: 661-772 (Aug. 18) 1923

*Miliary Tuberculosis. G. O. E. Lignac.—p. 662.
Differences and Resemblances Between Tuberose Sclerosis and Neurofibromatosis. F. S. van Bouwdijk Bastiaanse.—p. 673.
*Medical Practice and Research. Sir Humphrey Rolleston.—p. 677.
Adult Hip Joint with Congenital Dislocation. H. Timmer.—p. 689.

Miliary Tuberculosis.—In the case described by Lignac, the hematogenous chronic miliary tuberculosis was overshadowed by the chronic meningitic symptoms. The diagnosis of the miliary disease was made first from the tubercle in the choroid, and Hartwich has reported recently that general miliary tuberculosis was found in 50 per cent. of all his cases of tubercle in the choroid. In 198 cases of miliary tuberculosis the microscope revealed a tubercle in the choroid in all but 3.

Clinical and Other Methods of Medical Practice and Research.—Rolleston remarks that the difference between the laboratory worker and the practising physician is that the former devotes himself to the complete solution of one problem while the latter attempts to solve a large number of perhaps more difficult problems in the course of the day's work, and often has to be content with but partial explanations. He says that the present era of study of disorders of function "threatens the passing of morbid anatomy. This has certainly occurred in America where basal metabolism is much in favor; for example, in the thirty-eight hospitals of Chicago, 1921, the percentage of necropsies in fatal cases was 15, and only 2.5 per cent. in 852 deaths in ten general hospitals." He concludes his sketch with the statement that as so much depends on the personnel and ideals of those responsible in group medicine, the "diagnostic clinics" do not all appear to have given satisfaction. "There is still a risk that specialization may be undertaken too early in a medical man's career."

2: 861-956 (Sept. 1) 1923

Ring-Shaped Crystalline Lens. M. W. Woerdeman.—p. 862.
*Microtest for Glucose in Body Fluids. B. K. Boom and M. M. G. Woensdregt.—p. 867.
Comparative Sensory and Motor Tests. J. Lubsen.—p. 873.
Associated Malaria and Typhoid. A. van Dongen.—p. 883.
Insulin in Case of Diabetes. G. Berg.—p. 884.
The Old Hospitals of Amsterdam. G. Hellinga.—p. 886.
Practice of Medicine in 1817. A. J. van der Weyde.—p. 902.

Microtest for Glucose in Body Fluids.—Boom and Woensdregt endorse the micromethod they describe which they have found simple, rapid and reliable. The blood is freed from albumin and then reduced with cupric sulphate and compared with a 0.02 per cent. solution of glucose, after treating with the Folin-Wu reagent. They regard the blood sugar range in health, fasting, as 0.1 per cent., from 0.081 to 0.127 per cent.; after a test meal, 0.13 per cent., never more than 0.15 per cent. There was no glycosuria with less than 0.165, while it was always manifest with more than 0.17 per cent. except with chronic nephritis. The average glucose content of the normal cerebrospinal fluid is 0.07, ranging from 0.66 to 0.08 per cent. The technic is a modification of Ponder and Howie's; requires only 0.2 c.c. of blood, and can be applied to a number of patients at a time. The findings in 21 diabetics and 22 nondiabetics are tabulated.

Acta Medica Scandinavica, Stockholm

58: 313-514 (Sept. 6) 1923

*Lumen of Bronchioli with Varying Air Pressure. C. Sonne.—p. 313.
*Nitrogen Retention and Increased Blood Pressure. E. Kylin.—p. 342.
*Polyarthritis and Salicylate Treatment. Ehrström and Wahlberg.—p. 350.
*Normal Thoraco-Abdominal Reflexes. A. Barkman.—p. 364.
*Threshold of Glycosuria. K. Faber and K. M. Hansen.—p. 372.
The Nervous System in Exophthalmic Goiter. J. Holst.—p. 396.
Size of Lungs in Health. C. Lundsgaard and K. Schierbeck.—p. 470.
Chest Measure and Size of Lungs. Idem.—p. 486.
*Size of Lungs with Mitral Defect. Idem.—p. 495.

Lumen of Bronchioli in Different Air Pressures.—Sonne's tracings show that the bronchioli dilate according to the difference of the pressure within and without the lung. The inspiratory position in an attack of bronchial asthma serves to overcome the contraction of the bronchioli.

Nitrogen Retention and Increased Blood Pressure.—Kylin considers increased blood pressure and nitrogen retention as two entirely independent symptoms. The usually high con-

centration of uric acid in the blood in patients with hypertension is a phenomenon parallel to hyperglycemia, and is due to a disturbance of the purin metabolism, not to retention.

Polyarthritis, Heart Disease and Salicylate Treatment.—This article was reviewed May 19, 1923, p. 1496, when published in the local (Helsingfors) journal.

Normal Thoraco-Abdominal Reflexes.—Barkman found that irritation of the fourth to eighth intercostal spaces produces contractions of the first three segments of the abdominal rectus muscle. In many instances isolated contraction of the different segments could be provoked. In healthy subjects the reflexes are never unilateral.

Threshold of Glycosuria and the Errors Involved.—Faber and Hansen demonstrate that the level of blood sugar at which glycosuria appears is fairly constant in the same individual. The carbohydrates allowed should be fractioned in three equal parts daily, as the patient is thus able to tolerate more of them than if they were given in one portion.

Size of Lungs with Mitral Defect.—Lundsgaard and Schierbeck examined the lung capacity in twelve patients with lesions of the mitral valve. They found that the first change is an increase in the residual air. Then the total capacity starts to decrease and later the residual air decreases also.

Hospitalstidende, Copenhagen

66: 573-588 (Aug. 15) 1923

*Gonococcus Sepsis. E. W. Gøthgen.—p. 573.

Gonococcus Sepsis.—Gøthgen urges prompt bacteriologic examination of the blood in every case of sepsis. In the case described in a man, aged 50, the lymphangitis of the arm, fever, slight jaundice and polyneuritis proved to be a manifestation of gonococcus sepsis. The knee and elbow suppurated by the third week and gonococci were found in the pus. There was a history of gonorrheal urethritis twenty-seven years before, but the genital organs seemed normal during the sepsis except that the prostate was slightly enlarged, and gonococci were found in the secretion after massage. Under passive hyperemia and antigonococcus vaccine the symptoms rapidly subsided. The prognosis in gonococcus sepsis depends mainly on whether the heart is involved or not. Antimeningococcus serum has often proved promptly effective in treatment of gonococcus sepsis. Citron published in 1921 a case with prompt recovery under two injections of 50 c.c. of meningococcus antiserum. Heresen, Barbe and others have reported prompt recovery from gonococcal adnexitis, rheumatism and polyarthritis under antimeningococcus serum. Gøthgen is inclined to accept a long latent gonococcal prostatitis in his case, roused by a recent unusual abuse of alcohol, entailing congestion in the pelvic organs and sweeping away some small thrombus.

66: 589-604 (Aug. 22) 1923

*Adenoid Vegetations. Monrad.—p. 589.

Adenoid Vegetations and the Exudative, Lymphatic Diathesis.—Monrad states that in 150 children with adenoid vegetations in his charge, 1921-1922, all but 16 presented signs of the exudative-lymphatic diathesis. He insists that treatment should be directed to the latter and no attempt should be made to remove the adenoids unless emergency demands, or there is no tendency to the exudative diathesis. In all other cases he advises to wait patiently for a year or two to allow the adenoids to subside spontaneously under dietetic treatment of the diathesis. In 100 of his cases the removal of the adenoids had given only transient relief, if any, the growths promptly recurring. Satisfactory results were realized from tonsillotomy only in 7 of 23 cases.

Ugeskrift for Læger, Copenhagen

85: 541-564 (Aug. 2) 1923

*Otogenous Meningitis. H. Mygind.—p. 541.
Recent Studies of Measles. O. M. Henriques.—p. 545.
*Venereal Disease in Denmark. S. Lomholt.—p. 555.
The Pharmacy Question. Winslow.—p. 560.

Otogenous Meningitis.—Mygind relates that among 150 meningitis cadavers he found 4 in which nothing was discovered to explain the symptoms of otogenous meningitis during life. The meningitis had evidently completely subsided although the secondary changes had proved fatal. In 27 per cent. of 67 fatal cases the lumbar puncture fluid was sterile although bacteria were found postmortem. Polymorphonucleosis was pronounced in all but one case. He always performs craniotomy, especially in the middle cranial fossa. If the dura shows no signs of a deep process, he stops here. Repeated lumbar puncture not only allows oversight of the course of the meningitis but relieves the pressure, and is directly curative. He has also found an antistreptococcus serum useful. Recovery is the rule in otogenous meningitis when the primary focus is not too close and pleocytosis is slight or moderate. After removal of the primary focus, the meningitis subsides. But there is no arresting the meningitis when it develops like the explosion of a powder barrel.

The Control of Venereal Disease in Denmark.—This article was prepared for the Pasteur Centennial Hygiene Exhibition and was reviewed in The Journal, Nov. 3, 1923, p. 1553.

85: 565-580 (Aug. 9) 1923

*Experimental Hermaphroditism. K. Sand.—p. 565.
Case of Gallbladder Ileus. H. Friderichsen.—p. 574.

Experimental Hermaphroditism.—Sand has been conducting research in this line for years. He here describes the results in three series of guinea-pigs, about 1 month, 3 months or 12 months old, in which gonads of the opposite sex had been transplanted. Ovaries transplanted into the testes showed that the sexual characteristics were still transversible, hormone-susceptible, even when puberty was well advanced, as well as in the younger animals. But the experiments always failed in the adult animal. The mammae in the male can enlarge and secrete milk merely under the influence of an ovary implanted in the testes. The bisexual characters at first gradually changed so that one or the other sex finally predominated. This field of experimental hermaphroditism has demonstrated that even the microscope is too coarse an instrument to explain all the facts observed.

85: 581-596 (Aug. 16) 1923

Distribution of Diphtheria Bacilli. M. Christiansen.—p. 581.
*Gonococcal Bursitis. E. Petersen.—p. 586.
*Prophylaxis of Ophthalmia Neonatorum. G. Norrie.—p. 587.

Gonococcal Bursitis.—The bursa in front of the left patella of the young woman suppurated, and gonococci were cultivated from the pus and also from the urethra. Rapid recovery followed incision of the bursa and local treatment of urethra and vagina.

Ophthalmia Neonatorum.—Norrie states that in 1900 the Credé silver nitrate instillation was made compulsory in Denmark. In the twenty years before this, in 13.7 per cent. of the 365 blind inmates of the blind asylum ophthalmia neonatorum was incriminated; in the twenty years since then, only in 8.8 per cent. of the 372 inmates. Since 1905, there have been only 8 cases in all. It is possible that gonococcus infection after delivery may have been responsible for the infection in some of these cases.

85: 597-614 (Aug. 23) 1923

*Medical Examination of Intoxicated Motorists. J. Fog.—p. 597.
Internal Treatment of Glaucoma. S. Sander-Larsen.—p. 603.
Postgraduate Training for Practitioners. S. Alsted.—p. 607. Conc'n, p. 663.

85: 615-628 (Aug. 30) 1923

Diagnosis by Pain Zones. T. B. Wernøe.—p. 615.
Functional Dyspepsia. I. Freuehen.—p. 616.

85: 629-652 (Sept. 6) 1923

Rickets and Tetany. C. Friderichsen.—p. 629.
Tuberculin Treatment of Renal Tuberculosis. C. A. Blume.—p. 630.

Medical Examination of Intoxicated Motorists.—The Danish automobile law of 1921 imposes a penalty for driving while intoxicated, but the courts found that opinions differed as to the degree of culpable intoxication. Fog summarizes his experiences in 50 cases of the kind, listing the aspect; the behavior; orientation in regard to time and place; memory; speech; gait; handwriting (name, age, residence, occupation); pulse; pupils (size and reaction to light); reduced perception of pain; odor of alcohol, and signs of disease (epilepsy, apoplexy). The pulse was accelerated in all the men, even in the 9 who were sober, and he warns that a clumsy gait may be natural in some persons. The pupils were abnormal in 13 and in one sober man, and the odor of alcohol was strong in 6 men who were quite sober.

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THE TREATMENT OF URETHRAL STRICTURE BY EXCISION *

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The important subject of the treatment of urethral stricture by excision is given very scant attention in the textbooks of general surgery, and not much more by the authors writing on the specialty of urology.

Resection of strictures as a surgical procedure for effecting a relative cure of permanent duration has never gained great popularity with the surgical world, chiefly because of lack of accurate knowledge of the anatomy of the urethra and the perineum, and of the ever present fear that the removal of any portion of the corpus spongiosum will result in lasting multilation, with prevention of erection, and impotence. There has also been a natural apprehension that after the removal of sections of the canal of considerable extent, there might result a necrosis of the approximated cut ends. For these reasons, reports of resections have usually been confined to the results obtained from the removal of the two sides and the bottom of the tube, and the nodules infiltrating the spongy body and the adjacent tissues, leaving a strip of mucosa, frequently a very narrow one, from which the epithelial lining of the new tube is to be proliferated. A better understanding of the remarkable distribution of the blood supply to the urethra lavishly furnished from the bulbous, cavernous and dorsal branches from the internal pudic arteries, by anterior as well as posterior anastomosis, a knowledge that the tube can be mobilized to almost its entire extent without risk of necrosis, and an acquaintance with the muscles attached to the scroto-perineal portion of the urethra, makes urethrectomy in certain types of stricture a procedure of choice, which I am ready to advocate and demonstrate in this paper.

The trail of the history of this operation, like that of so many of the procedures of modern surgery on pelvic and perineal organs, leads directly to the amphitheater of an American teacher, Dugas,[1] who first reported a case of complete resection of the urethra without any attempt to bring the cut ends together. From time to time in France, Germany, England, Switzerland and America, during the last hundred years, occasionally a report of partial or complete urethrectomy, usually partial, has appeared in the professional journals, but without creating any stir or widespread emulation.

The first surgeon to practice sutures of the separated ends was Heusner, in 1882; but much more ingenuity has been shown in the repeated efforts to supply a mucosa for the tube between these ends by grafts from the skin of the perineum, scrotum or prepuce, a pedicle flap of Dartos, fascial grafts, Thiersch grafts supplied from the mucosa of a prolapsed uterus, transplanted bodily, or the insertion of tubular grafts derived from large veins of other mammals, or of the appendical tube sutured in place over a catheter. With any one or all of these, at times, results more or less successful are obtained, temporarily satisfactory, at least to the surgeons using them. During the last century, the only surgeon who adopted urethrectomy as a method of choice in the treatment of severe strictures of the urethra was Koenig, in whose clinic the rule was, for a time at least, to submit all such cases to resection when the mucosa of the urethra had lost its characteristics as a mucous membrane, and the resected ends of the tube could be brought together. He reported some very interesting results, but apparently failed to realize the advantages afforded in the operation by the extreme mobility of the urethra. Resection has been also extensively practiced at the Necker Hospital by Guyon and his followers, Albarran, Legueu and Marion, but confined to cases that permit the retention of a continuous mucosa, and it is applicable only to cases not requiring the loss of more than from 2.5 to 3 cm. on the sides and floor of the canal. A very satisfactory technic was worked out by this school for the repair of such a partial resection.[2] A second operation devised for the same purpose and applicable only to very narrow and incomplete strictures at the junction of the membranous and bulbar portions of the canal is that of Stern.[3] Ingenious in its conception and surgical in its execution, it is meant to deal with cases in which there is no cicatricial destruction of the corpus spongiosum.

For the radical removal of all of the stricture from face to face, anteroposteriorly, together with the entire spongy body within these limits, use may be made of (1) the Albarran technic; (2) the technic of Hamilton Russell of Melbourne, and (3) the technic which I developed during my years of active service in the Los Angeles County Hospital, and have since applied, from time to time, in my private practice, with most gratifying results.

In any of these operations, whether the incomplete resections of the Necker school or of Sterns, or the radical procedures of Albarran, of Russell or that which I have adopted, a satisfactory field for the operation is to be obtained only by having the patient in an exaggerated lithotomy position, using an inverted Y-shaped incision for the obtaining of a complete

* Read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Dugas: South. M. J., 1836.

2. Greene and Brooks: Diseases of the Genito-Urinary Organs and Kidneys, Ed. 3, Philadelphia, W. B. Saunders Company, 1902, pp. 452-453.

3. Stern, Maximilian: Plastic Operation for the Cure of Urethral Stricture, J. A. M. A. **74**: 85 (Jan. 10) 1920.

exposure of the musculature of the perineum and the scrotoperineal urethra, so that the entire structure of the corpus spongiosum, from the urogenital diaphragm to a point as far forward in the phallic urethra as may be found necessary, is laid bare, and so separated from its attached structures that the diseased and strictured portion may be freely removed in its entirety, and the parts of the tube beyond these limits mobilized so completely that they may be united by suture without tension. In the presence of a case deemed suitable for this radical procedure, a preceding suprapubic drainage should be instituted and maintained for a time sufficient to demonstrate whether, as so often happens, the infiltration in the tissues about the urethra, relieved of the continuous irritating influence of the decomposed urine, may not gradually soften and disappear to the extent that the stricture deemed impassable readily becomes easily amenable to dilation. If, after about two weeks, this change does not take place, resection of the stricture becomes the procedure of choice.

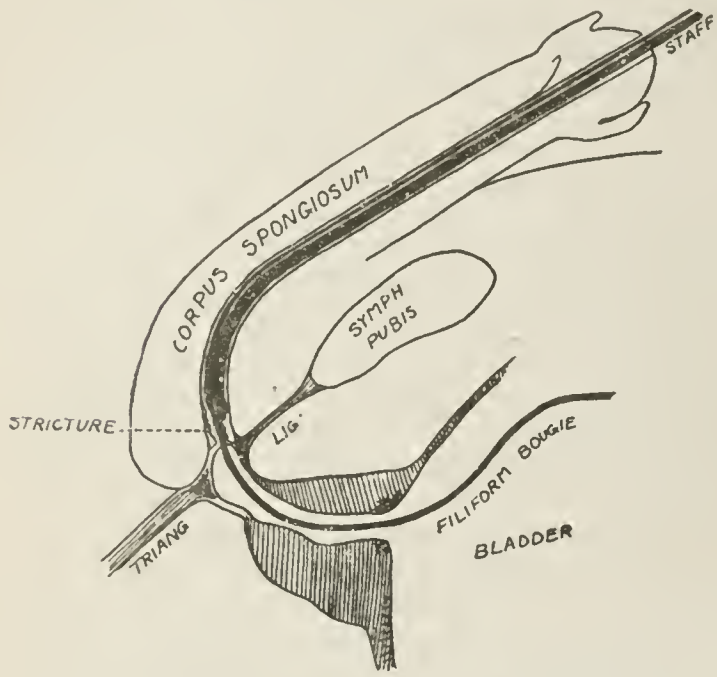


Fig. 1.—Common position of strictures requiring resection (schematic; reproduced from Maxmilian Stern).



Fig. 2. — Resection of the urethra — Albarran method (reproduced from Green and Brooks: Diseases of the Genito-Urinary Organs and Kidneys).

Preparation for the exposure of the stricture should include a number of delicate sharp knives, both for incision and dissection, small sharp scissors, straight and curved, delicate needles, sharp and round pointed, which will hold No. 0 chromicized catgut, fine pure silver lacrimal probes, and a dozen fine straight and curved artery forceps—in fact, the instruments necessary are those which should be found in the kit of an eye surgeon. In addition, one requires a fine grooved director, a small straight gorget, a Wheelhouse staff, to cut on for opening the urethra anterior to the stricture if no filiform can be passed as a guide, and a Gouley tunneled staff of silver, No. 8 or 10, if a filiform can be made to penetrate the stricture, a retrograde staff on which to open the urethra behind the stricture and the usual bifid and other retractors necessary in exposing the apex of the prostate, as in Young's perineal prostatectomy.

I know of nothing in surgery that is quite so disgusting as to see an operator messing at a stricture with unsuitable and inadequate tools, destroying, by clownish gestures, whatever favorable chances the subject may have of recovery from his terrible disease. If no filiform or guide may be made to penetrate the stricture, its remaining mucous channel may be mapped out by staining its course with the solution of a dye, injected under pressure through the urethra. For more than thirty years, in the Los Angeles County Hospital, I have used methylene blue for this purpose, for which I claim no priority, as I think I received the idea from my teacher, Prof. Robert Ultzmann, in Vienna.

The preliminary dissection finished, the central tendon of the perineum severed close to the bulb, and the anterior layer of the triangular ligament well exposed, the ischiocavernous muscles should be pushed aside, and the bulbocavernous tendon split along the white line at its center to the point at which it joins the insertion of the tendons of the superficial transverse perineal muscles at the root of the bulb. These are to be clamped and severed close to their insertion into the spongy body, exposing the urethra, which is then easily freed from its fascial and muscular coverings and its attachments to the cavernous bodies, chiefly by blunt dissection with gauze, straight scissors and knife handle, as far forward and backward as required to get past the limits of obstruction and expose healthy mucosa in opening the canal. These steps should be conducted with patience and gentleness, for it is essential to do no gross damage to the arterial or nerve supply.

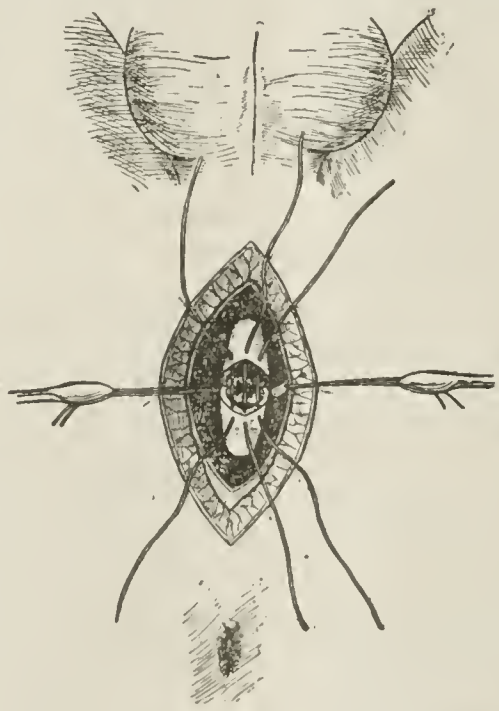


Fig. 3.—Placing of the stitches uniting the resected ends of the urethra—Albarran method (reproduced from Green and Brooks).

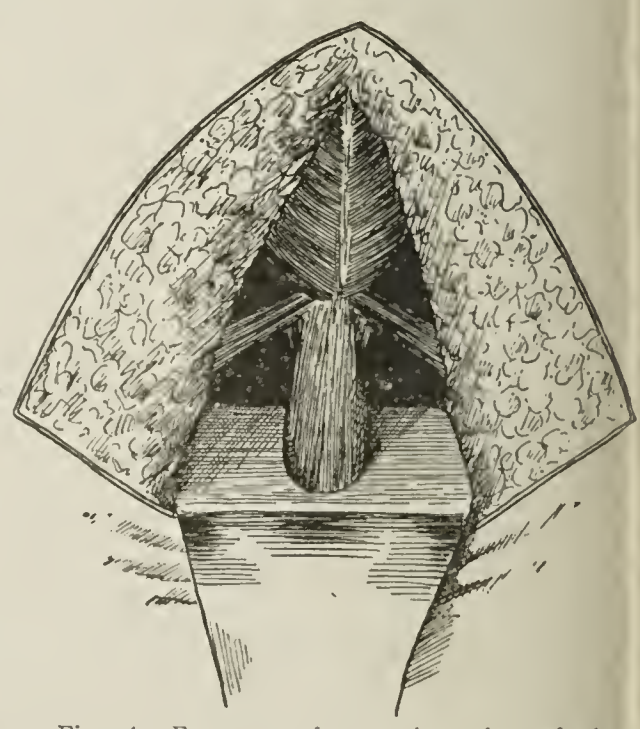


Fig. 4.—Exposure of central tendon of the perineum (reproduced from Hamilton Russell, Brit. J. Surg., 1914-1915).

If a filiform guide can be passed, the urethra can be opened in the strictured portion on the Gouley catheter staff which has been threaded on it, and its course followed anteriorly and posteriorly until healthy elastic mucosa is encountered. If no guide can be introduced, a small quantity of a solution of methylene

lue may be injected down the canal under moderate pressure and the canal opened directly in front of the palpable limits of the stricture on a Wheelhouse staff, when, after the introduction of two traction sutures, through the entire urethral walls on each side, including the mucosa, by the aid of a good light, the sclerosed and contracted canal may be searched for by fine silver

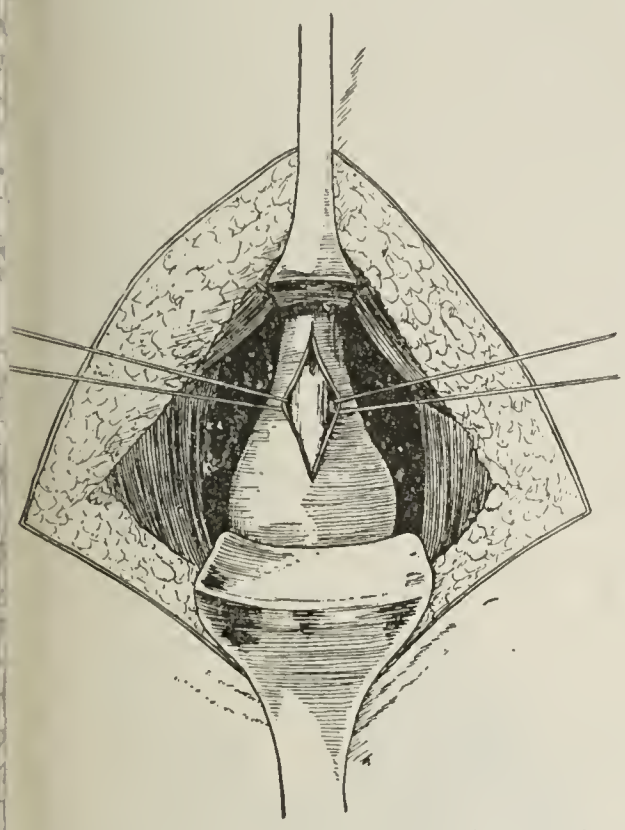


Fig. 5.—Opening of the urethra close to the stricture (reproduced from Hamilton Russell).

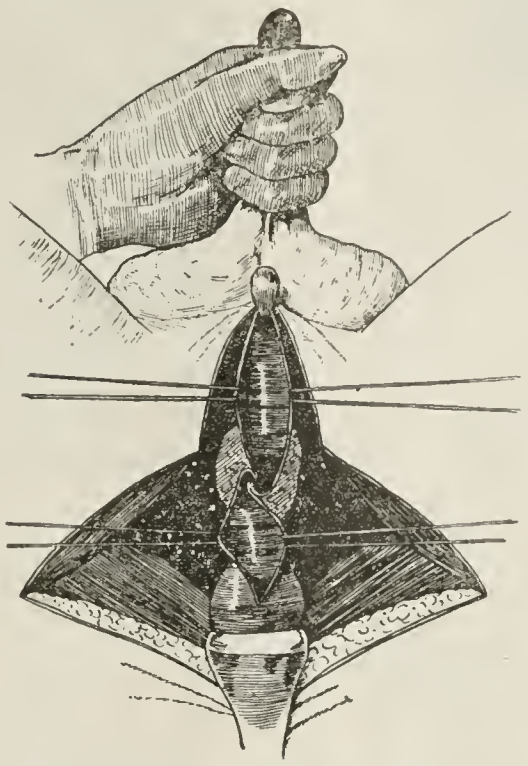


Fig. 6.—Urethral tissues to be resected (reproduced from Hamilton Russell).

probes, gently and patiently, following the stained epithelium, and with sharp, fine knives and scissors gradually laid bare to its posterior limits.

If the track of the stricture is lost or appears to be totally obliterated, the urethra is to be opened on a retrograde staff in front of the anterior layer of the triangular ligament and as close to the stricture as possible, the traction sutures inserted in the urethral walls and the search for the canal conducted forward with the silver probe, filiforms or silk bougies. When it is found and laid open from one extremity to the other, the operator is then ready to resect, whether the procedure adopted is that of Albarran, applicable only to contractures in the tube not exceeding 2.5 cm. in length, that of Russell or that which I have described, in which the only limit is that in which the two ends may be brought together by sutures without excessive tension, and which has actually in experience amounted to as much as 8 or 9 cm. The line for excision must be made in healthy mucosa and beyond the sclerosed infiltration of the spongy body in which the urethra lies; thus severed, fore and aft, the sclerosed canal, with its portion of the spongy body and the surrounding nodular tissue, is to be dissected out from its bed in its entirety, avoiding injury to the corpora cavernosa and to the internal pudic artery and its larger branches. Ordinarily, the hemorrhage will be only moderate, for the inflammatory changes, long continued, have so cicatrized the reticulated normal structure of the bulb that its spongy nature is lost. In removing the fleshy flap from beneath the arch of the pubes, one should bear in mind the close proximity of the plexus of Santorini.

The section of the tube removed, the appearance of the structures in the perineal field is not encouraging; but because of the great elasticity of the urethra, its great mobility and its rich blood supply, marvels can be accomplished in its repair, by either the Russell procedure or mine. In the operation of Russell, in which the primary incisions into the healthy canal have been made, both anteriorly and posteriorly a considerable distance from the face of the stricture, after the excision, a flat strip of mucous membrane is left in the field, which he proceeds to extend and enlarge by slitting the canal farther on its ventral surface and then undercutting both strips of the ribband until enough is mobilized so that the two squarely cut ends can be sewed together without tension by five catgut sutures passed so that the knots are tied on the mucosa. The surface of the wound is protected from urinary contact by means of a catheter inserted through the

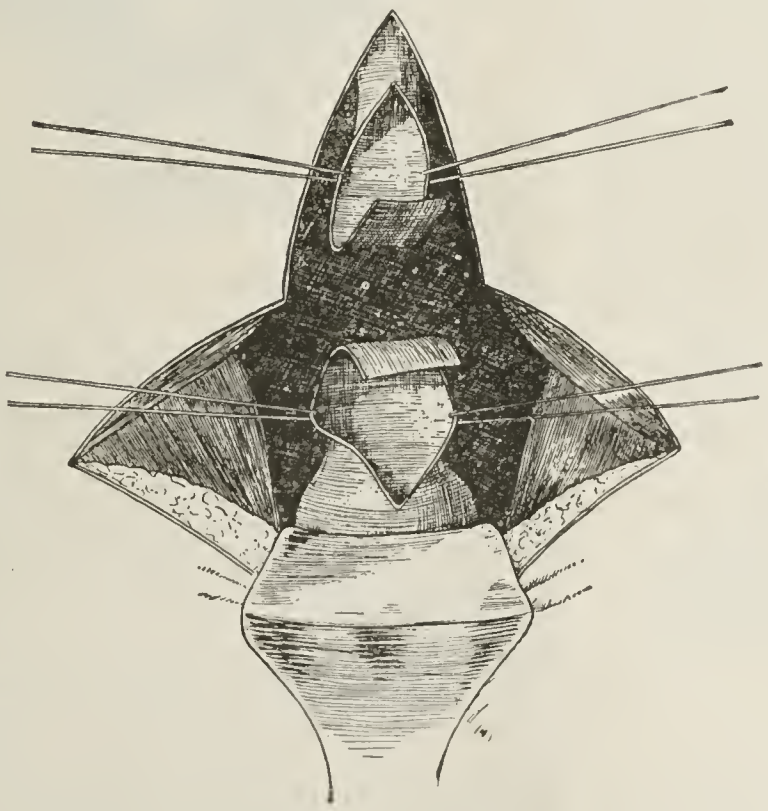


Fig. 7.—Undercutting of urethral tissues after resection (reproduced from Hamilton Russell).

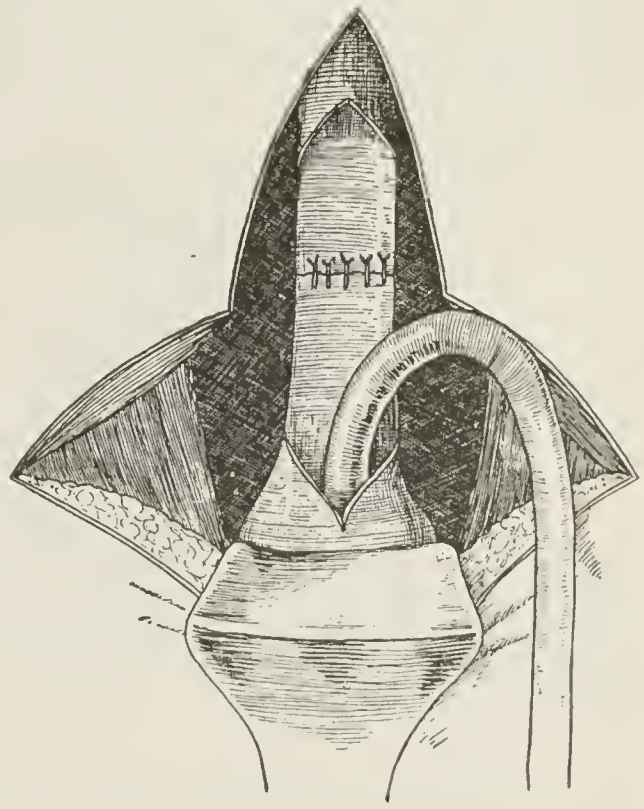


Fig. 8.—Uniting of the undercut urethral tissues by five sutures, and placing of a rubber drain in the proximal portion of the urethra (reproduced from Hamilton Russell).

membranous urethra at the apex of the prostate, and the reconstruction of the canal is left to itself, depending on the fact that on account of the peculiar structure of the perineum, the sides of the urethra will roll in and it will eventually resume its normal tubular form,

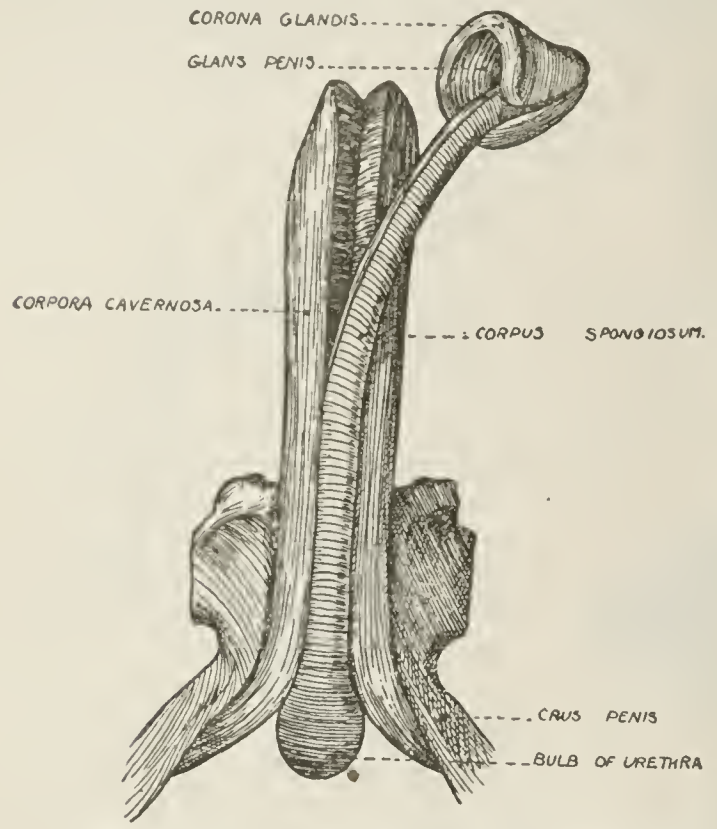


Fig. 9.—Ease with which the corpus spongiosum separates from the corpora cavernosa; mobility of the corpus spongiosum (reproduced from Gray's Anatomy).

if a continuous mucosa is secured on its dorsal aspect, and contamination or infection by urine is not permitted during the first few days following operation.

In my operation, the intention is to restore the tube by approximating its cut ends in their entire circumference, and I find that this is best achieved not by the laying of a circular stitch, such as was done by Mayo Robson with success after the excision of an annular stricture where the loss of structure was not more than ¼ inch, and as was the practice of König, but by slitting the urethra and spongy body both anteriorly and posteriorly into three strips, or ribbands, one posterior and two lateral, using great care not to mangle the tissues and to have clean incisions; for this purpose, one must have very sharp, straight eye scissors. The length of these ribbands will vary with the necessities of the case, but they must be long enough to permit the placing, in the posterior one, of three sutures of No. 0

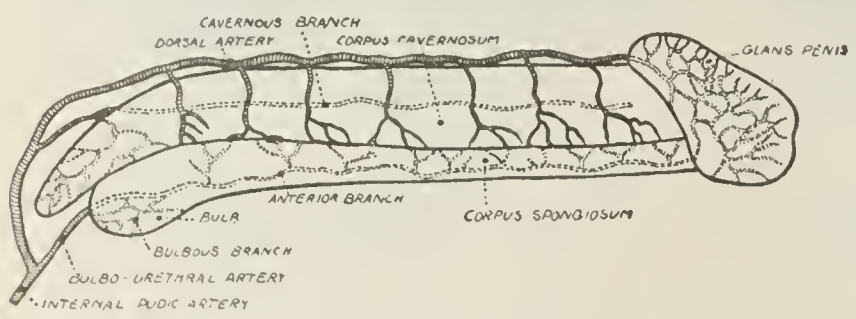


Fig. 10.—Abundant anastomosing blood supply of the corpus spongiosum (reproduced from Testut's Anatomy).

chromicized catgut, which has been soaked in hot salt solution previously to render it flexible, and each threaded on two fine, sharp needles and inserted about 1 cm. from the cut edge of the tube, passed from within, out, and tied with the knots outside the lumen of the canal, the central first. Before the knots are tied, the cut edges are to be approximated by means of traction sutures of silk inserted in the mobilized ends of the urethral body just beyond those parts which have been converted into the ribbands. If they do not join easily under moderate traction, the tube may be mobilized still further, if necessary, the skin slit being extended as far as the frenum, and the spongy body pried out of its bed, where it lies mortised between the corpora cavernosa, and the posterior segment of the tube may be loosened by careful blunt dissection, after the attachments of the superficial transverse perineal muscles to the bulb have been severed, as far as the anterior layer of the triangular ligament.

When it is found that the cut edges can be brought together by moderate traction, both sections of the tube are then anchored in this position to the bed from which the cicatrized urethral tissues have been removed, by means of sutures of No. 0 chromicized catgut, previously softened, using new, round-pointed needles of appropriate size. These stay sutures must be inserted

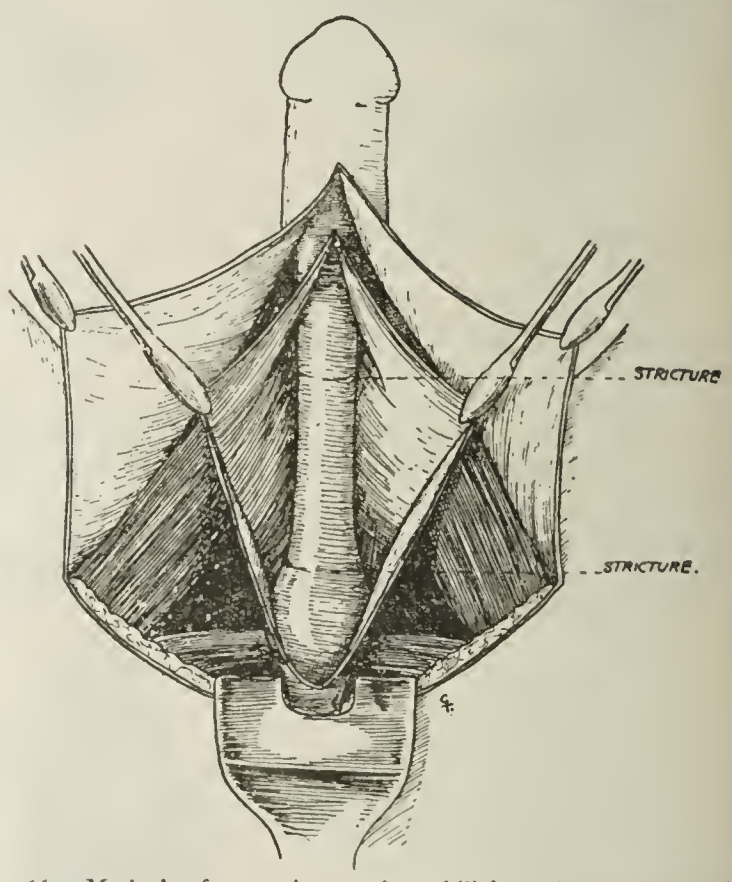


Fig. 11.—Method of exposing and mobilizing the stricture tissues before resection.

into firm tissues; they always penetrate the sheath of the spongy body and may, if necessary, be inserted into, but not through, the sheaths of the cavernous bodies. As many of these sutures may be employed as may, in the judgment of the operator, be necessary to retain the urethra in its new position and effectively prevent any strain being made on the line of suture of the ribbands.

The three sutures in the dorsal ribband having been tied, a soft rubber catheter is passed from the meatus to the triagular ligament and secured there by one suture of No. 1 plain catgut so that it may not be displaced accidentally or intentionally before the fifth or sixth day, and then the lateral ribbands are sewed together in a like manner, first from end to end with No. 00 chromicized, and then united from side to side by one or more fine sutures of plain gut, after which the disturbed and separated bulbo-urethra muscles are replaced, the cut ends of the transverse perineal muscles repaired and the ischiocavernous muscles which have been retracted, brought forward and attached, by a

w plain catgut sutures to the bulbocavernous muscle ass, to cover better the deep perineal nerves and teries and the base of the cavernous bodies.

The cellular tissues lying between the skin and the uscle mass of the urethra are repaired and brought gether by a few plain catgut sutures so as to obliterate l dead spaces. The skin is repaired with black silk r fine flexible silkworm sutures, but no attempt is to e made to close completely the perineal wound unless he surgeon desires to lose his time and jeopardize the elfare of his patient. The foes that may prevent uccess are hematoma and infection; neither will occur a cigaret drain is kept in contact with the surface f the point of excision for a few days, and there need e no hurry about removing it, for oozing serum, quefying catgut, and staphylococci in a perineal wound ake a bad combination, especially in the presence of ccidental soiling by infected urine, if drainage is

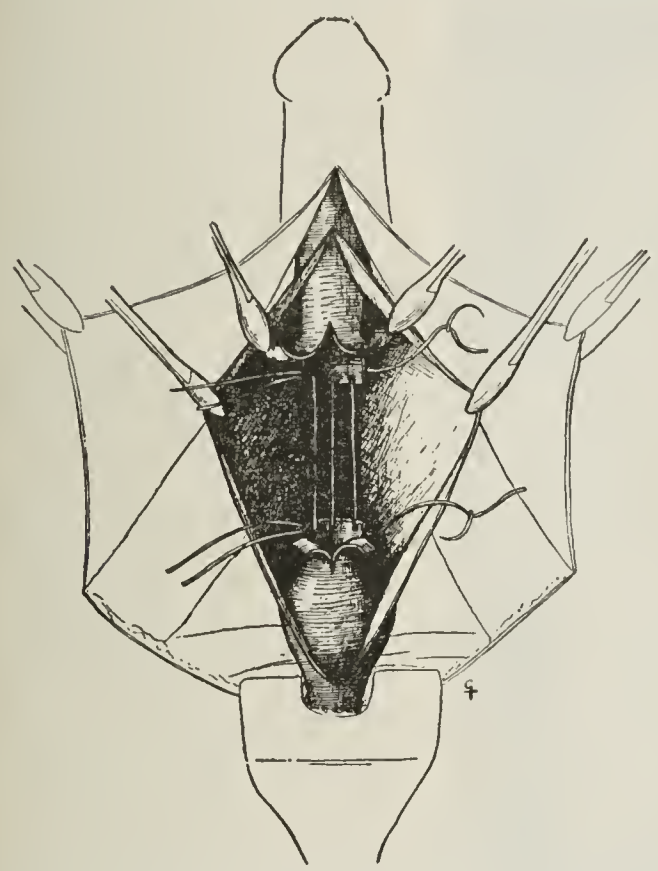


Fig. 12.—Preparation of the flaps of the urethra and the placing of he stitches in the flaps so as to bring the knots on the outside of the ew urethra.

nterfered with. So important is this, that I am con-vinced that the interests of the patient would be better conserved if the entire perineal wound were left open nd packed than if an attempt were made to close it without drainage.

Before the ends of the canal are united, the mem-branous and prostatic urethra should be carefully exam-ned for stenosis. If a stricture is found in the membranous urethra, it should be severed by a Blizzard knife. If contracture of the bladder neck exists, it should be dealt with by the MacGowan-Parker punch. When the excised section of the tube has been very long, when united, it will be noticed that there may be considerable ventral curvature of the penis. This need cause no anxiety; time will restore it to its natural shape. I have always kept the cetheter retained in place in the canal for from six to ten days (this pre-caution is not taken to assist the uniting of the ends of the ribbands, but to prevent the accidental adhesion of the granulations in the line of union that may not be perfectly covered with the mucosa). Perhaps the wounded surfaces would unite and a tube be formed just as well without it, but my ultimate results have been exceptionally good, and I desire to take no chances.

There is often considerable oozing from the wound for the first twenty-four hours; hence I prefer to use large dressings of plain gauze, moistened with physi-ologic sodium chloroid or Thiersch solution applied

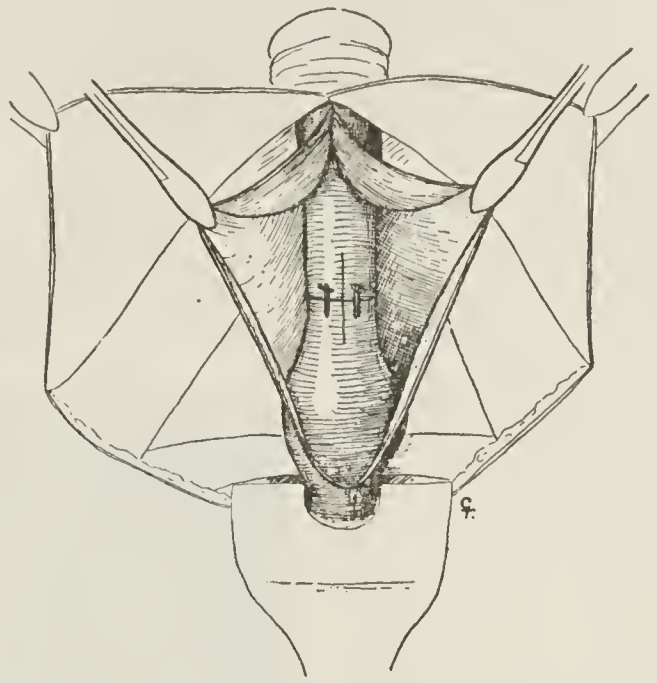


Fig. 13.—Appearance of urethra structures after the resected ends are brought together.

hot and changed frequently and kept against the perineal wound surface under pressure; subsequently, I prefer that the dressings next the skin be plain gauze dipped in melted petrolatum, which so fills the meshes that the dressings will not adhere. The urethral surfaces may unite perfectly and the wound close in two weeks, but this is not to be expected. At the end of the second week, the suprapubic de Pezzer drain is dis-pensed with; then, usually, the suprapubic wound closes in a few days and normal urination is established. If a fistula persists in the perineum, after the third week, it is probably due to the irritation of an unlique-fied and unabsorbed piece of the chromicized gut, and

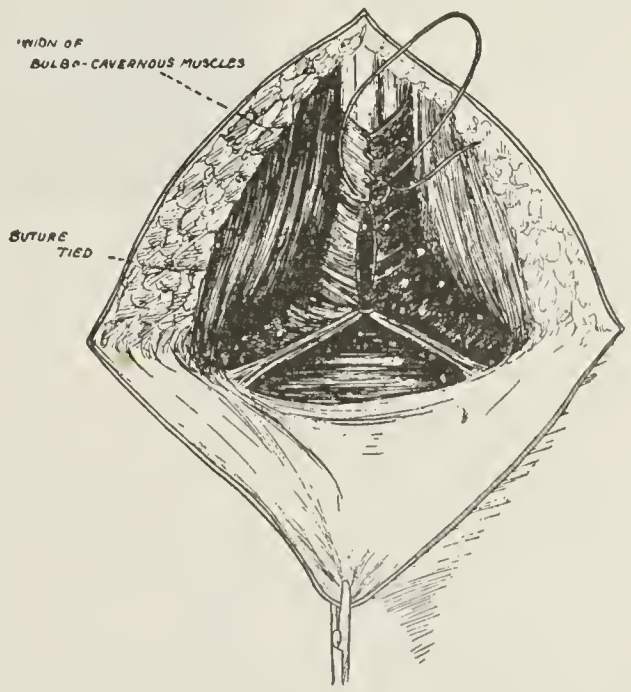


Fig. 14.—Replacement of the muscle tissues in their proper position before the closure of the perineal wound (reproduced from Maxmilian Stern).

one must wait until the knot is loosened and comes away of itself. A sound, not a large one, say 18 or 20 F., may be cautiously passed on the fourteenth day, and then at intervals of a week in gradually increasing caliber, but no attempt should be made to enter sounds

that put the canal on a stretch or distend it; the idea is to secure a canal that will be permanent and allow the patient to pass urine easily, and the use of any violence to the line of sutures may easily produce a rupture of the urethral tissues and defeat the project. If sounds do not pass easily, but the patient voids a full, comfortable stream, the operator should not worry—the canal probably has a kink in a part of the line of healing, and the channel is not continuously straight. The patient should be let alone. So far as he is concerned, the cure is a satisfactory one.

It is very hard to get perfect follow-up histories on difficult stricture cases from patients, especially those operated on in public institutions; relieved and elated, they hide out, and receive no treatment until the stream again becomes slow or small, or retention takes place. Many of these on whom I have performed urethral resections disappeared entirely within a few weeks or a few months, but there were no positive failures. One of my earliest patients, operated on about twenty-five years ago, after an interval of approximately twenty years, reported that he had never had any more trouble after I "cut his strictures out." I have now several under observation who have been operated on in recent years. I had the opportunity of examining one patient's canal with the cysto-urethroscope and through the urethroscopic tube, after the perfect healing of the wound, whose history is given here. This man's report, coming three years after a complete resection of more than 6 cm. of the bulbar urethra, states that he is sexually potent, and "just fine."



Fig. 15.—Resected portion of a urethra, 8 cm. in length, in which a satisfactory union and a patent urethra were obtained. The dark object in the center of the field is a piece of ordinary green wrapping twine, which quite fills the lumen of the sclerosed urethra.

REPORT OF CASE

I. G., a man, aged 43, a carpenter, a resident of Pine Knot, Calif., referred to me by Dr. Howard Hill of Redlands, Dec. 31, 1919, fell astride a floor beam at the camp where he was working, October 13, and ruptured the urethra. The ends were found by Dr. Hill, and with considerable difficulty a No. 15 soft rubber catheter was passed from the meatus to the bladder, the wound in the urethra repaired, and the external incision closed with drainage. After thirteen days, the catheter was removed; when urinating, the patient passed a good stream, but no instrument larger than a No. 10 F. could be inserted into the bladder. November 19, he had an attack of retention of urine; under incomplete anesthesia, sounds were passed, following which he voided freely until November 27, when he had retention again, which relaxed under heat and morphin. From then until he came to me, December 31, he passed urine in a thin, small stream, without pain.

A hard infiltration was felt at the site of the rupture in the urethra; the prostate was smooth and normal in size. Under local anesthesia, I passed a filiform, and over this, threaded a No. 8 silver Gouley staff catheter, through which the bladder was emptied and the filiform tied in. By continuous dilation with filiforms and silk bougies until Jan. 8, 1920, we secured a canal that would admit the passage of a No. 18 cystoscope. An examination of the bladder showed edema and congestion of the trigon, the usual small hemorrhagic spots from the presence of the bougies, some very fine gravel, and a marked trabeculation of the mucosa which did not disappear on distention. The mucosa of the posterior urethra was abraded and edematous. Examination of the anterior urethra with a No. 22 Koch urethroscope demonstrated a circular stricture of the perineal urethra with no normal mucous membrane about it. The patient was informed that resection of the urethra was necessary; and, having given his consent thereto, a preliminary suprapubic cystotomy was done, January 10.

January 13, we resected a little more than 5 cm. of the bulbar urethra, removing it in its entirety, floor, roof and sides, as well as dissecting out all of the surrounding scar tissue that had resulted from the rupture of October 13. In the removal of the stricture and the restoration of the canal, we used my own method, which is the subject of this report.

January 27, the suprapubic de Pezzer drain was found to be sanded; it was removed and replaced by a new one, which was retained until February 4.

January 29, I passed a No. 19 F. steel sound with ease and followed it with a No. 18 soft rubber catheter so as to irrigate the bladder and the urinary tract from below.

March 1, I found a small abscess in the tissues of the perineum that did not communicate with the urethra; this was drained and gave us no further trouble.

February 5, he was passing one third of the urine by the meatus.

February 20, all of the urine came by way of the meatus.

February 20, the wound of the skin was treated and a No. 27 F. steel sound passed without any obstruction. He was kept under observation until April 1. At that time a No. 28 F. steel sound entered the bladder by its own weight; the patient passed a full and copious stream without any dribbling at the finish, at normal intervals. By the cysto-urethoscope and the open urethroscope we could detect no definite scar tissue. The patient was dismissed.

I have heard from this man twice since, first in March, 1921, without my solicitation; then April 26, 1923, in reply to a follow-up letter. Both letters show that total resection of the bulboperineal spongy body for stricture is feasible without danger of loss of sexual potency and with the result of a permanent cure of the strictures.

ABSTRACT OF DISCUSSION

Dr. Robert V. Day, Los Angeles: I have followed up three or four of the patients Dr. MacGowan operated on, and I was amazed at the results. They were just as he has stated this morning.

Health Education and Community Uplift.—If I had the problem of elevating the general moral and mental tone of a backward community I would seek the services of the public health worker, the sanitarian and the personal physician even before those of the teacher. Health education must go forward hand in hand with that of the mind.—Ray Lyman Wilbur, Stanford University, Calif.: *School and Society.*

PREMATURE PRESBYOPIA*

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In all the cases in this series, the eyes were refracted with a mydriatic. Later a postmydriatic examination was made; the majority of the patients had the extraocular muscles tested, and all had an ophthalmoscopic examination of the fundus. Seventeen had also the near point of accommodation and convergence, depth perception, ocular fields and color vision taken separately with each eye. The conclusions reached were that:

1. Many conditions of the eye cause uncorrectable poorness of near vision besides refractive errors.
2. There is a relation between hyperopia and premature presbyopia.
3. Other conditions besides refractive errors occur in premature presbyopia. The contracted fields, as a rule, were associated with general infections, such as tuberculosis and syphilis, and focal infections, as tonsillitis. Color blindness occurred in one or both eyes.
4. Many had muscular weakness. Exophoria was associated with good depth perception. Esophoria and orthophoria in cases of high latent hyperopia occurred with poor depth perception.
5. General infections, focal infections, and cardiorenal, neuropsychiatric and endonasal abnormalities were found.

Presbyopia is that condition of the eyes in which there is a lowered amount of accommodation, necessitating the addition of plus lenses to the distance correction for near use. The condition is usually accompanied by increased near point of accommodation and convergence. It usually occurs at the age of 45 or later. The cases referred to as premature occur in persons ranging in age from 25 to 40, averaging 31½ years. Presbyopia may occur in one or both eyes. When occurring in one eye, the near vision correction sometimes cannot be worn in comfort. Sixty per cent. of the patients required two pairs of glasses; 17 per cent. used bifocals; 17 per cent. used the near vision correction only; 6 per cent. with monocular presbyopia used the distance correction only. There is a weakness of accommodation, usually in persons with hyperopia having a near vision of Jaeger 4 to 8, occasionally as high as Jaeger 10 in one eye; but in these cases the correction for distance is sufficient to give Jaeger 1 or 2.

Conditions among my patients which have caused a poorness of near vision which could not be corrected were: amblyopia from simple optic atrophy, syphilitic papilledema, macular retinochoroiditis, central scotoma associated with sinusitis, detached retina, optic atrophy secondary to cerebral concussion, rupture of the globe from indirect violence, and syphilitic paralysis of accommodation.

The majority of these patients had hyperopia; thirteen had less than plus 2 sphere or cylinder; seven had above plus 2 sphere or cylinder; seven had myopia ranging from minus 50 sphere or cylinder to a minus 4 cylinder; one had myopia in one eye with hyperopia in the other; another had hyperopia in one eye with mixed astigmatism in the other.

In Case 1 there were recurrent attacks of parenchymatous keratitis in the right eye causing a large opacity in the center of the cornea. In the left eye there had been iridocyclitis, causing an iridodialysis; also there was retinochoroiditis. The patient was recommended for blind training. An optical iridectomy was done on the right eye, which gave the patient sufficient vision to undertake training as an automombile mechanic. In Case 10 there was a chronic dacryocystitis in the left eye, which cleared up after rapid dilation of the tear-duct (by Dr. S. Lewis Ziegler's method). Later a pterygium on the same side was buried. In Case 16 the patient had tonsillitis while overseas, and had no medical attention for two weeks. He said that he almost lost his vision, but that it improved 50 per cent. after the removal of the tonsils. Fundus examination showed a large cherry-red spot in the macular region of each eye. He also had a contracted field of vision in both eyes. There were three cases with contracted ocular fields associated with pulmonary tuberculosis. One patient had arrested retinochoroiditis. Two of these patients had both eyes affected; one had this condition in the right eye alone. There were two cases of syphilis with contracted fields, one of which improved under treatment. The other patient who had an Argyll Robertson pupillary reaction in both eyes, did not improve. There was another patient with contracted fields who had a negative Wassermann reaction of the spinal fluid, but which did not entirely disprove syphilis. There was one other arrested case of iridocyclitis. There were two cases of color blindness in both eyes (eyes examined separately), and one case in which there was good color vision in the left eye and poor in the right eye.

There were ten cases of exophoria ranging from 1 to 4 degrees, three of esophoria from 1 to 3.5 degrees, and eleven cases of orthophoria; one patient with marked internal squint could not be tested, and another did not have sufficient intelligence. Three were not examined for muscles. There were four cases of hyperphoria. There were two cases of divergent squint associated with exophoria, and one case of internal alternating squint with esophoria. Seven patients with exophoria were examined for depth perception; six had less than 2 cm.; the seventh had 4.23 cm. but had optic atrophy in both eyes, due to pulmonary tuberculosis. Those who had internal alternating squint had no depth of perception; all positions seemed the same. In exophoria or orthophoria with high latent hyperopia there was poor depth perception.

In this series there were five patients with pulmonary tuberculosis, and two with chronic myocarditis; one died of acute dilatation of the heart; there were one case of chronic interstitial nephritis, two of syphilis, four of neurasthenia, and one of hysteria. With endonasal conditions, five patients had a deflected septum; two had submucous resections done with no improvement to the presbyopia; one had empyema of the antrum of Highmore. The majority of these patients—twenty of the twenty-nine—were ex-service men examined by the United States Veterans' Bureau. The premature aging of the eyes occurred secondary to wounds, illness and strain incidental to the service in the last war.

SUMMARY

There is a relationship between hyperopia and premature presbyopia; occurrence of uncorrectable poor near vision; contracted ocular fields associated with general and focal infections; monocular and binocular color

* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

TABLE 1.—*Findings in Cases 1-17: Near Point of Accommodation and Convergence, Depth Perception, Muscle Balance, Refraction, Fields, Color Vision and Extra-Ocular Conditions*

No.	Near Point O. D.	Near Point O. S.	Near Point of Conv.	Depth Perception, Cm.	Distance Vision O. D.	Distance Vision O. S.	Near Vision O. D.	Near Vision O. S.	Mydriatic O. D.	Vision with Correction	Mydriatic O. S.	Vision with Correction	Age
1	22	18	10	0.2	5/200	20/200	J19	J16	+2.50 cph. +0.50 cyl. ax. 90	20/70	+2.00 cyl. ax. 180	20/70–2	26
2	19	22	20	Could not see	20/50	20/70	J8	J10	+1.00 sph.	20/30	+0.50 sph. +2.00 cyl. ax. 60	20/30	28
3	25	27	12.5	2.06	20/20	20/20	J4	J6	+1.50 sph.	20/20–2	+1.50 sph.	20/20	39
4	22	21	10	2.68	20/50	20/40	J6	J8	+0.50 cyl. ax. 90	20/40	—0.50 cyl. ax. 180	20/30 pt.	25
5	13	38	18	2.60	20/20	20/70.1	J2	J10	+1.50 sph.	20/20	+1.50 sph. +0.75 cyl. ax. 135	20/30	28
6	28	27.5	14	0.32	20/30	20/50	J6	J8	+1.25 sph.	20/20	+1.25 sph.	20/30	32
7	33	9	14	10.41	20/200	20/20	J12	J4	+3.75 sph.	20/70	+2.00 sph.	20/30	33
8	19	18	5.5	8.61	20/70	20/30–2	J12	J12	+3.00 sph. +3.50 cyl. ax. 115	20/30–2	+3.50 sph. +3.00 cyl. ax. 75	20/30 pt.	29
9	23.5	30	14	4.23	20/30	20/30	J6	J4	+1.50 sph.	20/20–2	+1.00 sph. +0.75 cyl. ax. 90	20/20	29
10	22	22	5	5.8	20/30	20/40	J4	J8	—0.50 sph. +1.00 cyl. ax. 90	20/30	—0.50 sph. +1.00 cyl. ax. 90	20/50	34
11	24	24	11	6.1	20/30	20/50	J6	J16	+4.50 sph.	20/20	+5.00 sph. +0.50 cyl. ax. 180	20/30	28
12	18	24	5	1.68	20/40	20/40	J8	J14	+1.50 sph. +0.50 cyl. ax. 90	20/30	+1.00 sph. +1.00 cyl. ax. 90	20/30	31
13	29	24	12	1.28	20/20	20/20	J2	J3	+1.50 sph. +0.25 cyl. ax. 180	20/20	+1.25 sph. +0.25 cyl. ax. 90	20/20	32
14	30	17	5	1.1	20/30	20/40	J10	J2	+0.50 cyl. ax. 90	20/20	—0.50 cyl. ax. 180	20/20	33
15	30	34	3	1.48	20/100	20/100	J12	J10	—0.50 sph. +1.75 cyl. ax. 90	20/30	—0.50 sph. +2.00 cyl. ax. 90	20/30	27
16	22	18	12.5	Unable to take	5/200	5/200	J10	J18	+10.00 sph.	20/70	+10.00 sph.	20/100	28
17	21	26	9.5	0.96	20/100	20/200	J19	J20	+2.50 sph.	20/50	+2.50 sph. +0.50 cyl. ax. 90	20/50	34

No.	Postmydriatic Distance Correction O. D.	Vision	Postmydriatic Distance Correction O. S.	Vision	Addition for Near O. D.	Vision	Addition for Near O. S.	Vision	Fields O. D.	Fields O. S.	Color Vision
1	+2.00 sph. +0.50 cyl. ax. 90	20/50	+0.50 sph. +2.50 cyl. ax. 180	20/40	+2.00 sph.	J10	+2.00 sph.	J4	Normal	Normal	Color ignorant*
2	+0.50 sph. +0.25 cyl. ax. 90	20/30	+2.50 cyl. ax. 70	20/30-2	+1.00 sph.	J3	+1.50 sph.	J4	Normal	Normal	Normal
3	+0.25 sph.	20/15 pt.	+0.50 sph.	20/20	+0.75 sph.	J1	+0.50 sph.	J1	Normal	Normal	Almost normal
4	—0.50 cyl. ax. 180	20/40	—0.50 sph. —0.50 cyl. ax. 180	20/30-2	+1.50 sph.	J2	+2.00 sph.	J2	Normal	Normal	Normal
5	+0.25 sph.	20/15pt.	—0.50 sph. +0.75 cyl. ax. 135	20/40	None	J1	+1.00 sph.	J3	Normal	Normal	Normal
6	+0.75 sph.	20/20	+0.50 sph.	20/20	+1.50 sph.	J1	+1.50 sph.	J1	Normal	Normal	Normal
7	+3.75 sph.	20/70	+0.25 sph.	20/20	Unimproved	....	+0.75 sph.	J1	Contracted	Normal	Normal O.S., poor O. D.
8	+3.50 cyl. ax. 120	20/30pt.	+1.00 cyl. ax. 75	20/20pt.	+1.50	J2	+1.75 sph.	J2	Normal	Normal	Normal
9	+0.50 sph.	20/20	+0.25 cyl. ax. 40	20/20-2	+1.00 sph.	J3	+1.00	J3	Contracted	Contracted	Misses light shades
10	—1.00 cyl. ax. 10	20/20pt.	—1.00 cyl. ax. 180	20/30	+1.00 sph.	J3	+1.50 sph.	J4	Normal	Normal	Misses lighter shades
11	+1.25 sph.	20/20	+1.00 sph. +0.50 cyl. ax. 180	20/30-3	+1.50 sph.	J1	+2.00 sph.	J3	Normal	Normal	Normal
12	+0.50 sph. +1.05 cyl.	20/20pa.	+0.25 sph. +1.00 cyl. ax. 90	20/20	+2.00 sph.	J1	+1.50 sph.	J1	Normal	Normal	Color blind
13	+0.50 cyl. ax. 180	20/20	+0.25 cyl. ax. 180	20/20	+0.50 sph.	J1	+0.75 sph.	J1	Very small†	Same	Normal
14	—0.50 cyl. ax. 180	20/20	—0.50 cyl. ax. 180	20/20	+1.50 sph.	J4	.....	...	Very small	Same	Color blind
15	—2.00 cyl. ax. 180	20/30	—2.00 cyl. ax. 180	20/30	+1.00 sph.	J2	+1.00 sph.	J2	Very small	Same	Normal
16	+8.00 sph.	20/70	+8.50 sph.	20/100	+3.00 sph.	J6	+2.50 sph.	J16	Contracted	Same	Normal
17	+1.50 sph.	20/50	+1.50 sph. +0.50 cyl. ax. 90	20/70	+2.00 sph.	J8	+2.00 sph.	J8	Contracted	Same	Normal

No.	Muscles	Ocular Condition Besides Refractive Error	Extra-ocular Condition Endonasal and General
1	1° exophoria; 1° left hyperphoria.....	O. D., parenchymatous keratitis necessitating optical iridectomy; O. S., iridocyclitis	None
2	Internal alternating squint; 3½° esophoria; 1° left hyperphoria	None	Chronic purulent otitis media
3	Orthophoria	None	Chronic myocarditis
4	Orthophoria	None	Neurasthenia; deflected septum (submucous done)
5	Orthophoria	O. S., iridocyclitis (arrested).....	Deflected septum
6	1° exophoria	O. D., pterygium, nasal side.....	Deflected septum (submucous done)
7	Orthophoria	O. D., optic atrophy (tuberculous).....	Pulmonary tuberculosis; laryngitis
8	Could not be tested.....	None	Neurasthenia; deflected septum
9	1° exophoria	.....	Pulmonary tuberculosis
10	8° esophoria	O. S., pterygium (buried); O. S., chr. dacryocystitis (rapid dilatation)	Neurasthenia; deflected septum
11	Orthophoria	None	None
12	4° exophoria	None	None
13	1° exophoria	Optic atrophy, which improved under antisyphilitic treatment	Syphilis; migraine
14	Orthophoria	Argyll Robertson pupillary reaction.....	Neurosyphilis; deflected septum
15	1° exophoria	Tuberculous retinochoroiditis	Pulmonary tuberculosis
16	Internal alternating squint (could not be tested with phorometer)	Cherry-red spot in each macula.....	None
17	4° exophoria; 1½° left hyperphoria.....	None	Neurasthenia

* Especially light shades. † Normal after treatment.

blindness occurs; exophoria couples with good depth perception, esophoria and hyperopia with poor depth perception. Many cases of general infections, cardio-renal, neuropsychiatric, and endonasal conditions are found among those who have premature presbyopia.

Delaware Trust Building.

ABSTRACT OF DISCUSSION

DR. W. O. LAMOTTE, Wilmington, Del.: Out of 2,000 persons, between 1 and 40 years of age, whose eyes were refracted, 1,254 females and 746 males, additions for near vision were prescribed for forty-four, thirty females and fourteen males. There were nineteen between 35 and 40, eight between 30 and 35, five between 25 and 30, three between 20 and 25, seven between 15 and 20, two between 10 and 15. For forty-two of the forty-four, glasses were prescribed for both distant and near vision. Most of the patients between 35 and 40 complained of symptoms in near work, and the near point without distance correction was receded. In this series of forty-four, one patient had diabetes; at least one had syphilis; one, who had myopia, with paralysis of the right oculomotor nerve from a fall, could read better with an addition for the involved eye, and the paralysis, except full accommodation, had disappeared in about six months; one had paralysis of accommodation from an infected tooth, the accommodation being fully restored four months after extraction of the diseased tooth. Eight patients had myopia ranging from 4 to 14 diopters, and were given additions in several instances to prevent unnecessary strain of the eyes. Fuchs says that "presbyopia is not a disease, but a physiologic process which every eye undergoes." I would not call a case of syphilis with paralysis of accommodation or paralysis of accommodation from a diseased tooth or from any other known disease a premature presbyopia. Dr. Bonner says that the majority of his patients had hyperopia. In my series, however, there were thirteen cases of myopia, one of myopic astigmatism, and eight of mixed astigmatism in one or both eyes. This leaves, therefore, a little less than 50 per cent. in which there was hyperopia or hyperopic astigmatism. The American Encyclopedia of Ophthalmology says that persons with hyperopia become presbyopic in proportion as the hypermetropia is of higher degree; and, as Dr. Bonner says, there is a relation between hyperopia and premature presbyopia. These statements are true so far as persons with hyperopia have to have reading glasses before those with emmetropia and myopia; but in my experience with correction for distance they do not have to have glasses for near vision any sooner than in any other cases made emmetropic with lenses for distant vision. However, we find a number of cases, more usually cases of hypertropia, in which additions are required for near vision because of high esophoria for near vision.

DR. WILLIAM F. BONNER, Wilmington, Del.: In this series of cases, presbyopia was considered premature, when occurring at the age of 40 or under. Cases in which the poorness of near vision was overcome by the distance correction were not considered presbyopic. Many patients with intra-ocular lesions had a poorness of near vision, which refraction did not correct. Hyperopia was the most common refractive error in this series, but among these were cases of myopia and mixed astigmatism. Many of these patients with correctable poor near vision had other pathologic conditions of the eye. Contracted fields were associated with focal and general infections. In the one exception to this, mentioned in the paper, the

TABLE 2.—*Findings in Cases 18-29: Refraction, Muscle Balance and Extra-Ocular Conditions*

No.	Distance Vision O. D.	Distance Vision O. S.	Near Vision O. D.	Near Vision O. S.	Mydriatic O. D.	Vision with Correction	Mydriatic O. S.	Vision with Correction	Age	Postmydriatic O. D.	Vision
18	20/40	20/40	J10	J10	+2.50 sph.	20/30	+3.50 sph.	20/30	37	+0.50 sph. +0.25 cyl. ax. 60	20/20
19	20/200	20/200	J10	J10	+0.50 sph. +0.50 cyl. ax. 90	20/15	+0.50 cyl. ax. 90	20/20	28	+0.50 sph.	20/15
20	20/70	20/70	J10	J8	+1.50 sph. +2.00 cyl. ax. 90	20/30	+1.50 sph. 2.00 cyl. ax. 90	20/30	32	+2.00 cyl. ax. 90	20/30
21	20/50	20/200	J6	J14	—0.50 sph. +0.75 cyl. ax. 55	20/30	—0.75 sph. +1.25 cyl. ax. 120	20/50	37	—0.75 cyl. ax. 145	20/30
22	20/40	20/50	J12	J14	+0.75 sph.	20/30	+0.75 sph. +0.50 cyl. ax. 90	20/20	27	+0.50 sph.	20/30
23	20/30	20/200	J10	J14	+1.50 sph.	20/30	+1.50 sph.	20/40	36	+0.50 sph.	20/20
24	20/70	20/50	J4	J3	+1.50 sph. +1.25 cyl. ax. 90	20/30	+2.00 sph. +0.50 cyl. ax. 90	20/30	30	+1.00 cyl. ax. 90	20/30
25	20/20 pt.	20/20	J10	J4	+0.50 sph. +0.25 cyl. ax. 90	20/20	+0.50 sph. +0.25 cyl. ax. 90	20/20	40	+0.25 cyl. ax. 75	20/20
26	20/100	20/70	J10	J10	+1.00 cyl. ax. 180	20/200	—0.50 sph. +1.00 cyl. ax. 35	20/70	29	—4.00 cyl. ax. 30	20/50
27	20/20	20/100	J1	J14	—0.50 sph. +1.50 cyl. ax. 75	20/20	+1.50 cyl. ax. 60	20/70	32	—0.50 sph. —0.50 cyl. ax. 165	20/15
28	20/30	20/20	J4	J4	+0.50 sph.	20/15	+0.50 sph.	20/20	37	+0.25 sph.	20/20
29	20/200	20/70	J10	J10	+3.50 sph. +1.00 cyl. ax. 90	20/70	+2.00 sph. +2.00 cyl. ax. 90	20/10	34	+2.00 sph. +1.00 cyl. ax. 90	20/70

No.	Postmydriatic O. S.	Vision	Addition for Near O. D.	Vision	Addition for near O. S.	Vision	Muscles	Ocular Condition Besides Refractive Error	General Condition
18	+2.00 sph. +0.50 cyl. ax. 90	20/20	+1.50 sph.	J2	+1.75 sph.	J2	Orthophoria	None	Neurasthenia
19	+0.50 sph.	20/15	+0.50 sph.	J1	+1.00 sph.	J1	Orthophoria	None	Myocarditis
20	+2.50 cyl. ax. 90	20/30	+0.50 sph.	J3	+0.50 sph.	J3	1° exophoria	None	
21	—0.50 sph. —1.25 cyl. ax. 30	20/30	+0.75 sph.	J6	+1.00	J6	Orthophoria	None	
22	+0.50 sph. +0.25 cyl. ax. 90	20/20	+1.25 sph.	J2	+1.25 sph.	J2	Divergent squint, 4° exophoria	.....	Pulmonary tuberculosis
23	+0.50 sph. +0.50 cyl. ax. 90	20/30	+2.00 sph.	J3	+2.50 sph.	J4	Orthophoria	.....	Pulmonary tuberculosis
24	+0.50 sph. +0.50 cyl. ax. 90	20/30	+1.00 sph.	J2	+1.00 sph.	J2	1° esophoria; ½° right hyperphoria	.....	Died of acute cardiac dilatation
25	+0.25 cyl. ax. 105	20/15	+1.25 sph.	J2	+0.75 sph.	J2	1° exophoria	None	Chronic interstitial nephritis; empyema of antrum
26	—3.50 cyl. ax. 145	20/50	+2.00 sph.	J4	+2.00 sph.	J4	Not taken	None	
27	—1.00 cyl. ax. 150	20/70	.....	J1	+2.00 sph.	J3	Not taken	None	
28	—0.50 sph.	20/15	+1.25 sph.	J2	+0.75 sph.	J2	Not taken	None	
29	+2.00 sph. +2.00 cyl. ax. 90	20/70 plainer	+1.75 sph.	J2	+1.50 sph.	J2	Orthophoria	None	

patient gave a negative Wassermann reaction of the spinal fluid. Ordinarily in cerebrospinal lesions, spinal fluid examinations would be sufficient, but in this case a blood Wassermann test, done after the paper had been published, gave a four plus reaction. There were many cases of muscular weakness. Depth of perception was good in cases of exophoria, and poor in cases of esophoria and orthophorio with high hyperopia. In this series of ex-service men, there were twenty out of 204 in which there was premature presbyopia. The relationship to others who were not ex-service men was about the same as in Dr. LaMotte's cases. As there were many cases of premature presbyopia associated with focal and general infections, and cardiorenal, neuropsychiatric and endonasal conditions, therefore those with premature presbyopia should have a thorough physical and neurologic examination. This collaboration was enjoyed in the United States Veterans' Bureau.

THE CLINICAL RESULTS WITH FLUMERIN IN SYPHILIS *

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There is no field of medicine so difficult, and yet so widely exploited, as the chemotherapy of syphilis. The last few years have witnessed the introduction of a host of new drugs, arsenical, mercurial and bismuth preparations, designed to supplant existing methods of treatment. Unfortunately, these preparations have been only too often prematurely introduced on the basis of insufficient experimental evidence by overenthusiastic investigators, or worse, of unwarranted therapeutic claims made by unscrupulous manufacturers. As Stokes [1] has recently pointed out, the average practitioner is not sufficiently familiar with the mechanism of drug action in syphilis to enable him to judge the value of new preparations, so that before a drug is made available for general distribution, all possible information regarding its use should be placed before the profession. For this reason the present paper will provide in detail the clinical results of the use of flumerin, the disodium salt of hydroxymercurifluorescein, in a considerable series of syphilitic patients.

This drug, developed from the chemical and toxicologic standpoints by E. C. White, has been thoroughly studied in rabbit syphilis by J. H. Hill. Some details of these phases of the work, together with a general statement of its clinical trial, carried out under the direction of one of us (J. E. M.) in the syphilis department of the medical clinic, were given in a preliminary report.[2] Since the publication of our first paper, the drug has been placed in the hands of other investigators, to whose results some reference may now be made. J. A. Kolmer,[3] A. S. Loevenhart,[3] and C. H. Browning [3] have confirmed our statements as to the extremely low toxicity of the drug for animals (minimum lethal dose of 30 to 40 mg. per kilogram of body weight for mice, rats, rabbits, and dogs) and Kolmer [3] has demonstrated that, in common with other mercurials,[4] flumerin has no action on trypanosome infections.

Hill's work on rabbit syphilis has been extended [5] to show that not only are single large doses (30 mg. per kilogram) curative, but also that a biologic cure, so far as may be determined by negative lymph node transfers from treated animals, may be obtained with ten daily repeated doses of 5 mg. per kilogram. She has further pointed out, as have also numerous other investigators in the field of experimental syphilis, that similar results cannot be obtained with repeated injections of other mercurials in common use, such as mercuric cyanid, salicylate, or red mercuric iodid, the dosage of these drugs employed in her experiments being comparable to average therapeutic doses in man. Though flumerin possesses no trypanocidal activity, it is spirocheticidal, as shown by animal experiments, and to an extent not shown by other mercurials.[6] Repetition of a few details regarding our therapeutic routine is desirable.

Flumerin is a dark red powder, freely soluble in distilled water, and suitable for clinical use in a concentration of 2 per cent. Though solutions of the drug are stable for several days, we have always used freshly prepared solutions. Injections were made intravenously, repeated treatments being easily possible because of the nonirritating qualities of the drug and the complete absence of thrombosis. The interval between doses was usually two or three days, a series consisting of not less than five injections. The majority of our patients received an average dose of 3 mg. per kilogram of body weight, though to fifteen patients 4 or 5 mg. per kilogram was given. It must be emphasized that in all cases reported in this paper, except in a special group, flumerin was the first treatment given, and that in no instance was arsphenamin or any other drug administered during the period of flumerin treatment. We see no accurate way to evaluate the worth of a drug, if its effect must be measured in conjunction with that of another preparation.

In all, 117 patients in the syphilis department were treated with flumerin during the seventeen-month period of this investigation. Of these, twenty-two cases have been discarded, chiefly because of insufficient treatment, leaving ninety-five cases for consideration. For purposes of study, these have been subdivided into four groups: early syphilis (primary and secondary), thirty-four cases; late syphilis (with tertiary lesions), twenty-nine cases; latent syphilis (Wassermann positive), twenty cases; miscellaneous, twelve cases.

THE EFFECT OF FLUMERIN IN EARLY SYPHILIS

In order to economize space, the details of our thirty-four cases are summed up in Table 1, so that only a summary of results is necessary in the text.

Healing of Lesions.—Six patients had chancres only on admission. In five of these, the lesion was healed by flumerin, but an average of twenty-six days and six doses of the drug was required to produce this result. The average is made artificially high by Case 11, in

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* From the Syphilis Department of the Medical Clinic, Johns Hopkins Hospital.
* This investigation has been aided by a grant from the United States Interdepartmental Social Hygiene Board.

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TABLE 1.—*Results of Flumerin Treatment in Primary and Secondary Syphilis* *

Case Number	Lesions	Number of Doses of Flumerin	Average Dose, Gm.	Total Dose, Gm.	Average Dose per Kilogram, Mg.	No. of days to Heal Lesions	No. of Doses to Heal Lesions	Blood Wassermann Reaction at Time of Dose 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Number of Months Followed After Flumerin	Character of Subsequent Treatment	Clinical Relapse	Subsequent Course of Blood Wassermann Reaction	Cerebrospinal Fluid: Time Elapsed Since Flumerin	Cerebrospinal Fluid: Result	Comment
12	Chancre	7	0.20	1.40	3	58	6	0	0	0	0	0	0	0	..	..	..	..	..	..	..	..	..	..	11	Regular	None	Always negative	4 mo.	Negative	Cure?
17	Chancre	12	0.19	2.38	2+	30	5	4	4	4	4	4	4	4	4	4	1	0	2	0	..	..	..	16	Regular	None	Two recurrences during arsphenamin	3 mo.	Negative	.....
71	Chancre	11	0.16	1.76	3	23	11	4	4	4	4	4	4	4	4	4	4	4	..	..	..	..	..	..	10	None	None	Suggestive negative 10 mo. later	9 mo.	Negative	.....
78	Chancre	9	0.20	1.80	3	Unhealed		0	0	0	0	0	0	0	0	0	..	..	..	..	..	..	..	..	9	Regular	Two recurrences during arsphenamin	Always negative	6 mo.	Group II	.....
86	Chancre	13	0.18	2.38	3	14	6	0	0	0	0	0	0	0	0	0	0	0	0	0	..	..	..	4	Regular	None	Always negative	.....	Negative	Cure?
112	Chancre	9	0.26	2.40	4.5	7	4	4	4	3	0	4	3	0	0	0	..	..	..	..	..	..	..	..	..	.....	.....	.....	.....	.....	.....
5	Rash	5	0.20	1.03	3	12	5	4	2	4	0	1	0	..	..	..	..	..	..	..	..	..	..	..	..	.....	.....	.....	.....	.....	.....
7	Papulopustular rash	8	0.13	1.04	3	20	8	4	4	4	4	4	0	0	0	..	..	..	..	..	..	..	..	..	20	Regular	None	Always negative	.....	.....	Cure?
8	Papular rash	11	0.20	2.20	3	16	6	4	4	4	4	4	3	4	0	0	0	0	..	..	..	..	..	..	1	None	None	Always negative	.....	.....	.....
12	Condylomas	8	0.20	1.60	3	30	8	4	4	4	4	4	4	0	0	..	..	..	..	..	..	..	..	..	15	Regular	None	Always negative	10 mo.	Negative	Cure?
13	Papular rash	11	0.18	1.98	3	16	6	4	4	4	4	4	4	4	2	0	0	0	..	..	..	..	..	..	5	Regular	None	Always negative	.....	.....	.....
15	Rash	6	0.20	1.20	3	18	6	4	4	4	4	4	4	..	..	..	..	..	..	..	..	..	..	..	3	Regular	None	Suggestive negative after 3 doses arsphenamin	.....	.....	.....
24	Alopecia	10	0.22	2.20	3	10	5	4	4	4	4	4	4	4	4	4	4	..	..	..	..	..	..	..	..	.....	.....	.....	.....	.....	.....
31	Papular rash	4	0.11	0.45	3	Unhealed		4	4	4	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.....	.....	.....	.....	.....	.....
34	Mucous patches	12	0.18	2.21	3	Unhealed		4	4	4	4	4	3	0	2	2	0	4	0	..	..	..	..	..	14	Regular	One recurrence during arsphenamin	One recurrence during arsphenamin	.....	.....	.....
68	Pustular rash	16	0.16	2.69	3	Unhealed		4	4	4	4	4	4	4	2	4	0	0	0	0	0	0	0	..	..	.....	.....	.....	.....	.....	.....
70	Rash	17	0.18	3.21	3	7	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	2	Regular	None	Negative after 5 doses 606	.....	.....	.....
73	Papular rash	14	0.20	2.80	3	14	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	..	..	9	Irregular	None	Always negative	9 mo.	Group II	.....
74	Papular rash	12	0.15	1.90	3	18	7	4	4	4	4	4	4	4	0	0	0	0	0	..	..	..	..	..	5	Regular	None	Always negative	3 mo.	Group III	.....
76	Rash	13	0.19	2.48	3	9	5	4	4	4	4	4	4	4	4	4	4	1	4	4	..	..	..	..	6	Regular	Recurrence during arsphenamin	Always negative	2 mo.	Negative	.....
79	Rash	16	0.17	2.85	3	30	8	4	4	4	4	4	4	3	0	0	2	0	1	2	2	4	0		8	Irregular	One recurrence during 205	Always negative	2 mo.	Negative	.....
80	Rash	11	0.19	2.14	3	10	5	3	0	0	0	0	0	0	0	0	0	0	0	..	..	..	..	..	7	Regular	None	Always negative	5 mo.	Group II	.....
82	Condylomas	13	0.20	2.60	3	12	6	4	4	4	4	4	4	4	4	4	4	4	4	4	..	..	..	..	10	Irregular	None	Always positive	8 mo.	Group III	.....
83	Rash and mucous patches	15	0.13	1.99	3	51	13	4	4	4	4	4	1	3	1	1	3	1	0	4	?	?	..		5	Regular	None	Negative after 2 doses 606	5 mo.	Group I	.....
88	Papular rash	12	0.16	1.96	3	21	6	4	4	4	4	4	0	0	0	0	0	0	0	..	..	..	..	..	8	Irregular	None	Always negative	7 mo.	Negative	Cure?
89	Condylomas	10	0.18	1.80	3	10	5	0	0	0	0	0	0	0	0	0	0	..	..	..	..	..	..	..	3	Regular	None	Always negative	.....	.....	.....
90	Papular rash	11	0.20	2.20	3	21	6	4	4	4	4	4	4	4	4	4	4	4	0	..	..	..	..	..	2	Irregular	None	Negative after last dose flumerin	.....	.....	.....
97	Rash and mucous patches	15	0.30	4.54	4.5	5	3	4	4	4	4	4	2	4	1	0	3	0	0	0	0	0	..		5	Regular	None	Always negative	2 mo.	Negative	Cure?
98	Moist papules	15	0.26	3.98	4	7	3	4	0	4	4	4	3	0	2	0	0	0	2	0	0	0	..		2	Regular	None	One recurrence with arsphenamin	.....	.....	.....
103	Papular rash	6	0.25	1.50	4	9	5	4	4	4	4	4	4	..	..	..	..	..	..	..	..	..	..	..	1	Regular	None	Negative after 3 doses arsphenamin	.....	.....	.....
104	Papular rash and mucous patches	13	0.26	3.44	4	Unhealed		4	4	4	4	4	4	4	4	4	4	4	0	4	4	..	..	..	..	.....	.....	.....	.....	.....	.....
106	Papular rash	11	0.27	2.93	5	21	9	4	4	4	4	?	2	3	1	0	0	0	..	..	..	..	..	..	..	.....	.....	.....	.....	.....	.....
108	Papular rash	13	0.26	3.46	5	28	13	4	?	4	4	4	4	2	0	0	2	0	0	0	..	..	..	..	4	Regular	None	Always negative	4 mo.	Negative	Cure?
110	Papular rash	11	0.18	2.02	4	10	4	4	4	4	4	4	4	4	4	4	4	4	3	3	0	..	..	..	..	.....	.....	.....	.....	.....	.....
111	Papular rash	12	0.33	3.99	5	19	8	4	4	4	4	4	4	4	4	4	1	?	0	0	..	..	..	..	3	Regular	None	Always negative	.....	.....	.....

* In this and subsequent tables, blood Wassermann reactions are given a numerical value on a scale of four plus; 4 corresponding to positive, 3 to suggestive positive, 2 to doubtful, 1 to suggestive negative, and 0 negative. The character of subsequent treatment is indicated by "regular," provided the patient was at once transferred from flumerin to our routine of courses of arsphenamin, alternating with courses of mercury by inunction and continuing this during the period of observation, and as "irregular" if at any time during subsequent observation there is a lapse without treatment for a month or more.

which the treatment was markedly irregular, more than two months being required to complete seven injections of flumerin. In Case 78, the chancre was unhealed, but this patient had a very resitant infection, with two subsequent recurrences under arsphenamin. His record is given in detail in our first paper. None of these patients subsequently developed secondary syphilis.

In twenty-eight patients with various lesions of early secondary syphilis, all lesions were healed in twenty-four instances, in an average of seventeen days and six plus doses. The therapeutic effect exercised by repeated doses of 4 or 5 mg. per kilogram was slightly greater than when 3 mg. per kilogram was employed, but not markedly so. In four patients, not all lesions had healed after four, twelve, sixteen and thirteen doses, respectively. In each of these instances, rashes disappeared promptly, but mucous lesions persisted, a result not uncommon with other mercurials. In one case (79), mucous lesions containing spirochetes recurred during treatment with flumerin.

At the completion of flumerin treatment, our patients were transferred to our regular routine antisyphilitic treatment, namely, courses of arsphenamin alternating with courses of mercury by inunction. Twenty-seven of the thirty-four early cases were followed for periods ranging from one to twenty months after flumerin was stopped, the average being seven months. The character of their subsequent treatment is indicated in Table 1. In three of these twenty-seven patients, recurrences of lesions of a secondary type made their appearance shortly after the patient had completed a course of arsphenamin. In twenty-four, no clinical recurrence of any type was manifest during the period of observation. Seven patients have completed our serologic

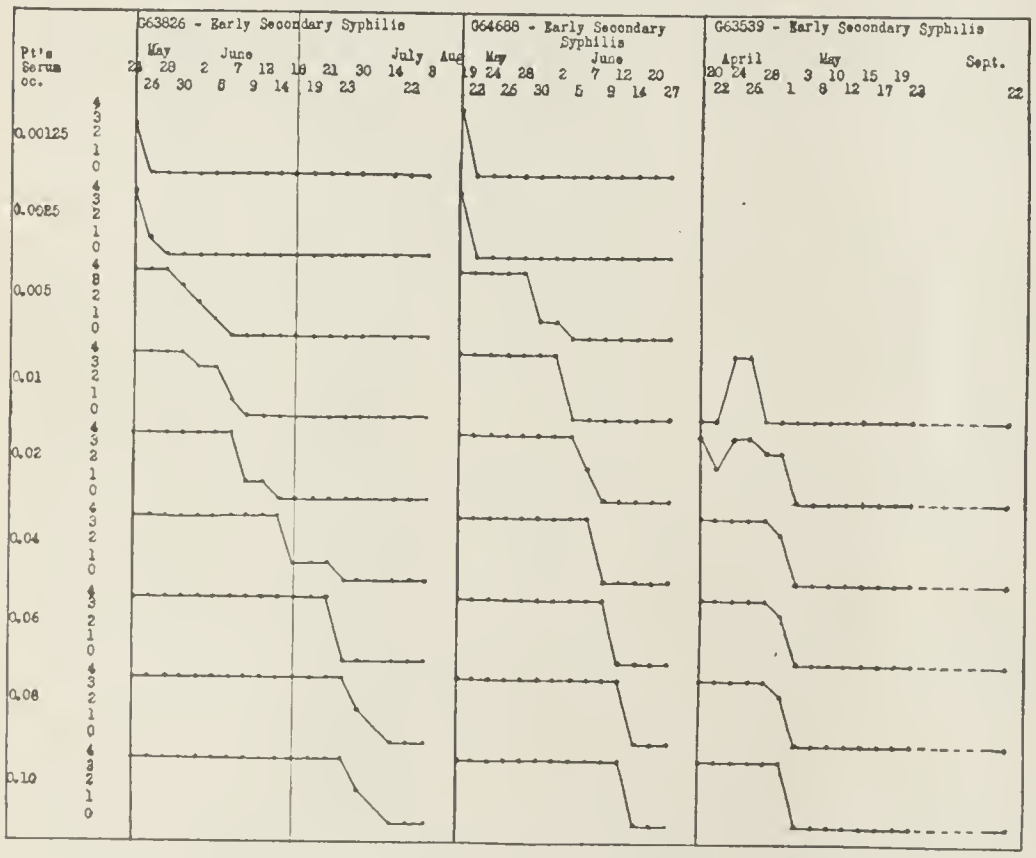


Chart 1.—Response of Kolmer reaction to treatment with flumerin.

requirements for probation,[7] and are regarded as instances of probable cure.

Effect on the Blood Wassermann Reaction.—Flumerin exerts a prompt and striking effect on the blood Wassermann reaction of patients with early syphilis. In three patients with seronegative primary syphilis, the reaction never became positive, either during or after flumerin treatment. Of the thirty-one patients with seropositive primary or secondary syphilis, the Wassermann reaction was reversed to negative in twenty, reduced in strength in one, and remained persistently positive during flumerin treatment in ten instances. The average number of doses necessary to reverse the

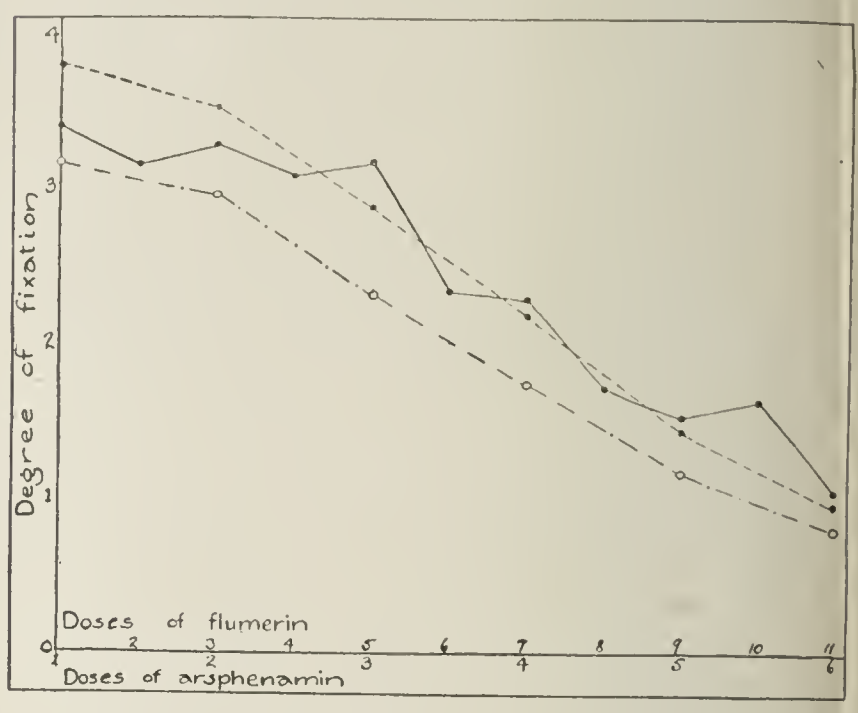


Chart 2.—A comparison between the composite Wassermann curves of a series of patients treated with flumerin and a large series of arsphenamin patients. Inasmuch as flumerin is given at two or three day intervals, and arsphenamin once a week, dose by dose comparison is misleading. The curves are therefore plotted on a rough time basis, two doses of flumerin for each dose of arsphenamin. Both the flumerin curve and the lower arsphenamin curve are based on the inclusion of patients with seronegative primary syphilis; the upper arsphenamin curve is based on early secondary syphilis only. The degree of fixation of the Wassermann reaction is expressed on a scale of four plus. Solid line, primary and early secondary; flumerin; thirty-five cases. Broken line, early secondary; arsphenamin; 343 cases. Line of dashes with hollow dots, primary and early secondary; arsphenamin; 511 cases.

test was nine plus, while to the ten peristently positive cases an average of ten plus doses was given. In five of these ten patients the test was later reversed to negative by arsphenamin; four of the ten took no subsequent treatment; and in the remaining instance, Wassermann fastness was explainable on the basis of a Group III spinal fluid.[7] In a few patients, repeated injections of 4 or 5 mg. per kilogram produced no more rapid Wassermann response than did the dose of 3 mg. per kilogram.

In only three instances was there a Wassermann recurrence during subsequent treatment or observation, while in fourteen patients the test remained permanently negative for periods ranging from three to twenty months.

As will be noted from the table, a blood Wassermann reaction was done at the time of each injection of flumerin, the technic employed being that described in a previous paper.[8] In a few cases, repeated tests were also done by the new Kolmer modification.[9] The results, as indicated by three specimen curves shown in Chart 1, leave no doubt as to the effect of flumerin on the Wassermann reaction.

7. Moore, J. E.: Studies in Asymptomatic Neurosyphilis, II, The Classification, Treatment and Prognosis of Early Asymptomatic Neurosyphilis, Bull. Johns Hopkins Hosp. **33**: 231 (July) 1922.

8. Keidel, A., and Moore, J. E.: The Wassermann Reaction in the Johns Hopkins Hospital, Bull. Johns Hopkins Hosp. **34**: 16 (Jan.) 1923.

9. Kolmer, J. A.: Studies in the Standardization of the Wassermann Reaction, XXX, A New Complement Fixation Test Based upon the Results of Studies in the Standardization of Technic, Am. J. Syph. **6**: 82 (Jan.) 1922.

A comparison of the Wassermann response of these thirty-four patients with the effect produced on the test by arsphenamin is shown in Chart 2. In the preparation of this chart, composite curves for each series (flumerin, thirty-four cases; arsphenamin, 511 cases) have been constructed in accordance with a previously described method.[10] The curves apparently indicate that flumerin is almost as efficacious as arsphenamin in reducing the reaction. It is certainly more active in

10. Moore, J. E.: Studies on the Influence of Pregnancy in Syphilis, I, The Course of Syphilitic Infection in Pregnant Women, Bull. Johns Hopkins Hosp. **34**: 89 (March) 1923.

TABLE 2.—*Results of Flumerin Treatment in Tertiary Syphilis*

Case Number	Lesions	Number of Doses of Flumerin	Average Dose, Gm.	Total Dose, Gm.	Average Dose per Kilogram, Mg.	No. of days to Heal Lesions	No. of Doses to Heal Lesions	Blood Wassermann Reaction at Time of Dose 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Number of Months Followed After Flumerin	Character of Subsequent Treatment	Clinical Relapse	Subsequent Course of Blood Wassermann Reaction	Cerebrospinal Fluid: Time Elapsed Since Flumerin	Cerebrospinal Fluid: Result	Comment
1	Nodular syphilid	8	0.11	0.90	3	12	6	4	4	3	?	2	4	0	0	..	..	..	..	..	..	..	..	1	None	None	Always negative	.....	.....	.....
3	Gumma of tonsil	12	0.15	1.81	3	15	5	4	4	2	2	2	2	0	4	0	0	0	0	..	..	..	..	2	Irregular	None	Recurred during course of arsphenamin	.....	.....	.....
4	Nodular syphilid	12	0.18	2.16	3	6	4	4	4	2	2	2	1	3	4	0	0	0	0	..	..	..	..	..	.....	.....	.....	.....	.....	.....
9	Gumma of leg	4	0.18	0.72	3	Unhealed		4	4	4	4	..	..	..	..	..	..	..	..	..	..	..	..	2	Regular	None	Negative by fourth dose of arsphenamin	.....	.....	Lesion not quite healed by arsphenamin
18	Gumma of skull	8	0.11	0.90	3	Unhealed		4	4	4	4	4	4	4	4	..	..	..	..	..	..	..	..	..	.....	.....	.....	.....	.....	.....
20	Gumma of leg	10	0.13	1.38	3	Unhealed		0	2	4	4	4	4	4	0	0	4	..	..	..	..	..	..	..	.....	.....	.....	.....	.....	.....
23	Gummas of skin	5	0.15	0.78	3	Unhealed		4	4	4	4	4	..	..	..	..	..	..	..	..	..	..	..	..	.....	.....	.....	.....	.....	.....
25	Nodular syphilid	9	0.15	1.35	3	21	9	0	0	0	0	0	0	0	0	0	..	..	..	..	..	..	..	16	Regular	None	Always negative	2 mo.	Negative	.....
29	Gumma of leg	12	0.17	2.08	3	58	12	4	4	4	0	4	1	0	1	4	0	0	0	..	..	..	..	..	.....	.....	.....	.....	.....	.....
30	Gumma of penis	12	0.18	2.17	3	Unhealed		3	4	1	0	4	4	1	4	2	0	4	0	..	..	..	..	8	Irregular	None	Recurred positive during arsphenamin	.....	.....	.....
33	Gumma of nasal septum	6	0.16	1.01	3	Unhealed		4	4	4	4	2	2	..	..	..	..	..	..	..	..	..	..	..	.....	.....	.....	.....	.....	.....
35	Gumma of leg	12	0.18	2.21	3	23	10	4	0	4	4	4	2	4	2	0	0	1	4	0	..	..	..	15	Irregular	One recurrence after arsphenamin	Always negative	14 mo.	Negative	.....
36	Gumma of chest	11	0.18	2.01	3	Unhealed		0	0	0	0	0	0	0	0	0	0	0	..	..	..	..	..	3	Regular	None	Always negative	.....	.....	Lesion not healed by one course of arsphenamin
39	Nodular syphilid	13	0.19	2.54	3	19	7	2	4	4	4	3	4	2	2	3	3	0	0	0	1	..	..	14	Regular	None	One recurrence with arsphenamin	2 mo.	Negative	.....
40	Gumma of sternomastoid	4	0.11	0.45	3	11	4	4	4	4	4	..	..	..	..	..	..	..	..	..	..	..	..	1	Regular	None	Always positive	.....	.....	.....
49	Gumma of leg	10	0.21	2.12	3	33	9	4	4	4	0	4	4	4	4	4	4	..	..	..	..	..	..	..	.....	.....	.....	.....	.....	.....
50	Periostitis of tibia	14	0.15	2.15	3	40	12	4	4	4	4	4	4	4	4	4	4	4	4	4	4	..	..	1	Regular	None	Always positive	.....	.....	.....
51	Nodular syphilid	15	0.21	3.23	3	14	6	0	4	2	0	1	4	3	4	4	4	?	4	?	?	0	..	13	Regular	None	One recurrence with arsphenamin	3 mo.	Negative	.....
54	Gumma of leg	12	0.13	1.63	3	42	12	4	4	4	4	4	4	4	4	4	4	4	4	..	..	..	..	12	Regular	One recurrence after arsphenamin	Always positive	.....	.....	.....
57	Gumma of leg	5	0.17	0.85	3	Unhealed		4	4	4	4	4	..	..	..	..	..	..	..	..	..	..	..	..	.....	.....	.....	.....	.....	.....
58	Gumma of skull	13	0.16	2.15	3	37	12	4	4	4	4	4	4	4	4	4	4	4	4	..	..	..	..	3	Irregular	None	Always positive	.....	.....	.....
60	Gumma of skull	9	0.16	1.42	3	28	9	4	4	4	4	4	4	4	4	4	..	..	..	..	..	..	..	10	Irregular	Recurrence 6 mo. after flumerin	Negative by fifth dose of arsphenamin	.....	.....	.....
63	Gumma of leg	13	0.12	1.58	3	16	6	4	4	4	4	4	4	4	4	4	4	4	4	4	4	..	..	12	Regular	None	Still positive	.....	.....	.....
66	Nodular syphilid	13	0.12	1.66	3	12	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	..	..	12	Regular	None	Always positive	.....	.....	.....
69	Ulcer right toe	14	0.13	1.83	3	19	8	4	4	4	4	4	4	4	?	?	?	2	0	3	0	..	..	6	None	Recurrence 5 mo. after flumerin	Always negative	.....	.....	Spinal fluid Group 3 6 mo. before flumerin
91	Leg lesion	13	0.18	2.34	3	Unhealed		4	4	4	4	4	4	4	4	4	4	4	4	4	4	..	..	8	Regular	None	Negative after 2 courses of arsphenamin	.....	.....	Lesion not affected by arsphenamin
94	Gumma of soft palate	8	0.14	1.19	2	38	7	4	4	4	4	4	4	4	4	..	..	..	..	..	..	..	..	..	.....	.....	.....	.....	.....	.....
105	Gumma of skull	12	0.17	2.10	3	28	11	4	4	4	4	4	4	4	4	4	4	4	4	..	..	..	..	3	Regular	None	Always positive	.....	.....	Lesion not quite healed by arsphenamin
107	Gumma of larynx	5	0.07	0.37	2	Unhealed		4	4	4	4	4	.	..	..	..	..	..	..	..	..	..	..	..	.....	.....	.....	.....	.....	.....

this respect than other mercurials. This single point, however, is not to be interpreted as indicating the equality of the arsphenamins and flumerin, since the markedly inferior activity of flumerin in the healing of lesions is also to be considered.

The Cerebrospinal Fluid in Early Syphilis Following Flumerin Treatment.—A point of interest in this study was to determine whether the immediate use of flumerin instead of an arsphenamin in early syphilis increased the incidence of abnormal spinal fluids in this group of patients. Naturally, the small number of cases makes accurate comparison with arsphenamin statistics impossible. It may be said, however, that no neurorecurrences developed in the flumerin series, and that of fifteen patients in whom puncture was performed following flumerin, ten had completely normal spinal fluids. The incidence of fluid abnormalities in this group, 33 per cent., is about that of untreated early syphilis, suggesting that the use of flumerin has probably not rendered the nervous system more liable to invasion by the spirochete.

In summary, then, a study of these patients with early syphilis indicates that flumerin has spirocheticidal properties to an extent not shown by other commonly used mercurial drugs; it heals the lesions of early syphilis with a fair degree of constancy and rapidity, exercising less effect than the arsphenamins, especially on mucous lesions; and it exerts a powerful effect on the blood Wassermann reaction.

TABLE 3.—*Effect of Flumerin on the Healing of Lesions*

Type of Syphilis	Total Cases	Lesions Healed by Flumerin	Aver. Number of Days to Heal	Aver. Number of Doses to Heal	Unhealed		Aver. Number of Doses to Unhealed Cases
					Improved	Unimproved	
Early	31	26	21+	7+	4	1	11
Late	29	19	24+	8+	8	2	7+
of which gummas	22	12	29+	9+	8	2	7+
Nodular syphilids	6	6	14+	6+	—	—	—

In ten patients, most of whom had large cutaneous gummas, complicated in two by underlying bone lesions, complete resolution of lesions was not accomplished by flumerin, an average of seven plus doses being given. There was marked improvement in eight of these, however, at the expiration of flumerin therapy. Two patients presented bone lesions absolutely unaffected by flumerin, both of which later proved resistant to arsphenamin also.

Recurrence of tertiary lesions developed in four patients, in each instance during a lapse following flumerin treatment. Fourteen patients were followed during routine antisyphilitic treatment for periods ranging from one to fifteen months, and in all of these further clinical progress was uneventful.

Effect of Flumerin on the Blood Wassermann Reaction in Tertiary Syphilis.—In five of the twenty-nine cases, the Wassermann reaction was reversed to a permanent negative by an average of nine doses of flumerin. In six additional cases, it was reduced in strength, but was not rendered permanently negative. The test was unchanged in two patients whose Wassermann reaction was negative at the beginning of treatment, while in sixteen it remained persistently positive during the administration of flumerin. Eight of these sixteen patients were subsequently treated with arsphenamin; in three, the positive test was reversed to negative by arsphenamin, and in five, the patients proved Wassermann fast after an average of eight months' combined arsphenamin and mercury therapy. A comparison of these figures with the Wassermann results obtained in early syphilis is shown in Table 4. No attempt is made to institute a comparison with arsphenamin results because of the small number of cases in the flumerin series and the irregular character of the Wassermann response.

As in the case of early syphilis, the results of flumerin in tertiary syphilis may be summed up in the statement that resolution of lesions was usually accomplished, and that, in some instances, a definite effect on the blood Wassermann test was noted. These results are not as rapidly obtained as with the arsphenamins, but seem equal to or better than the results from other mercurial drugs.

TABLE 4.—*Effect of Flumerin on the Blood Wassermann Reaction in Different Types of Syphilis*

	Total Cases	Wassermann Reaction Reduced to Negative by Flumerin	Average Doses Necessary to Reverse Wassermann Reaction	Wassermann Reaction Reduced in Strength	Wassermann Reaction Persistently Positive During Flumerin	Average Doses to Persistently Positive Cases	Wassermann Reaction Positive During Flumerin Changed to Negative by Arsphenamin	Made Negative by Flumerin; Later Recurrence	During Subsequent Treatment, Wassermann Reaction Remains	
									Negative	Positive
Early	31	20	9+	1	10	10+	5	3	14	1
Late	29	5	9+	6	16	9+	3	2	1	5
Latent	20	7	9+	3	10	16	—	3	3	10

THE EFFECT OF FLUMERIN IN TERTIARY SYPHILIS

Detailed information regarding twenty-nine cases of tertiary syphilis is given in Table 2. These patients were selected for flumerin treatment because the effect of the drug on the healing of lesions could be measured easily. Most of the patients had cutaneous gummas; several presented nonulcerative nodular syphilids, and a few had tertiary bone lesions.

Healing of Lesions.—In nineteen of the twenty-nine patients, all lesions were healed, an average of twenty-four days and eight doses of the drug being consumed in the process. Twelve of the patients had cutaneous gummas, ranging in size from 1 to 15 cm. in diameter. In six patients, nodular syphilids were healed promptly, the length of treatment necessary being considerably less than in the case of gummas. Comparative data

EFFECT OF FLUMERIN IN WASSERMANN POSITIVE LATENT SYPHILIS

Twenty cases are in the group of Wassermann positive latent syphilis, only six of which, however, had not been previously treated. In these six patients, the blood Wassermann test was reversed to negative by flumerin in three (Cases 26, 32 and 45), though in two (Cases 26 and 45) a Wassermann recurrence developed during subsequent treatment. In the other three patients (Cases 37, 53 and 47), the blood Wassermann test remained positive after an average of nine doses of the drug.

The remaining fourteen cases are of particular interest, since in each instance some preceding treatment with arsphenamin and mercury had been given, the blood Wassermann reaction remaining persistently positive. The duration of previous treatment ranged from two to thirty-six months, with an average of eleven months. The results obtained with flumerin were not especially striking. The blood Wassermann reaction was reversed to negative in only four instances (Cases 27, 115, 116 and 117). In one of these (Case 116), the patient lapsed from observation on the completion of flumerin therapy; in a second (Case 117), there was a subsequent Wassermann recurrence; and in only two was the reversal to negative permanent. recurrence during flumerin therapy, and that the drug was perfectly tolerated.

REACTIONS FROM FLUMERIN

In our first paper, the reactions observed from the use of this drug were so completely described that it is now necessary only to indicate their incidence in our complete series. This is shown in Table 6. In general, subjective symptoms were mild, but in eight cases, immediate vomiting, bloody diarrhea or stomatitis were of such severity as to interfere with further flumerin therapy. About a third of all the patients treated became salivated and developed mild stomatitis, usually after eight or ten injections of the drug.

TABLE 5.—*Results of Flumerin in Latent (Wassermann Positive) Syphilis*

Case Number	Duration of Treatment Before Flumerin	Number of Doses of Flumerin	Average Dose, Gm.	Total Dose, Gm.	Average Dose per Kilogram, Mg.	Blood Wassermann Reaction at Time of Dose 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Number of Months Followed After Flumerin	Character of Subsequent Treatment	Clinical Relapse	Subsequent Course of Blood Wassermann Reaction	Cerebrospinal Fluid: Time Elapsed Since Flumerin	Cerebrospinal Fluid: Result	Comment
2	15 mo.	16	0.25	4.06	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	18	None	None	Always positive	.....	.....	Spinal fluid negative 1 year before flumerin
26	None	14	0.20	2.82	3	4	4	4	1	4	4	4	3	4	2	0	0	0	4	0	0	1	Regular	None	Reeurred positive with arsphenamin	.....	.....	.....
27	7 mo.	10	0.16	1.62	3	1	4	4	4	4	4	0	0	0	0	..	..	..	..	..	..	10	Regular	None	None	3 mo.	Group III	.....
32	None	11	0.18	2.01	3	0	2	0	2	0	2	1	0	0	0	0	..	..	..	..	..	7	Regular	None	Always negative	3 mo.	Negative	.....
37	None	8	0.20	1.61	3	4	4	4	4	4	4	4	4	..	..	..	..	..	..	..	..	..	.....	.....	.....	.....	.....	.....
41	15 mo.	19	0.19	3.63	3	4	3	4	0	2	3	4	0	2	0	3	2	4	4	4	0	14	Regular	None	Always positive	11 mo.	Negative	.....
45	None	8	0.13	1.05	3	4	4	4	0	0	0	0	0	..	..	..	..	..	..	..	..	1	Regular	None	Reeurred suggestive positive with arsphenamin	.....	.....	.....
47	None	9	0.18	1.65	3	4	4	4	4	4	4	4	2	4	..	..	..	..	..	..	..	2	Regular	None	Always positive	.....	.....	.....
53	None	12	0.16	1.95	3	4	4	4	4	4	4	4	4	4	4	4	4	4	..	..	..	3	Regular	None	Always positive	3 mo.	Negative	.....
56	2½ mo.	13	0.14	1.90	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	..	..	12	Irregular	None	Always positive	1 wk.	Group II	.....
62	19 mo.	16	0.18	3.03	3	2	4	4	4	4	4	4	2	4	2	3	4	4	3	4	4	12	Irregular	None	Always positive	10 mo.	Negative	.....
65	12 mo.	12	0.17	2.12	3	4	4	4	4	4	4	4	4	4	4	4	4	..	..	..	..	11	Irregular	None	Always positive	.....	.....	.....
77	15 mo.	15	0.16	2.50	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	..	..	.....	.....	.....	.....	.....	.....
92	4 mo.	5	0.12	0.60	3	4	4	4	4	4	..	..	..	..	..	..	..	..	..	..	..	3	None	None	Always positive	.....	.....	.....
96	8 mo.	15	0.20	3.07	4	4	0	4	?	?	2	3	0	1	2	?	0	0	4	0	..	3	Regular	None	Always negative	.....	.....	.....
113	14 mo.	12	0.10	1.10	2	4	4	4	4	4	4	4	4	4	4	4	4	..	..	..	..	11	Regular	None	Reduced by further arsphenamin	.....	.....	C. S. F. Group 2 1 year before flumerin
114	6 mo.	36	0.19	7.0	3	See comment.....																..	.....	None	See comment	.....	Negative	Patient Wassermann fast after 6 mo. arsphenamin; all further treatment flumerin; Wassermann reduced but not negative
115	36 mo.	24	0.13	3.15	2	See comment.....																..	.....	None	See comment	.....	Negative	Wassermann-fast for 3 yrs.; reduced permanently negative by flumerin
116	3 mo.	14	0.10	1.40	1.7	4	4	1	0	4	0	0	0	0	0	0	0	0	..	..	..	..	.....	None	.....	.....	Negative	.....
117	2 mo.	12	0.14	1.70	2	0	3	2	4	0	4	0	—	0	4	2	0	..	..	..	..	..	.....	None	Reeurrence 2 mo. later	.....	Negative	.....

In the remaining ten patients, the test was still positive after an average of sixteen injections of flumerin, though its strength was reduced in three of these.

THE USE OF FLUMERIN IN PATIENTS INTOLERANT TO ARSPHENAMIN OR TO OTHER MERCURIALS

Twelve patients, all of whom had developed arsenical dermatoses or jaundice, or had been unable to take mercury by inunction because of severe stomatitis or cutaneous irritability, were treated with flumerin. In these patients, all lesions were healed and the blood Wassermann reaction was negative as the result of the previous treatment, so that the therapeutic effect of flumerin could not be evaluated. It is only necessary to say that in no instance was there a Wassermann

Particular interest attached to the renal function findings in patients treated with repeated doses of 4 or 5 mg. per kilogram. So far as could be judged from repeated urine examinations and phenolsulphonephthalein tests, no permanent kidney damage was done, though in this group transient albuminuria or cylindruria was slightly more frequent than in patients treated with 3 mg. or less per kilogram.

RESULTS OF OTHER INVESTIGATORS

As stated in the earlier portion of this paper, a few investigators have been supplied with flumerin, and as the result of their work certain points of interest appear. A small number of patients were treated under the direction of Schamberg.[3] The doses given were

small, practically always less than 3 mg. per kilogram, and the doses were spaced at longer intervals than those in our own series. While our patients were treated every other day, or at least twice a week, the interval in Schamberg's series averaged 5.6 days. With this small dosage and long interval between doses, therapeutic effects were slight, and the rapidity of resolution of lesions and the Wassermann response were not comparable to the results in our own series. It is possible to conclude from this result that, if tolerated, the minimum average effective dose of the drug in human beings is 3 mg. per kilogram, and the interval between doses three days, preferably two days.

Fox,[3] at New Haven, also has treated a small series of patients with late syphilis. He has used doses averaging 5 mg. per kilogram twice a week, and finds that in this dosage the drug is well tolerated, particularly with reference to the kidneys. The therapeutic effects are, as might be expected, less than with arsphenamin.

SUMMARY OF THERAPEUTIC EFFECT AND REACTIONS FROM FLUMERIN

In man, flumerin is well tolerated in dosage of 5 mg. per kilogram given every other day, though an occasional patient will show signs of intolerance from this or smaller amounts. It is therapeutically active in early and late syphilis in doses of not less than 3 mg. per kilogram, given at least as frequently as twice a week. Smaller doses or longer intervals than this markedly impair the efficaciousness of the drug.

SUGGESTIONS FOR THE APPLICATION OF FLUMERIN TO THE TREATMENT OF SYPHILIS

Though the exact mechanism by which mercury acts in syphilis is not as yet thoroughly understood, it is known that it is but weakly spirocheticidal as compared with arsphenamin. Animal experimentation has demonstrated that for most mercurial preparations, the minimum single dose required to heal syphilitic lesions equals or exceeds the maximum tolerated dose. By contrast, flumerin produces healing of testicular chancres in the rabbit in single dose of 20 mg. per kilogram, and is tolerated in dosage twice as large. Its therapeutic ratio is thus 2:1, an index not equaled by any other mercurial with which we are familiar. The extremely low toxicity of the drug also permits the introduction of a large percentage of metallic mercury, which, as may be seen from Table 7, is more than three times as great in a given time period as is possible with other comparable mercurial salts, whether soluble or insoluble.

Since, in man, saturation with flumerin produces the same signs of intolerance as other mercurials, notably stomatitis and enteritis, and exerts the healing effects detailed on the lesions of syphilis, it is fair to assume that its general pharmacologic action is that of mercury. Its field of usefulness is therefore the same as for other mercurials, with the additional advantage of its higher therapeutic ratio.

TABLE 6.—*Reactions from Flumerin*

Dose, Mg. per Kilogram	Total Number of Patients	Total Number of Doses	Immediate Nausea or Vomiting	Cramps or Diarrhea	Stomatitis	Urine Examinations: No Change	Urine Examinations: Existing Abnormalities Cleared up Under Treatment	Urine Examinations: Transient Albuminuria or Casts During Treatment	Phenolsulphonephthalein Output: No Change	Phenolsulphonephthalein Output: Increased Plus 15 or More	Phenolsulphonephthalein Output: Decreased Minus 15 or More
From 2 to 3 mg.	...	1,058	41 (3.87%)	31 (2.93%)	..	..	..	..	..	..	..
	102	.....	..	..	37 (36.2%)	..	..	..	..	..	..
	77	.....	..	..	..	50	10 (12.9%)	17 (22%)	..	..	..
	61	.. ..	..	..	..	..	..	..	49	9 (14.7%)	3 (4.9%)
From 4 to 5 mg.	...	122	..	3 (2.2%)	..	..	..	..	..	..	..
	15	.....	..	..	5 (33%)	..	..	..	..	..	..
	15	.....	..	..	..	9	2 (13.3%)	4 (26.6%)	12	3 (20%)	..
Total.....	...	1,180	41 (3.47%)	34 (2.88%)	..	..	..	..	..	..	..
	117	.....	..	..	42 (35.9%)	..	..	..	..	..	..
	92	.....	..	..	..	59	12 (13%)	21 (22.8%)	..	..	..
	76	.....	..	..	..	..	..	..	61	12 (15.7%)	3 (3.9%)

While it is obvious that flumerin is not the equal of any of the arsphenamin group, and that it cannot replace them, the qualities enumerated for it suggest its place in syphilotherapy. By virtue of its superior spirocheticidal activity, its major field would seem to be complementary to arsphenamin in the treatment of primary and secondary syphilis. At this stage of the infection we are faced with a situation which demands the utmost in destruction of organisms, combined with the maximum conservation and stimulation of the patient's defense mechanism. Furthermore, it is at this time only that a cure, in the sense of radical destruction of all organisms, may be obtained. Later in the course

TABLE 7.—*Amount of Metallic Mercury in Therapeutic Doses of Flumerin and Other Mercurials*

Drug	Mercury Content, per Cent.	Average Therapeutic Dose, Mg. per Kilogram	Average Therapeutic Dose, Gm.	Metallic Mercury in Average Therapeutic Dose, Mg.	Amount of Metallic Mercury Given in Average Week, Mg.
Mercuric cyanid.....	79	0.33	0.02	15.8	94.8
Mercuric oxycyanid...	85	0.165	0.01	8.5	51.0
Mercuric benzoate.....	45	0.33	0.02	9.0	54.0
Mercuric chlorid.....	74	0.33	0.02	14.8	88.8
Mercuric succinimid...	54	0.25	0.015	8.1	48.6
Red mercuric iodid....	44	0.25	0.015	6.6	39.6
Mild mercurous chlorid (calomel).....	85	0.75	0.045	38.2	38.2
Mercurial (gray) oil*..	100	1.5	0.09	90.0	90.0
Mercuric salicylate....	54-59.5	1.5	0.09	53.1	53.1
Flumerin.....	33	5.0	0.25-0.3	100.0	300.0

* The therapeutic dose of mercurial oil is expressed in terms of metallic mercury.

of the infection our utmost achievement is clinical arrest of the disease process.

No patient with early syphilis should be given flumerin until after the usual course of arsphenamin has been administered. Nor should the two drugs be used simultaneously. For reasons chiefly related to the biologic course of syphilitic infection, we are opposed to the intermittent plan of treatment for early syphilis, this plan implying the combined use of arsphenamin and mercury separated by rest periods. Our plan of use for flumerin, therefore, is that it shall be applied as interim continuous treatment, to be given between courses of arsphenamin. Even the iodids should not be used simultaneously with flumerin because of the theoretical possibility of enhancing its toxicity by the formation of a halogen mercurial compound in the body.

In early syphilis, then, we would advise a course of treatment somewhat as follows: arsphenamin for eight doses at the usual intervals of five to seven days, followed a week after the last dose of arsphenamin by a series of flumerin injections given every other day, the first two doses of 3 mg. per kilogram, then two of 4 mg., and then eight of 5 mg. per kilogram. Immediately at the completion of flumerin treatment, a second series of six injections of arsphenamin must be given, again followed in one week by a second series of sixteen injections of flumerin. This type of alternating treatment with arsphenamin and flumerin should be continued until the usual criteria of cure are fulfilled (one full year's treatment after permanently negative serologic findings of the blood and spinal fluid are obtained).

The dosage of 5 mg. per kilogram should not be exceeded, nor should the two or three day interval between doses be shortened unless the functional condition of the patient's kidneys is under accurate control. It is considered advisable to reach this level of dosage if possible, but a strict insistence on the application to man of the minimum curative dose in animals is unnecessary. Not only have we obtained almost as satisfactory therapeutic results, as shown by a study of our tables, with a dosage of 3 mg. per kilogram as with the larger doses, but in human syphilis the end to be attained with mercury is fundamentally different from that in animal experimentation.

It is obvious that this suggested plan of treatment calls for a considerable sacrifice of time (and inevitably of money) on the part of the patient. Such sacrifice should not be demanded by the physician unless the therapeutic gain is adequate. For any given patient, the ideal plan of treatment for syphilis is that which combines maximum therapeutic possibilities with economy of time and money. We believe that in early syphilis, the advantages of flumerin therapy outweigh the economic consideration. In late syphilis, on the contrary, this situation does not so definitely obtain. We therefore do not advise the routine use of flumerin in this stage of the infection, preferring to leave its application to the necessities of the individual case. In neurosyphilis and in resistant syphilis in general, we feel that little more is to be expected of flumerin than of other active mercurials. Flumerin may be expected to prove of value in arsphenamin-intolerant patients, notably those having had reactions of the dermatitis group. In our hands, furthermore, good results have been obtained in a small number of patients who failed to tolerate mercury by other routes.

The field of application of flumerin to antisyphilitic therapy is thus limited at present by the physical properties of the drug and the necessity of using it by the intravenous route. Studies at present in progress of its toxicity and rate of absorption and excretion when administered by the intramuscular route may later considerably widen its applicability. For the present, there are not sufficient data available to warrant the administration of flumerin by the intramuscular route.

THE DIAGNOSIS OF DIABETIC COMA*

HOWARD F. ROOT, M.D.
BOSTON

Unconsciousness in a patient who has sugar in the urine demands prompt use of the physician's utmost diagnostic skill, (1) to avoid hasty and harmful injection of insulin in unsuitable cases; (2) to adjust treatment to both diabetes and probable complications; (3) to protect the rights of the patient's family, and (4) to improve our knowledge of diabetes by more accurate tabulation of statistics.

The term "diabetic coma" should be reserved for unconsciousness (not mere drowsiness) due to diabetic acidosis. It is characterized clinically by "air hunger" (Kussmaul respiration), and chemically by an excess in blood and urine of sugar and of the end-products of faulty fat metabolism (the acetone bodies). Absence of any of these symptoms implies that the unconsciousness is not due solely to true diabetic acidosis, and that therefore it cannot be safely treated with large doses of insulin.

A gradual, not a sudden, onset characterizes uncomplicated diabetic coma. During the week preceding, such symptoms as anorexia, headache, abdominal cramps, weakness, nausea, vomiting, constipation and difficult breathing will have been present; these signs, though neglected by family and friends, can always be elicited on careful inquiry. The precipitating cause of these symptoms frequently appears to be a nervous upset or unusual exertion, but the real cause is always dietary error. The respiratory difficulty may have been noticed only occasionally during this prodromal period, with a definite increase during the few hours preceding unconsciousness. On examination, the deep, rapid respiration with exaggerated inspiratory effort, the dry skin and mouth, cold extremities, subnormal temperature, rapid pulse and soft eyeballs are immediately noted. The cheeks may be flushed, and at times an acetone odor may be detected on the breath. Flushed cheeks and a warm skin, when present, usually are seen in the prodromal stage before true coma has appeared. Shallow and feeble respiration succeeds "air hunger" as exhaustion progresses. A catheter specimen of urine and, when facilities are available for analysis, a blood sample also should be obtained immediately. Usually the percentage of sugar in the urine is but moderate, ranging from 1 to 3 per cent., whereas the blood sugar is relatively higher, ranging from 0.4 to 0.8 per cent. The urine gives a maximum red-black test with any ferric chlorid solution (preferably 30 per cent.) unless retention of ketone bodies has occurred. The carbon dioxid combining power of the blood plasma is usually below 15 per cent. by volume; when above 30 per cent. by volume, it betrays either a complication or the previous administration of alkali. The diagnosis becomes puzzling when these signs are obscured, or are complicated by the presence of other

* From the Diabetic Clinic, New England Deaconess Hospital.

factors; it is then essential for the physician to consider other conditions that may produce unconsciousness.

DIFFERENTIAL DIAGNOSIS

Differential diagnosis is often rendered difficult by the fact that in cases of severe diabetes the temperature, pulse rate and leukocyte count may not reflect so promptly or so clearly the existence of infection. In a patient whose usual temperature range is from 97 to 97.6 F., a temperature of 98.6 is equivalent to 100.4 in a normal person. Fever is not a symptom of diabetic coma; its presence indicates a complication. In most instances the differential diagnosis of the causes of unconsciousness in a diabetic patient lies between the following conditions:

1. Hypoglycemia in a diabetic patient may be due either (*a*) to inanition when no insulin has been given, or (*b*) to an overdose of insulin. The hypoglycemia of inanition usually follows a marked restriction of diet. Doses of insulin as low as one unit have been known to produce hypoglycemia. In either case the urine is free from sugar, the blood sugar below 0.06 per cent., the pulse rapid and weak, the pupils dilated, the face and arms moist with a cold sweat. Convulsions may occur, especially in children. Sugar immediately administered by stomach tube or glucose given intravenously cures, whereas insulin kills.

2. The onset of acute infection (such as otitis media) and gastro-intestinal disturbances are the chief causes of unconsciousness in children under 5 years of age. The presence of fever and the absence of the criteria mentioned require other explanation than that of diabetic coma.

3. Septicemia must be considered in any diabetic patient with severe acidosis, who has fever. A blood culture must always be taken. This applies with special force when a known focus of infection is present, such as a carbuncle, gangrene or an infected wound. Septicemia may originate in an infected tooth root or a paronychia as well as in a carbuncle, and may be the precipitating cause of true diabetic coma. Often, however, the acidosis resulting from the infection is not sufficient to cause coma, and the real cause of the patient's comatose state is septicemia due to staphylococcus or streptococcus infection. The diagnosis depends on the presence of a septic temperature, leukocytosis, petechiae in the skin, subconjunctival hemorrhages, metastases to joints, lungs and endocardium, and the results of repeated blood cultures.

The recognition of septicemia in such cases may protect important rights of the patient and his family. In a recent case at the New England Deaconess Hospital, trauma of the thigh had been followed by severe acidosis and fever. The recovery of hemolytic streptococci from blood cultures taken on admission, and the disappearance of acidosis under treatment, demonstrated that the patient's death was due to septicemia resulting from accident and not to diabetic coma, with the result that his family received compensation for his accident insurance policy. Death from septicemia consequent on an infected wound is death from accident; death from diabetic coma is death from disease.

4. Meningitis and encephalitis usually give evidences of irritation of the central nervous system. The history of headache, dizziness and drowsiness for a week or more, fever, pupillary changes, nystagmus, paralysis, stiff neck, reflex changes and stertorous respiration rather than "air hunger" indicate lumbar puncture and settle the diagnosis. A known diabetic patient, admitted to the New England Deaconess Hospital for treatment of diabetic coma, had a small abscess on the scalp which had been opened and drained several weeks previously. During the night before admission he was found comatose, with sugar and diacetic acid in the urine. Here the laboratory helped much. With a plasma carbon dioxid combining power of 46 per cent. by volume, diabetic coma was out of the question. Lumbar puncture revealed a purulent spinal fluid due to a streptococcus meningitis.

5. Uremia is bound to occur with increasing frequency among diabetic patients, because such persons are living to enter the uremic zone of old age. The history of chronic nephritis or prostatic obstruction, the presence of convulsions, the nephritic pallor, uremic odor, oliguria, albuminuric retinitis and, most important of all, nitrogen retention in the blood serve to distinguish it, as do likewise the absence of excessive quantities of diacetic acid in the urine or acetone in the blood. The nonprotein nitrogen of the blood in diabetic coma rarely exceeds 65 mg. per hundred cubic centimeters, but is seldom less than 100 mg. per hundred cubic centimeters in uremia. The blood sugar, however, may rise to 0.30 or 0.60 per cent. in the diabetic patient with uremia.

6. Cerebral hemorrhage, thrombosis or embolism occur suddenly, with resultant paralysis. Usually unilateral spasticity or flaccidity give the clue. In the aged, a series of vascular accidents may have preceded the present illness.

7. A brain tumor may prove most deceptive. A history of headache, dizziness, slowly progressing loss of sight or hearing, a tendency to fall to one side, and mental changes, together with choked disk, Cheyne-Stokes rather than the air hunger type of respiration, and abnormal reflexes will differentiate the condition from diabetic coma.

8. Epilepsy is extraordinarily rare among diabetic patients, but epileptic convulsions may cause the appearance of small amounts of sugar in the urine of a nondiabetic person.

9. Narcotic poisoning is distinguished chiefly by means of the history, the slow respiration, and the absence of ketonuria and lowered plasma bicarbonate. The pin-point pupils of poisoning by opium or its derivatives, and the odor of chloral or alcohol are helpful diagnostically, but the needle puncture marks of drug habitués must not be confused with those resulting from the use of insulin. Needle marks so situated that the injections could only have been made by another person, together with marked induration of the skin, suggest insulin rather than morphin.

10. Trauma with concussion of the brain or a fractured skull is mentioned as a reminder that a patient found unconscious with sugar and diacetic acid in the urine is not necessarily suffering from diabetic coma. Bleeding from ears or nose, wounds of the scalp, roentgen ray and blood chemistry differentiate the conditions.

Success in untangling the diagnostic snarl surrounding the unconscious diabetic patient may save his life, protect his rights, and increase knowledge of the causes of diabetic mortality.

The Percentage of Criminals.—Hardly any one knows that about 2 per cent. of the community is constantly criminal the world over, and that no matter what we do, no appreciable effect has ever been produced on this average of criminality. —Hoag: Crime, Abnormal Minds and the Law, Indianapolis, 1923.

ORBITAL CHANGES PRODUCED BY RADIUM IN CANCER OF THE UPPER JAW*

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It is now quite customary to supplement the operative treatment of cancer of the upper jaw by the application of radium. As a result of the radium application, definite changes may occur in the orbit and affect the eyeball. These changes, aside from deleterious action on the eyeball, suggest extension of the malignant growth, and the question then arises whether the orbit and its contents should be exenterated or not.

It seemed, therefore, of importance to study the condition in the orbit which radium produces when applied in the treatment of tumors of the upper jaw, and to compare this with the neoplastic involvement of the orbit in the course of tumors of the upper jaw.

The following five cases of orbital involvement after radium treatment present certain features which bear on this question.

REPORT OF CASES

CASE 1.—E. J. B., aged 61, had been operated on for carcinoma of the upper jaw and then treated with radium, which was followed by diplopia, and the left eye had been red for six weeks. The inferior rectus involvement was increasing. The recurrence in the upper wall of the antrum had been noted by the attending rhinologist, and the question of exenteration of the orbit was raised. The patient was seen by me, Jan. 6, 1920, by the courtesy of Dr. Alexander Duane of New York. The vision in the left eye was 6/8. All muscles were paralyzed except for some motility up and out. Examination revealed: exophthalmos, left, 17; right, 15; ciliary congestion; pupil moderately dilated; field contracted below; optic nerve, normal. In the upper part of the fundus there was a sharply defined, round detachment which was translucent in places. Six weeks later the condition was much better. There was no congestion; motility had returned inward; up and down was abolished. Exophthalmos was: left, 15½; right, 15. The interior showed no detachment, with pigment changes outlining the margin of the old detachment. Four months later, lateral motility was restored; the patient could move the eye slightly upward; there was complete paralysis of downward motion.

CASE 2.—I. M., aged 40, had been operated on at the Mayo Clinic for sarcoma of the left antrum. Radium was applied, Feb. 17 and March 20, 1922. Six weeks before I saw the patient the left eye became red, and sight was affected. The patient was seen by me, May 25. The left eye was totally blind. The lids were closed, red and swollen. The eye was fixed, bulging forward and out. The pupil was dilated; there was no light perception. The fundus showed the picture of embolism, with exudation in the deeper layers of the retina about the nerve head. The retinal veins were dilated, and were surrounded by hemorrhages; some of the vessels showed distinct interruption. There was a cherry spot at the macula. The margin of the disk was blurred with a grayish-white exudate, which extended upward under the retina; at the same time, no particular elevation was to be noted. There was a very definite mass to be felt along the orbital margin down and out. There was an opening in the canine fossa which contained packing. June 6, the eyeball was excised because of pain. The conjunctiva was very difficult to dissect, as it was thickened and adherent. The eyeball was firmly attached to the surrounding tissues, particularly below and throughout the entire posterior half. It was not possible to rotate the eye, and this made dissection very difficult, with the result that the eye collapsed, evidently being cut into. The parts posterior to the eyeball were transformed into a dense tumor mass obliterating the optic nerve. There was a large gap down and in, in Tenon's capsule, about 3 by 2.5 cm., which communicated with a cavity in the ethmoid cells and antrum, a large sloughy opening extended through the sclera, opening into the eyeball and coinciding with the gap in Tenon's capsule. An intensely putrid, greenish material and a piece of bone were removed.

CASE 3.—M. H., aged 70, had been operated on for a carcinoma of the antrum, and radium had been applied both externally and in the antrum. The upper bony wall was found defective in the roentgenogram. The treatment was followed by the usual swelling of the orbit. The eye appeared well except for constant pain. The swelling then went down gradually. One week before I saw the patient there was more exophthalmos, and an exudate appeared in the anterior chamber. The patient was seen by me, July 1, 1920, through the courtesy of Dr. Quick of New York. The skin of the lids was red and swollen. There was a very tender periostcal swelling along the orbital floor; there was exophthalmos; the anterior chamber was filled with a purulent exudate; the cornea was intact. Three days later a small perforation occurred about 4 mm. down and in, in the sclera, which discharged pus freely. Subsequently the pain became severe. The sloughy scleral flap that presented itself below was cut away; there was an intensely fetid odor. The cornea then sloughed out. July 7, an evisceration was performed. Purulently infiltrated chunks of tissue were cut away, and the sclera was dissected out piecemeal, adherent to the tissues about a large opening below, leading into the antrum.

CASE 4.—F. J., aged 61, had had a tumor of the antrum removed by operation, and radium had been applied. Six weeks before I saw the patient the left eye began to swell; recently this swelling had increased. The patient was seen by me, Feb. 6, 1922. The left eye was pushed forward and up, with restricted motility, especially downward; there was edema of the lids and of the conjunctiva below. Within the lower orbital margin a diffuse mass could be felt. The pupil reacted to light; the eyeground was normal. June 29, 1922, there was less swelling; motility was better; there was nasal swelling of the left optic disk. The right optic nerve was normal. The swelling ultimately went down entirely, and the eye became normal.

CASE 5.—M. S. S., aged 47, had been treated four years before by the late Dr. Henry H. Janeway for carcinoma of the antrum by operation and radium. Six weeks before I saw the patient, the latter returned to the General Memorial Hospital with the eye distinctly elevated and slightly bulging, which Dr. Quick regarded as due to a probable tumor extension, as, on examination of the antrum, there was a definite involvement of the upper wall. No thickening of the orbital floor could be felt. Radium was applied both internally and externally, Jan. 23 and 24, 1923. This was followed by a tremendous reaction: swelling of the lids; swelling of the floor of the orbit, and restricted motility of the eye. March 14, I was able to examine the patient, and found a general redness of the lids and adjoining cheek, with diffuse thickening of the periosteum along the floor. Motility downward was abolished and restricted upward to a moderate degree. The eyeball was normal.

COMMENT

The neoplastic involvement of the orbit in the progress of tumors of the superior maxilla is quite different from the symptoms observed in these five cases. With the kind assistance of Dr. W. S. Stone of New York, I went over the histories of tumors of the superior maxilla which have been observed at the General Memorial Hospital, New York. In the cases in which the patients are living, the orbit was not involved in twenty-four and was involved in twelve. In the cases in which the patients died, the orbit was involved in thirteen and was not involved in eight. The involvement of the orbit, while it is frequent in the terminal stages of the disease when it is difficult to say where

* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

the tumor originated, is infrequent in the early cases, and then occurs, according to Drs. Quick and Coakley, through the inner or nasal wall, or posteriorly through the floor. Inflammatory symptoms are absent, and the ocular muscle paralyses are not marked.

The swelling anteriorly, when radium has been applied, is different from the usual tumor growth and presents definite inflammatory symptoms, such as redness and edema of the lids, a diffuse thickening of the orbital floor, an involvement of the ocular muscles and especially of the inferior rectus, ciliary congestion of the eyeball, detachment of the retina, and optic neuritis. A necrotic process may extend in the orbit to the eyeball, causing a slough of the sclera, panophthalmitis, and destruction of the eyeball. Infection is here undoubtedly a factor, and is especially liable to occur when radium is applied near bone tissue, which is so easily devitalized; necrosis results, and infection cannot then be prevented. It must be borne in mind that the effects of radium—that is, of the gamma rays—are long deferred, for weeks and even for months.

The reaction of the orbital structures to radium seems to vary in degree, according to whether the bony floor is intact or not, and the symptoms are quite different from those caused by the usual extension of the neoplastic process, arising in the upper jaw.

It is necessary to use the destructive or caustic effects of the radium in these cases, as the results of radium treatment combined with operation seem definitely to be better than those by surgery alone; yet, the possible ultimate deleterious action of radium on the orbit and eye should not be overlooked.

10 East Fifty-Fourth Street.

ABSTRACT OF DISCUSSION

DR. GEORGE H. KRESS, Los Angeles: Apropos of Dr. Knapp's comments on some of the dangers in the use of radium, I will report a case, coming under my own observation, which had a most deplorable end-result. A man, aged 45, presented himself because of four large succulent pterygia, two on each eye, advancing over the corneal tissue. My associate in the eye service of the hospital did McReynolds transplantation operations upward. Before the end of the year, there had been a recurrence, and the man, coming to my service, I did a McReynolds transplantation operation downward. When I returned to service, in about eight months, the patient again presented himself, the four pterygia seemingly being larger and more succulent and more fibrous appearing than ever. Before resorting to skin grafting or similar measures, we decided to obtain the opinion of the attending radiologist at the hospital, to learn whether or not, in his opinion, radium might have a deterrent influence on these recurring growths. He advised its use, and gave the patient one single exposure to the two eyes, of minimum dosage and under proper precautions. Within a few days a bilateral uveitis set in, which was resistant to all methods of treatment. The left eye became altogether blind and was most sensitive and painful, and an enucleation was necessary. After the enucleation, the symptoms in the right eye subsided somewhat, but the visual acuity was reduced to about 6/20, and the eye still remains sensitive to light and gives the patient much distress. The two pterygia on this eye have not returned. The end-result in this case would tend to emphasize the points brought out in Dr. Knapp's paper concerning the dangers incident to the use of radium in the eyes, and the need of the utmost precaution in minimum dosage, and other precautions in case its use is decided on.

DR. PHILLIP C. MEANS, Santa Barbara, Calif.: I tried radium in what proved to be a hopeless case—cancer of the antrum, in a woman weighing 90 pounds (41 kg.), with a bad heart, and who wished to die, which makes a rather discouraging prognosis. We used 25 milliamperes for forty-eight hours twice in this case. Fifty milliamperes would have been better. Does Dr. Knapp find that shutting out the secondary rays by screening with rubber changes the effect on the connective tissue? Our roentgenologist said that we need not fear the effect on the bone. When this woman died, with an extreme necrosis and infection of the eyeball and the whole contents of the eye socket, there was necrosis not only through the floor of the orbit, but through the floor of the mouth, due to the cancer and not the radium. The use of radium in this case I believe saved the patient a great deal of suffering, as only two or three injections of morphin were necessary in a long drawn out fatal ending. She was not particularly susceptible to pain, but the pain in this case was not what we usually expect in such cases.

DR. ALLEN GREENWOOD, Boston: These cases are not common. I have under my care a patient who is being treated by radium following an operation for carcinoma of the antrum. We can tell pretty nearly the effect of radium treatment on him by the amount of prism it takes to correct the imbalance of the inferior rectus muscle. He has five or six pairs of glasses with a different strength of prism. He wears one strength awhile and then, after a treatment, the inferior rectus is so disturbed that it takes a double strength of prism to give him comfortable binocular vision. It looks as though the radium was disturbing him more than his original disease.

DR. EDWARD JACKSON, Denver: Although these cases are rare, when they arise they are extremely important and the issues are very grave. Many years ago it was pointed out that a case of malignant disease invading the orbit from neighboring cavities was not a good case for operation; that, in general, the patient would live longer, if not subjected to an operation. So, there is a disposition in such cases to rely more on radium in this region than elsewhere. Radium and the roentgen rays also have been regarded with suspicion, and they have been used with caution for fear of their effect on the highly differentiated tissues of the eyeball. Experience seems to show that it is not very dangerous to such tissues as the retina and the lens. But in this group particularly a good deal of evidence would seem to show that radium is extremely dangerous to bone and to the biologic line of connective tissues. Without any complete history of these cases that have been brought before us today, it looks from the symptoms, the course and the gross conditions that were observed that this is a matter of damage to the bone and connective tissue, and possibly the tendons.

DR. W. H. WILDER, Chicago: I should like to ask Dr. Knapp whether or not in the cases he reported there was much pain and suffering, as there is so frequently when the fifth nerve is involved by cancer of the jaw or cheek, and whether or not the application of radium relieved this pain. On this may depend somewhat our determination to use it. Such a cancer is a deadly thing, and if we can merely relieve the suffering of the patient it is worth something. The reason I ask is that some of my gynecologic friends who use radium a great deal in malignant conditions of the uterus assert most positively that, while it may not cure, it sometimes checks the growth to a certain extent, and does reduce the great suffering and marked hemorrhage that are likely to occur. If we could relieve the pain in a disease that is almost necessarily fatal, we should be accomplishing something, even if the eye should be lost in the process.

DR. GEORGE MCCOY, Los Angeles: In a case of cancer of the eyeball that started in the lids, the patient received roentgen-ray and radium treatment in Los Angeles and also in New York. He went to Denmark and received some treatment there. Later he came to San Francisco and received radium treatment. The lids were burned so that they could not open or close. There occurred an ulcer of the cornea, a hypopyon, and he agreed to have the orbit exenterated. We took out the eye, the inner wall of the orbit, the upper wall of the antrum and the sac. The cancer went on for about three and a half years. It ate out the bony wall so that one could see the pulsations of the brain above. The patient died. That patient sought relief for his pain by radium. He would come up to San Francisco, make the trip with his nurse and go back, because he said that for a few days he felt worse, but after that the pain was relieved. In another case there appeared what we diagnosed as epithelioma of the cornea, with a history of a pterygium that had been there for several

months. This was removed completely, and the conjunctiva brought over. Also the upper portion of the cornea was dissected away. The laboratory made a diagnosis of epithelioma. Radium was used. The eyeball was burned and cataract developed, and there was increased tension. This was done about a year and a half ago. He still has increased tension, but very little distress.

DR. R. W. MILLER, Los Angeles: A man, aged about 50, in ordinarily good health, came because of what he conceived to be nasal catarrh. He had a small, open sore just to the nasal side of the area corresponding to the site of the left infraorbital nerve. The left naris, ethmoid area and antrum were practically filled with necrosed bone, polypi and degenerated tissues. My pathologist reported that carcinoma was present. The diseased structures were removed, as far as practicable, and the case referred for radium treatment. This was carried on through the naris and the fistula which soon formed in the anterior antral wall. The origin of the growth seemed to be in the left antrum. There was decided reaction and some pain following soon after the treatments, but most of the time the patient reported only moderate pain and felt that the treatment gave marked relief. The diseased tissues were much reduced in volume, and for a time the outlook for recovery seemed good. So well was the pain controlled that no opium derivative was required at any time in the course of the disease. It is noteworthy that there were no ocular symptoms worthy of mention, the vision remaining good, and no fundus changes were noticeable. The patient became more and more emaciated, and died of asthenia ten months from the time I first saw him. I neither saw nor heard from him for about two weeks until the day prior to his death. He had not been able to retain any food for several days, was subcomatose, and the abdomen was greatly retracted. Metastasis to the abdomen was suspected, but a necropsy was not permitted.

DR. ARNOLD KNAPP, New York: In answer to Dr. Means, the radium was applied unfiltered. Answering Dr. Greenwood, it may be interesting to say that in these cases the paralysis of the inferior rectus persisted. As to pain, in the mild cases apparently there was not much suffering, but in the two cases of panophthalmitis there was a great deal of pain, which seemed out of proportion to the amount of ocular inflammation.

CLINICAL EXPERIENCES WITH ETHYLENE-OXYGEN ANESTHESIA*

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AND
DEAN LEWIS, M.D.
CHICAGO

Several months ago, a preliminary report was published on the use of ethylene gas as an anesthetic in a series of 106 operative cases.[1] A previous report presented a rather detailed study of the physiologic action of the gas on the usual laboratory animals, including a number of normal men.[2] Since that time the number of operations performed at the Presbyterian Hospital, Chicago, has risen to some 800. In the preliminary communication on the clinical phases of the work, certain important facts received no mention at all, and others were ascertained only as the work progressed. Our attention was furthermore called [3] to some earlier literature on ethylene which we had overlooked in spite of what we considered a thorough search.[4] These reasons have prompted us to issue this report.

LITERATURE

Before presenting the reader with a brief chronological report on the real and alleged studies on the physiologic properties of ethylene, we emphasize the fact that the problem presented itself to us as reported in our first communication, and that it was completed without the slightest knowledge that any one had ever worked on the subject before. We welcome this opportunity to give credit to whomsoever it is due.

Preparation of Ethylene.—Whereas in a Latin text (Physica subterannea) Becker is credited with first generating ethylene, Priestly in his "Observations and Experiments relating to Various Branches of Natural Philosophy" refers in 1779 to Ingenhouss as the first man to generate ethylene. In 1781 it was prepared and its chemical and physical properties studied by Deimann, Paets, van Troostwayk, Bondt and Lauwerenbusch (1795). Berzelius prepared it and called it "elayl."[5]

Physiologic Properties.—According to Foy,[6] Mr. Thomas Numely used olefiant gas (i. e., ethylene) in 1849 in one midwifery case (rigid os) and in three other cases (malignant tumor, section of the adductors of the thigh, section of the inner hamstring muscles), but that subsequent practices showed that "continued inhalations produced dilatation of the pupils, muscular relaxation, vomiting, and death." In a brief unsigned article in the *Medical Press*[7] appears a similar statement:

> Simpson recognized its [i. e., ethylene's] anesthetic properties, but considered it too irritating to the mucous membranes to allow of its use in surgery. Mr. Nunneley, of Leeds, employed it as an anesthetic in many operative cases and from using a more pure chemical, did not find its irritating properties pronounced. It causes when inhaled less excitement than ether; it acts as a cardiovascular depressant and in overdoses produces death by centric respiratory paralysis. Its high price is a barrier to its general use.

A closer inspection of the literature, however, revealed that Foy had misquoted both the name of the investigator and the facts. In a letter to the editor,[8] Mr. Thomas Nunneley (not Numeley) of Leeds reports that he wishes to mention two anesthetics with which he had been experimenting, namely, "common coal gas" and the "chloride of olefiant gas" also known as the "hydrochlorate of chloride of acetyle," or "oil of olefiant gas," formerly called "Dutch oil" or the "oil of the Dutch chemists"—so called because Dutch chemists were the first to prepare and study in detail the properties of olefiant gas, which, when mixed with equal volumes of chlorin gas, produced the compound which Mr. Nunneley used. In another letter,[9] Mr. Nunneley acknowledges the receipt of a letter from Simpson and a pamphlet from Dr. Snow to the effect that both had used "Dutch liquid" as an anesthetic agent before him. He states, however, that he does not find the substance irritating, as described by Simpson. In a final letter to the editor,[10] Nunneley mentions using ethylene chlorid (Dutch liquid, elayl chlorid, S-dichlorethane) in the four cases misquoted by Foy. As late as last year (1922) Hewitt-Robinson [11] perpetuate this error by writing: "Ethylene or olefiant gas

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* From the Hull Laboratory of Physiology, University of Chicago, and the Presbyterian Hospital.

1. Luckhardt, A. B., and Carter, J. B.: Ethylene as a Gas Anesthetic: Preliminary Communication, J. A. M. A. **80**: 1440 (May 19) 1923.
2. Luckhardt, A. B., and Carter, J. B.: The Physiologic Effects of Ethylene, a New Gas Anesthetic, J. A. M. A. **80**: 765 (March 17) 1923.
3. New Anesthetics: Ethylene and Acetylene, editorial, J. A. M. A. **80**: 1383 (May 12) 1923.
4. Luckhardt, A. B., and Carter, J. B.: New Anesthetics: Ethylene and Acetylene, J. A. M. A. **80**: 1476 (May 19) 1923.
5. Mayer and Jacobson: Lehrbuch der organischen Chemie, Leipzig, 1907, p. 836.
6. Foy, George: Anesthetics, Ancient and Modern, London, 1889, p. 70.
7. M. Press, Aug. 10, 1921, p. 103, under "Current Topics."
8. Prov. M. & S. J., Feb. 12, 1849, p. 98.
9. Prov. M. & S. J., Leeds, March 2, 1849, p. 138.
10. Anesthetic Effects of Chloride of Olefiant Gas, Prov. M. & S. J., March 5, 1849, p. 166.
11. Hewitt: Anesthetics and Their Administrations, Edited by H. Robinson, London, 1922, p. 21.

was administered by Nunneley of Leeds in 1849 to four patients; but it was found to be unsatisfactory in its action."

A careful search through the writings of Simpson [12] revealed that he had never used ethylene gas itself but, among other "volatile chemical liquids," the chloride of hydro-carbon" or Dutch liquid, called for a time "chloride ether," produced by allowing "equal parts of olefiant gas and chlorine" to interact with the formation of a "colorless oily liquid of peculiar sweetish taste and ethereal odor."

There is, therefore, no available evidence that ethylene gas itself was ever used in operative work as an anesthetic agent by either Nunneley or Simpson. In fact, Nunneley, in a large article whose comprehensive title [13] indicates accurately the nature of his inquiries, mentions thirty-seven compounds whose anesthetic action he studied on the lower animals. In this research he records eight experiments with olefiant gas (four kittens, two cats and two young dogs). The animals are described as "sleepy but with appearance of uneasiness," "breathing rather laborious," "struggled hard," "irregular breathing and convulsion, without, however, altogether losing sensation," "cried out and was distressed." Those being by far the most common findings recorded in his protocols, it was natural for him to conclude that olefiant gas "is not one of those which are likely to be used in practice. Not only would there be difficulty and trouble in preparing and preserving it, but it is not a safe and manageable agent; since, when employed in innocuous doses, the anesthetic is not complete; when used in large doses, death may not improbably be caused. Ten per cent. of the gas does not appear to produce such a degree of insensibility of any permanence as could be depended upon in a painful operation of even a moderate length; fifteen per cent., though causing total insensibility, also induces a dangerous condition, while life is speedily destroyed by from 20 to 25 per cent." In his final appraisal of the thirty-seven compounds which, in his opinion, merit further use, he mentions sulphuric ether, coal gas, chloric ether, hydrobromic ether, chloroform, chlorid of carbon and chlorid of olefiant gas. The last mentioned was used extensively by him in his operative work.

In the next to the last paragraph of a moderately long article on nitrous oxid gas, Hermann [14] mentions the fact that he had inhaled olefiant gas as well as other gases in order to note their effect on the sensorium. He states that he prefers to report his results later, but speaks of the gas having a narcotic action. He does, however, warn against the danger of the presence of carbon monoxid, and states that he himself was in a dangerous condition because of the inhalation of such impure gas. Ten years later (1874) he [15] simply states, without giving any data, that ethylene gas is feebly intoxicating (schwach berauschend), on the order of nitrous oxid. He likewise repeats the statement that he once was in a precarious condition because of a contamination with carbon monoxid.

12. Simpson, W. G.: Anesthesia, Hospitalism, Hermaphroditism, etc., New York, D. Appleton & Co.; 1872, pp. 165-166.
13. Nunneley, Thomas: On Anesthesia and Anesthetic Substances Generally, Being an Experimental Inquiry into Their Nature, Properties and Action. Their Comparative Value and Danger and the Best Means of Counteracting the Effect of an Overdose, Tr. Prov. M. & S. As., London, 1849, pp. 167-381. The reader may be interested in the nature of some of the compounds tested by Nunneley for their anesthetic action: aldehyd, iodoform, coal gas, benzol, camphor, naphtha, oil of turpentine, creosote, protoxid of nitrogen, hydrocyanic acid, conein, carbonic oxid, sulphuretted hydrogen and bisulphuret of carbon.
14. Hermann, L.: Ueber die physiologische Wirkungen des Stickstoffoxydulgases, Arch. f. Anat. u. Physiol., 1864, p. 521.
15. Hermann, L.: Lehrbuch der experimentellen Toxicologie, 1874, Hirschwald, pp, 276, 101.

Two years later, Eulenberg [16] quotes Müller to the effect that ethylene causes dizziness, nausea and fainting, and that in large concentrations it causes death due to apoplexy. He also quotes Davy as stating that a mixture of two volumes of ethylene and three volumes of air causes dizziness, headache, and a passing weakness of the extremities. Eulenberg himself denies toxic properties on animals except in concentrations of 30 per cent. ethylene and 70 per cent. air, when he noticed difficult breathing and death. In this concentration one rabbit showed after a short period of excitement a slowing of the respiration with a slight drunken condition; another, a slight anesthesia. A 1 to 3 per cent. ethylene-air mixture induced anesthesia in a pigeon; a 30 per cent. ethylene-air mixture killed the bird.

In 1885, Luessem [17] used a 75 per cent. ethylene-oxygen mixture on frogs, rabbits and one canary, with fatal outcome in several instances, presumably due to the presence of carbon monoxid. After laborious purification, he put two dogs and one guinea-pig to sleep with an 80 per cent. ethylene-oxygen mixture. He himself inhaled this mixture. After five minutes he experienced a slight sense of pressure in the head, somnolence, and increase in pulse rate from 80 to 84. Eighteen minutes later he noted weakness in the arms and legs, vertigo, and an uncertainty of gait, with rapid recovery on breathing air.[18] In weaker concentrations he noted similar but less pronounced effects. He concludes that a 70 to 80 per cent. ethylene-oxygen mixture produces after a variable period of excitement a "sleep which cannot be interrupted by auditory stimuli." No reference is made to its analgesic properties or to its possible use in surgery as a general anesthetic agent.

In the ensuing thirty-three years (1885 to 1918) no further work was done on ethylene gas. In that year Luckhardt and Thompson,[19] independently and without knowledge of the preceding work just reported, established on frogs, rats and on one dog not only the anesthetizing but also the analgesic properties of ethylene gas when administered in a mixture of 80 per cent. ethylene and 20 per cent. oxygen.

The preceding year, Cotton [20] reported work purporting to show that ethylenated ether had powerful anesthetizing and analgesic properties. In fact, Cotton expressed the conviction, since disproved by Stehle and Bourne,[21] and more recently by Dale, Hadfield and King, that absolute ether possessed no anesthetic action. In 1919, however, Cotton [22] seemed to ascribe the value of ether as an anesthetic agent to powerful synergists other than ethylene, for he writes: "Ethylene was made by textbook methods and added to absolute ether. It transformed absolute ether into a moderately good anesthetic, but the results were not comparable with those previously obtained; in fact, such ether was by no means as good as Squibb's. However, with careful synthesizing and research, anesthetic synergists of exceedingly high value and potency were finally obtained." What these synergists are Cotton does not state in this article. The inference is that they are present in Cotton-process ether.

In August, 1922, Luckhardt and Carter [2] finished the work on the physiologic properties of ethylene gas

16. Eulenberg: Gewerbehygiene, 1876, p. 398.
17. Luessem, F.: Ztschr. f. klin. Med. **9**: 397, 1885.
18. In this concentration, one of us (A. B. L.) was on one occasion completely anesthetized in fifteen seconds.
19. Data unpublished.
20. Cotton, J. H.: Canadian M. A. J. **7**: 769 (Sept.) 1917.
21. Stehle and Bourne: J. A. M. A. **79**: 375 (July 29) 1922. See also Dale, Hadfield and King: Lancet, 5192, 1923; also summary of this controversy in J. A. M. A. **81**: 1040, 1923.
22. Cotton, J. H.: Am. J. Surg. (Anesthesia Supp.) **33**: 34 (April) 1919.

on frogs, white mice, white rats, guinea-pigs, rabbits and dogs.

Brown,[23] working on mice, rabbits, cats and dogs, subsequently confirmed these results at a time when Luckhardt and Carter were establishing on themselves and others the anesthetic and analgesic properties of the gas.

April 27, 1923, Luckhardt and Carter [1] reported the first 106 cases in which operations were performed under ethylene gas at the Presbyterian Hospital, Chicago.

FURTHER REPORT ON ETHYLENE AS A GAS ANESTHETIC

We now turn to a short discussion of certain facts not mentioned in our first reports, and to certain observations made since they were published.

1. *Premedication.*—In no instance in this or the previous series of patients was morphin, scopolamin, or any other analgesic or soporific given purposely as an adjuvant for subsequent ethylene anesthesia. In a few instances, morphin had been given prior to operation for control of pain. Our experience, then, with but few exceptions, refers to the action of ethylene as the sole agent responsible for the analgesia and anesthesia. As might be expected, however, morphin is a powerful aid from every point of view, conducing not only to a more perfect relaxation in every case but particularly in the more resistant cases, as well as allowing an appreciable reduction in the concentration of ethylene and an increase in the percentage of oxygen necessary for complete surgical anesthesia.

It is well known that there are numerous reports in the literature on gas-oxygen anesthesia (N_2O-O_2) which in reality ought to be referred to as morphin-nitrous oxid-oxygen-ether anesthesia. The importance of the ether seems to be considered by many entirely negligible, even when one third or more of this powerful anesthetic is given during the greater part of an operation. We take occasion to emphasize the fact that neither morphin, scopolamin nor ether was used with the ethylene. As a result, we are spared the impossible task of evaluating their respective parts in the production of the anesthetic state.

2. *Concentration of Ethylene Used.*—The concentration of ethylene necessary to obtain and maintain the anesthetic state depends, as with other anesthetic agents, on a number of factors, of which the nature of the operation (extremity versus abdominal) and the patient himself (youth, muscular development, excitability of nervous system, alcoholism) are the most important.

In the first clinical report [1] it was stated that the average percentage of ethylene necessary for surgical anesthesia was about 82 per cent. With an increase in the number of abdominal operations, it was found that the percentage of ethylene necessary for a satisfactory surgical anesthesia state lay close to 90 per cent. (87.6 per cent.), at any rate during such parts of the operation as involved the greatest amount of manipulation of the abdominal viscera and parietal peritoneum. If a short time (five minutes or more) is allowed for the thorough saturation of the patient with the anesthetic, operative procedures are possible which could not have been consummated shortly after induction. In fact, after a prolonged period of anesthesia, a deep anesthetic state may be maintained on a much lower percentage (80) of ethylene than is required early after induction.

23. Brown: Canadian M. A. J., March, 1923.

3. *Postanesthetic Vomiting.*—Patients may vomit following any operative procedure, for a variety of reasons. Afferent impulses, chiefly of a painful sort, may reflexly induce emesis. So may morphin itself given for the control of pain. The anesthetic itself may stimulate the vomiting center by direct central action. Impurities in the anesthetic may be partly or wholly responsible for the vomiting. Any one of these, acting alone or in combination, may lead to nausea or emesis.

It is difficult to state definitely why one patient under ethylene vomits following a relatively simple operation (removal of small adenoma of breast) and another not after laparotomy; or why one patient vomits folowing an appendectomy and the other does not. The administration of morphin given because of postoperative pain seemed to stop the nausea and vomiting in some patients, and certainly induced it in others. As a general rule, any prolonged operation under ethylene, especially if abdominal in nature, is followed by some nausea and retching. Such patients may vomit once or twice within the first three hours; rarely more than three times. From 14 to 16 per cent. vomit once or twice on awakening. Since retching movements may occur during the period of induction, or when the patient is but lightly anesthetized, it would seem to be due to direct stimulation of the vomiting center by the ethylene itself (or impurities in it). At any rate, the vomiting, when it does occur, is never serious or prolonged. In our series, vomiting occurred on awakening or subsequently in 30.2 per cent. of the patients following ethylene and in 76.6 per cent. of the patients following ether anesthesia. Besides the marked difference in the occurrence of vomiting, the postanesthetic vomiting of the etherized patients was more severe and more prolonged.

4. *Gas Pains.*—The low incidence of postoperative gas pains was striking. Gas pains were noted in 4.2 per cent. of 119 cases, whereas 36.6 per cent. of patients operated on under ether anesthesia suffered from this postoperative discomfort.

5. *Safety of Ethylene Anesthesia.*—When ethylene gas is pushed to the limit in dogs, the respiratory center fails first and at a time when the force and frequency of the heart are quite normal. Artificial respiration quickly restores the animal.[24] During a three-hour period of administration to a dog, ethylene was given six times in concentrations necessitating artificial respiration. After we had ceased to administer ethylene, the animal recovered in ten minutes and appeared perfectly normal except for a temporary lack of appetite. In several instances a phenolsulphonephthalein test of kidney function was found to be normal on the day following a three-hour period of anesthesia. The rate of elimination by the kidneys of intravenously injected Ringer's solution remained unchanged. At no time did even a prolonged anesthesia lead to an albuminuria or a glycosuria.

6. *Cases Illustrative of Ethylene Anesthesia.*—In the article dealing with ethylene as a gas anesthetic,[1] we enumerated the various types of operation that had been

24. Since ethylene, like morphin, depresses the respiratory center, ethylene should be administered with greater caution to patients who have been premedicated with morphin. On theoretical grounds, we would, therefore, advise particularly strongly against the administration, in a morphinized patient, of the highly concentrated ethylene vapor for purposes of rapid induction. We feel that ethylene-oxygen anesthesia should never be forced. What Gwathmey has said so well concerning nitrous oxid-oxygen anesthesia in this connection (J. A. M. A. **81**: 1133 [Sept. 29] 1923) we feel is applicable to ethylene-oxygen and for the same implied reasons. The use of morphin prior to ethylene-oxygen anesthesia will forestall the possible necessity of ever forcing the ethylene-oxygen gas mixture.

performed under ethylene. To append another list of similar nature at this time would, it seems to us, serve no purpose. Suffice it to say that the gas has been used in almost every type of surgical procedure in which a general anesthetic was indicated. We did think, however, that the reader might be interested in the histories of a few cases illustrative of the action of ethylene on patients who were not premedicated.

RESECTIONS OF THE STOMACH

Case 1.—L. G., woman, aged 50, had complained of severe pain in the epigastrium, referred to the back, and diarrhea for some months. These pains were associated with a marked loss in weight. At the time the first examination was made (July 17, 1923), a tumor could be felt in the epigrastrium. The pyloric end of the stomach could be palpated easily, as the patient was very thin. The mass palpated suggested somewhat a leather bottle stomach. The roentgen ray revealed a definite filling defect, limited to the pyloric end of the stomach. Films revealed a constant and superior impassable defect involving the end of the antrum up to the pyloric ring, confirming the fluoroscopic findings. Analysis of the stomach contents revealed a total acidity of 55; free hydrochloric acid, 39; combined and other acids, 16.

July 25, a resection of the stomach was performed, preceded by a gastro-enterostomy, the anastomosis being made well to the left. The right half of the stomach was resected. The resection was performed easily under ethylene anesthesia. Occasionally, some movements associated with gulping were noted. Peristaltic waves also were observed at times. These did not interfere with the operation. No difficulty was experienced until closure of the abdomen was attempted. The rectus muscles were at this time very rigid, but they relaxed immediately when more ethylene was given.

The patient recovered consciousness within three minutes after the anesthetic was discontinued. She gulped up some dark stomach contents while on the table. Twenty-four hours later she had hiccough for a short while, and gulped up several times a dark, blood-stained fluid. Nausea was not complained of following the operation. Recovery was good. It was noted during the operation that the skin was dry. There was no evidence of any bronchial irritation.

Case 2.—A. R., a man, aged 50, entered the hospital, Sept. 23, 1923. Since July he had had diarrhea from time to time and noted a rapid loss of weight. He had lost from 30 to 40 pounds (13.5 to 18 kg.), and complained of feeling weak. The physician whom he consulted soon after the beginning of his illness made a roentgen-ray examination of the stomach and found a definite filling defect of the pyloric end. The findings were those of a carcinoma of the pylorus. At no time had there been obstruction or retention.

September 25, one half of the stomach was removed under ethylene, a gastro-enterostomy having first been performed well to the left of the greater curvature. The operation was performed without any difficulty as far as the anesthesia was concerned. The patient took the anesthetic well and without cyanosis. When an attempt was made to close the abdomen, the rectus muscles were very rigid. More ethylene was administered without relaxing the muscles sufficiently. Some ether was then administered. The patient recovered consciousness quickly, very little ether having been given. Following the operation the patient vomited once, 3 ounces of a dark, blood-stained liquid.

Recovery from anesthesia was rapid, no nausea being complained of except that associated with vomiting once of a dark-stained liquid, shortly after the patient was returned to his room. (This case is again referred to under "Failures.")

GASTRO-ENTEROSTOMY; PATIENT HAD PULMONARY TUBERCULOSIS

Case 3.—E. G., a woman, aged 52, had for several years definite evidences of pulmonary tuberculosis. Eighteen months before entering the hospital, May 20, 1920, a gastro-enterostomy had been performed under ether because of a pyloric stenosis following the healing of an ulcer. Ethylene was administered on the present occasion, and a gastro-enterostomy was performed to the left of the one previously made. There was no evidence of any exacerbation of the tuberculous lesions in the lung.

The retention was not relieved by the second gastro-enterostomy, and as there was clinical evidence of a vicious circle, an enterostomy was made under ethylene between the loops of the intestine employed in making the gastro-enterostomy. There were no changes in the pulmonary lesion following these operations. Careful examinations were made to determine whether any extension of the tuberculous process could be detected. The patient recovered rapidly from the effects of the anesthesia. (Stomach retention is still noted. The patient seems to be improving, however, feeding being carried on through a jejunostomy made some six weeks before the entero-enterostomy was performed. The jejunostomy was performed under local anesthesia.)

AMPUTATIONS OF THE BREAST

Case 4.—Mrs. A. O., aged 74, had noticed for over two years some tenderness in the left breast and some induration. Recently this induration had become more marked. The mass had all the clinical characteristics of a carcinoma. On entering the hospital, the patient had a systolic pressure of 260 and a diastolic pressure of 160.

Oct. 1, 1923, a radical removal of the breast was performed under ethylene. The anesthesia was very good. No cyanosis was noted. The respirations were even and relatively shallow. The patient was conscious on return from operating room. During the six hours immediately following the operation, the patient vomited small amounts three times. Vomiting then ceased. She remarked about the pleasant anesthesia, experiencing no discomforts during induction and waking up without realizing that an operation had been performed. No effect on the blood pressure was noted.

Case 5.—A. O., a woman, aged 33, entered the hospital, June 6, 1923. During the preceding December, she had noted a nodule in the left axilla and experienced a heavy, tense feeling in the left breast. The mass in the breast presented all the clinical signs associated with a carcinoma.

Radical removal of the breast was performed, May 7, under ethylene. The anesthesia was good. The patient regained consciousness on the operating table. She complained, on the return of consciousness, of severe pain in the incision. Morphin was administered to the patient in the operating room. Nausea was not noted following operation. Recovery was rapid.

SUTURE OF THE ULNAR NERVE

Case 6.—L. F., a man, aged 28, was riding in a mail truck which struck a trolley pole, Sept. 1, 1922. He was thrown through the wind shield and sustained two cuts on the inner side of the arm just below the elbow. He experienced considerable pain, which soon subsided, after which changes associated with an injury of the ulnar nerve were noted.

Aug. 8, 1923, under ethylene anesthesia, the ulnar nerve was exposed just below the internal epicondyle. The nerve was found to be almost entirely divided. A neuroma had developed.

Anesthesia was satisfactory, although at one time vomiting occurred and the arm which had been flexed across the patient's chest for the operation was moved by the motions associated with vomiting. A relatively large amount of light yellowish fluid was thrown up at this time. The vomiting was easily controlled.

The patient was conscious when returned from the operating room. No nausea or vomiting was noted after return to the ward.

RESECTION OF LOWER END OF RIGHT RADIUS AND BONE TRANSPLANTATION

Case 7.—L. Y., a man, aged 34, had complained of pain in the region of the right wrist-joint for two months. Two weeks before entering the hospital he fell on the outstretched hand and injured the lower end of the radius, the pain becoming much more marked. A roentgenogram taken shortly after the accident revealed a shadow, an asymmetric expansion of the bone and a fracture. The fracture was pathologic, having occurred through a central giant cell sarcoma.

April 30, 1923, the lower end of the radius was resected, under ethylene, and a bone transplant taken from the anteromedial surface of the tibia was inserted. Anesthesia was very satisfactory. Considerable oozing was noted; no more than is encountered frequently in the soft tissues adjacent to malignant growths of bone. The patient vomited small amounts three times during seven hours following the operation. Consciousness was recovered quickly, and morphin was administered in the operating room because of pain.

PLATING OF FRACTURED FEMUR

CASE 8.—K. P., a woman, aged 40, admitted to the hospital, Aug. 10, 1923, seven days before had been struck by an automobile and sustained a fracture through the lower third of the left thigh. The fracture was transverse. The fragments were not in line and, because of the difficulty in maintaining reduction, an open operation was performed.

Operation was performed, August 10. Anesthesia was excellent. Difficulty was experienced in fixing the plate because of the disproportion in size between the drill points and the screws. The operation was unduly prolonged. Anesthesia was exceptionally good and smooth. It lasted one hour and a half. Recovery of consciousness occurred within three minutes. There was no nausea or vomiting following the operation.

REFRACTURE OF TIBIA AND FIBULA, WITH ATTEMPTED REDUCTION OF POSTERIOR DISLOCATION OF FOOT IN OLD POTT'S FRACTURE

CASE 9.—G. D., a man, aged 47, admitted to the hospital, April 9, 1923, during the preceding October had sustained a Pott's fracture (right side). A posterior dislocation of the foot had occurred with this. The dislocation had not been reduced, and as a result a very marked deformity had resulted. April 21, the original fracture through the fibula and tibia was reproduced under ethylene anesthesia, the ankle joint opened and an attempt made to reduce this dislocation. This was not entirely successful. The marked deformity was, however, corrected by inverting the foot to a marked degree.

The anesthesia was exceptionally satisfactory. It was continued for fifty-five minutes. The patient recovered within three minutes after the anesthesia was discontinued. He vomited a small amount once immediately after return to the ward.

7. Failures.—We have a record of seven more or less complete failures in a series of more than 700 operations, or about 1 per cent. of the cases. In order that the reader may better understand the nature and extent of the failures, the histories are briefly summarized. Before doing so we emphasize the fact, mentioned earlier in this paper, that none of the patients had been premedicated except one middle-aged man, who had received a small quantity of morphin from twenty to thirty minutes prior to the attempted anesthesia. Since he represents an individual who was unusually refractory to all anesthetic agents, including ether, we mention his history first and will then briefly refer to others.

CASE 10.—In a middle aged man, at two previous attempts at cystoscopic examination for suspected tuberculous ulceration of the bladder, nitrous oxid-oxygen anesthesia was attempted, but was entirely ineffective and ether was given. On this occasion ⅛ grain of morphin sulphate was given from twenty to thirty minutes prior to a 90 to 95 per cent. ethylene-oxygen anesthesia. The patient apparently relaxed one moment and then began mumbling in drunken fashion and began to writhe and struggle. After the patient had been saturated for from eight to ten minutes with ethylene-oxygen, he became quiet. The cystoscope was passed without reflex movements. When, however, the cystoscope was directed toward the vesical ulcer for its examination, the mumbling, writhing and struggling were resumed. Further attempts at saturation with ethylene-oxygen failed to induce the desired relaxation. Ether, therefore, was given by the drop method. During the administration of the first half pound of ether the patient continued to struggle, mumble, and adduct the lower extremities. Following the administration of the next quarter pound of ether the respiration became quite slow and regular (full morphin effect?) and the anesthesia was complete and very satisfactory. (Published with permission of Dr. Herbst.)

CASE 2.—A. R., a middle-aged man, who had received no premedication, was anesthetized with ethylene-oxygen. Anesthesia was satisfactory during resection of the pyloric end of the stomach and a posterior gastro-enterostomy. Proper surgical closure of the abdominal incision without a little ether was impossible because of the extreme rigidity of the abdominal musculature.

CASES 11 and 12.—Two middle-aged men were operated on for inguinal hernia. No premedication was given. Relaxation of the abdominal musculature was so unsatisfactory that the patients were etherized.

CASES 13 and 14.—Two young men, who had been given no premedication, had poor relaxation, so that cholecystectomy was impossible. In one of the cases subsequent etherization did not increase the relaxation in any striking manner.

CASE 15.—In a case of appendical abscess, the omentum had surrounded the perforated appendix, which was directed forward and medially. In an attempt to deliver the abscess, some difficulty was encountered. The muscle-splitting incision had been used, and was enlarged by being extended downward along the outer side of the rectus muscle. The mass of inflamed omentum was lying rather low. There was some rigidity of the abdominal muscles, which was not extreme. In order to secure more complete relaxation to permit of delivery of this mass without rupture of the abscess contained within the folds of the omentum, ether was administered.

ADVANTAGES OF ETHYLENE AS A GENERAL ANESTHETIC

A new anesthetic, to be deserving of a thorough trial, must have definite advantages over those already in general use. While the number of cases in which ethylene has been administered is small, a sufficient number have been observed to permit of a judgment of its advantages, which are very definite. These will be discussed under the heads: (1) ease of induction and rapidity of recovery; (2) relaxation without cyanosis; (3) absence of sweating; (4) absence of respiratory irritation, and (5) narrow anesthetic margin.

1. *Ease of Induction and Rapidity of Recovery.*—Patients can be anesthetized rapidly with ethylene, without struggling and without any sensation of suffocation. Absence of struggling or excitement is in the majority of cases very striking. The patients become anesthetic without any movement of the body, hands or feet. In some instances, when an operation was to be performed on the hands, the fingers have been rapidly flexed and extended a few times. When questioned, the patients state that they experienced no distressing or unpleasant sensations during induction of the anesthesia. In some abdominal operations it has been thought best to induce anesthesia slowly and to secure complete relaxation before making an incision. In some of these cases, eight minutes has been consumed in inducing anesthesia. Since marked analgesia apparently precedes complete anesthesia, operations in which complete relaxation is not desired may be begun early, after a few inhalations of the ethylene.

When anesthesia has been induced, respirations become regular and somewhat shallow. The respirations are neither grunting in character nor forced. The regular natural respiration is one of the striking advantages of ethylene anesthesia.

The ease of induction makes the ethylene-ether sequence preferable to the nitrous oxid-ether sequence. After 275 cases of ethylene-ether sequence, nitrous oxid is no longer used for induction of the anesthetic state.

The patient rapidly recovers from the anesthesia. Usually within two minutes after the anesthetic is stopped, the patient is awake and mentally clear. Return of consciousness occurs so quickly and the mind is so clear that patients frequently complain of pain in the incision, and morphin is frequently administered before the anesthetic is stopped, to prevent pain.

The figures that have been given indicate the frequency with which nausea and vomiting have been observed. The nausea seems to vary somewhat with the different tanks of ethylene that have been employed. Nausea, when present, usually occurs when the patient passes from the anesthetic to the waking stage. Frequently some gastric secretion lightly stained with bile is gulped up, no severe retching occurring. The vomiting ceases after this material is ejected, and nausea is no longer complained of. Hunger may be present within two hours after administration of the anesthetic.

In three cases, nausea not accompanied by much vomiting has persisted from eighteen to twenty-four hours. In one instance, tissue was removed from the breast and a frozen section made. The tissue removed proved to be malignant. A request to complete the operation if the tissue proved to be malignant was not granted. Later permission was obtained to do a radical operation, which was performed the next day. No nausea followed the second administration of ethylene. In another case, in which a rather large cyst was removed from the breast, nausea persisted for twenty-four hours, unaccompanied by much vomiting. In still another case, the appendix being removed, nausea accompanied by hyperchlorhydria persisted the greater part of twenty-four hours. These three cases are the exceptions to rapid recovery without nausea. As previously stated, the amount of nausea has seemed to vary with the different tanks of ethylene that have been employed. It has been thought that this nausea might be eliminated when a closer study of ethylene was made. It is quite probable that nausea can never be completely eliminated when a patient passes rapidly from the anesthetic to the waking stage.

There has been a striking absence of headache or postanesthetic distress. When leaving the table, patients converse intelligently; the mind is clear and remains so.

2. *Relaxation Without Cyanosis.*—Relaxation can be secured much better with ethylene than with nitrous oxid. Time should be taken in the induction to secure complete anesthesia. Relaxation is so complete that pelvic work can be performed easily. Gastro-enterostomies and stomach resections can be performed without difficulty.

Ethylene anesthesia is especially satisfactory in operations on the extremities. Complete relaxation is secured so that fragments of fractures may be easily brought into line and fixed. In one case mentioned above (an old Pott's fracture with a bad deformity and an unreduced posterior dislocation of the foot), both the tibia and the fibula had to be refractured, and it was necessary to resort to considerable force in attempting to replace the astragalus. During this operation, lasting fifty-five minutes, relaxation was complete. The anesthesia was very satisfactory.

Relaxation is secured without cyanosis. The color of the patient is more nearly nomal than with any other general anesthetic now employed. In some instances in which the anesthesia has been administered over a long period, the skin and mucous membranes may appear to be abnormally pink, a condition noted by Nunneley [13] and Luessem,[17] and attributed by the latter to vasodilatation. Because of this striking appearance, we intend to reinvestigate, in spite of our previous negative results, the possible chemical union of ethylene with the hemoglobin. If such a chemical union takes place under all or certain conditions, the chemical combination of ethylene with the hemoglobin is certainly very unstable; for within fifteen minutes or less patients regain their normal color.

Frequently during operations on the gastro-intestinal tract, strong peristaltic waves have been noted. These do not interfere with the surgical work, although in some cases the peristaltic waves are very marked, the bowel becoming rigid and hard. This is not so frequently encountered during ether anesthesia. After questioning patients on whom abdominal operations have been performed, we are quite convinced that they complain less of gas pains after ethylene than after nitrous oxid anesthesia. Peristalsis is apparently little influenced by ethylene. Absence of interference with peristalsis is a distinct advantage, as regards both gas pains and postoperative ileus. A depressed peristalsis becoming active again may account for the gas pains complained of by some patients when an anesthetic has been employed for operations not involving the abdomen.

The persistence of normal or even exaggerated peristaltic waves during ethylene anesthesia can be accounted for by the removal of the inhibitory control exercised normally by the higher centers through their extrinsic nerves. The persistence of strong peristaltic waves indicates, furthermore, that ethylene does not paralyze or seriously depress the normal neuromuscular apparatus of the bowel responsible for the regular and coordinated propagation of the peristaltic waves. During and after profound or prolonged ether anesthesia, paralysis of the neuromuscular apparatus of the bowel is complete. When the bowel begins to recover, the activity is not coordinated. As a result of this incoordinated activity, local and stationary constrictions of the bowel incarcerate gas; and, by putting the latter under great tension, occasion gas pains. Direct manipulation of stomach and trauma to the intestines will aid in wrecking the normal mechanisms. The effect of stimulating afferent nerves in the abdominal cavity or elsewhere (painful stimuli) leads reflexly to inhibition of gastro-intestinal movements. If morphin is given (for control of pain), another factor is introduced which augments the paresis of the bowel previously brought on by the toxic action of the ether, local injury, or reflex inhibition due to stimulation of sensory nerves.

Ethylene is less toxic in its action on nervous tissue. It is, furthermore, more rapidly eliminated. This accounts for the absence of gas pains except in those few cases in which morphin was given in rather large doses after operation for the control of pain.

3. *Absence of Sweating.*—Absence of sweating is a striking characteristic of ethylene anesthesia. After an anesthesia lasting from forty-five minutes to an hour, the skin is dry. The garments are usually so dry that it is not necessary to change them. This condition of the skin has not been observed with other general anesthetics. No drugs have been given before ethylene is administered, morphin and atropin being dispensed with. The absence of loss of body fluids is a distinct advantage. The dry skin prevents chilling, and should be an important factor in preventing postoperative lung complications.

4. *Absence of Respiratory Irritation.*—In none of the ases which we have observed has there been an increase f saliva or mucus. The mucous membrane of the espiratory tract has not been irritated, and there has een no excessive secretion of mucus. In one case, n which two operations were performed on a patient vith pulmonary tuberculosis, there has been no evidence f any extension of the process or irritation of the ronchial mucous membranes. The absence of respiatory secretion and of sweating are distinct advantages vhich ethylene has over any other general anesthetic gent now employed.

5. *Narrow Anesthetic Margin.*—Patients pass rapidly rom the anesthetic to the waking stage; the margin f anesthesia is narrow. This will probably be considred a disadvantage from the point of view of the nesthetist and surgeon, but we think it is a distinct dvantage from the point of view of the patient. The arrow anesthetic margin is probably most often noted n abdominal operations. The patient, apparently in leep anesthesia, may gulp suddenly or make some pasmodic movements of the abdominal muscles. The atient can be rendered deeply anesthetic very easily. As experience is gained in the administration of thylene, a smoother anesthesia will be given. The eriods in which patients partially come out from a eep anesthesia are becoming less and less frequent, s experience in administering ethylene is being cquired.

THE DISADVANTAGES OF ETHYLENE

1. *Odor.*—Ethylene gas has not a particularly pleasng odor. A few find it offensive. Others deny any bjectionable smell. As with taste, one can say, "De doribus non est disputandum." Many describe the dor as being similar to "molasses," "sorghum" or phosphorus matches." It is an exceptional patient who omplains about it. After four or five deep inhalations f an 80 per cent. mixture, the odor is no longer noticed, robably because of a depression of the peripheral sense rgan or of the olfactory center itself. The odor is ertainly no worse than the odor of ether and, unlike ther, this gas is entirely devoid of irritating properties. Many patients on recovering from the anesthesia, state hat the gas has no odor. When we first employed thylene in the operating room, the odor was quite oticeable, but became less and less so until at present t is not noted any more than that of ether. If disagreeble, it could be easily disguised.

2. *Oozing.*—The oozing from the wound is *perhaps* nore marked than with other anesthetics. This oozing loes not last after the anesthetic has been stopped. There have been no postoperative hematomas. The ozing, while greater, perhaps, is not excessive.

3. *Explosibility.*—As noted in a previous communiation, ethylene gas is inflammable. In fact, with ertain mixtures with air or oxygen, it is highly explosive. Frankly, this is its weak point and one which hould not be dealt with lightly. At that, it is not quite o explosive as ether vapor. Since ether volatilizes rom the mask and its volatilization is greatly increased y the patient during expiration and is heavier than thylene, it would appear that a poorly ventilated room night be charged sooner with an explosive ether-oxygen nixture than with an ethylene-oxygen mixture when nly such ethylene escapes into the room as the patient as inhaled. Only careful analysis of the atmosphere n the operating room will reveal whether ethylene or ether is the more dangerous. We certainly advise against the use of the cautery or free flame in the operating room, or any source of electrical discharges. Some preliminary tests have failed to reveal by our method detectable amounts of ethylene in the operating room after one and one-half hours of continuous administration. These tests were made under most favorable circumstances, and will be repeated at an early date, using better methods and analyzing the air in the operating room under more adverse conditions. We write not to alarm but simply to caution those who otherwise might be careless in its use. Knowing that, like illuminating gas and ether vapor, it forms with air and oxygen highly explosive mixtures, it behooves all in the interest of all and everything to be extremely cautious in its administration. On the other hand, we add that ethylene in more or less pure form is used now and has been used for some time for purposes of heating, lighting and welding.

CONCLUSION

In view of our experience, we feel that ethylene-oxygen has a very definite place as a general anesthetic agent, and is deserving of serious consideration and thorough trial.

THE RECORDING OF SCHOOLROOM DATA ON COMMUNICABLE DISEASES

A SIMPLE, GRAPHIC METHOD THAT ADMITS OF A CLOSE EPIDEMIOLOGIC STUDY OF ACTUAL CONDITIONS

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MINNEAPOLIS

In an effort to study the elusive problem of the spread of communicable diseases in schoolrooms, a plan was devised whereby known cases and known exposures and also cases occurring among exposures after exclusion were noted on a plat representing the seating of a schoolroom. The scope of study included 247 rooms in eighteen, or approximately one fifth of the grade schools. The schools selected represented each geographic subdivision of the Minneapolis school system and an enrolment of nearly 10,000 children. The period of the year chosen for the study was the mid-winter semester beginning Jan. 2 and ending March 16, 1923. As the greatest incidence of communicable diseases occurs in age groups under 10 years, the development of a modified plan applicable to interdepartmental work was not attempted.

The school nurse in each of the schools studied was furnished with a plat for each room of that school, together with instructions (reproduced at the end of this article) for its use. The routine procedure of the division of public health of daily notification to the schools of the report or discovery of cases of communicable diseases was used. On the receipt of this notice in a school included in the study, the nurse made a visit to the room which a child named in the notice was attending, and an inquiry was made of the teacher as to the exact seat occupied by this child. The abbreviation of the name of the disease concerned and the date of onset were then inserted in the space on the plate representing that seat in the schoolroom.

A similar procedure was followed in the case of children excluded as contacts, and the fact of case or contact was differentiated by a symbol. Should the name of a pupil previously excluded as a contact be reported as a case, the fact was noted by symbol together with the date of onset of the contact case. Cases such as pediculosis, which are ordinarily discovered by the nurse, were noted on the plat at the time of discovery and exclusion from school. The date of return to school was also noted on the plat. The routine practice of school nurses to attempt to discover the source of infection, and the lines of transmission of communicable diseases in the schools, were also used in this study. Such information as was obtainable was noted on the plat by connecting with a straight line those cases in which the pupils had a definite school association, such as contiguity of seating during class hours, or friendships involving close association during schoolroom (Fig. 1). The incidence of pediculosis and scabies is accounted for by reason of the fact that the schools selected for study were located in neighborhoods having the least social advantages and the greatest amount of congestion in the school buildings.

Table 2 shows the total number of cases and deaths in the city of the four diseases most prevalent during the period of the study. These totals are divided to show percentages of cases and deaths occurring among children in the preschool age; those of over school; those of school age but not attending; those attending private schools, and those attending public schools (Table 2 and Fig. 3).

The foregoing is an attempt to show how a study was made, and the prevalence of certain diseases in the city as the reason why it was undertaken. It is now appropriate to attempt to show any values that may have been derived from these studies.

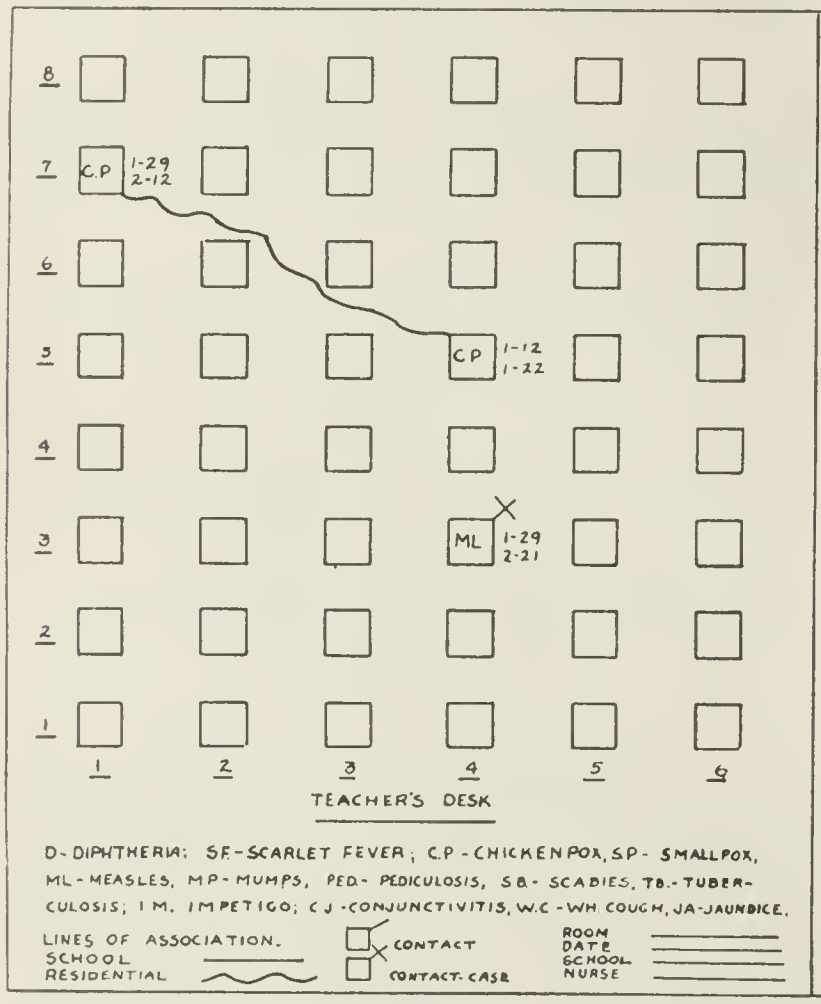


Fig. 1.—A controlled case of measles; also two chickenpox cases with residential association.

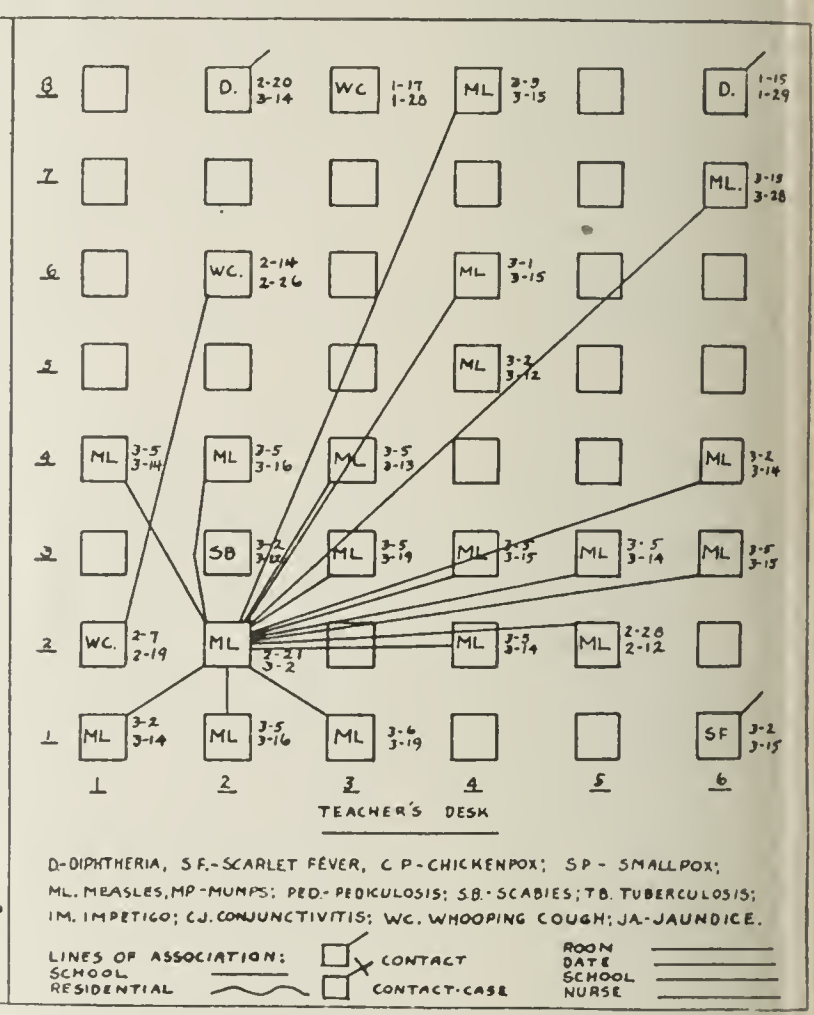


Fig. 2.—A missed case of measles, together with other schoolroom findings.

recess periods. Cases in which the pupils were known to have an association by reason of residence, neighborhood or otherwise, not definitely connected with the school, were shown by a waved, connecting line between the squares representing seats on the plat.

At the end of the semester, the plats from the schools studied were collected and tabulations made, of which Table 1 is representative. It will be noted on examination of this table that 833 children were excluded for all causes; 675 were known cases and 158 were excluded as contacts. Of these contacts, forty-nine developed the disease concerned in their exclusion. They are classed as contact-cases in this study. Had these forty-nine children excluded as contacts who developed cases been permitted to remain in school, the plats of forty-nine rooms would have most likely corresponded to the plat of the room shown of a "missed" case (Fig. 2), rather than the comparative plate shown in which a contact was excluded who developed a case outside the

1. It will be noted that the figures on diphtheria, the knowledge of which affords greater opportunity for preventive work, show a decided contrast to the figures on scarlet fever and chickenpox. These figures also show the imperative need of diphtheria toxin-antitoxin for children in preschool ages. The number of smallpox cases occurring among school children in Minneapolis is still high, though reduced 50 per cent. by a voluntary vaccination campaign conducted during the last three years. In this connection it may be permissible to state that vaccination cannot legally be made a prerequisite to school attendance in Minnesota.

2. The use of a seating plat shows graphically the value of exclusion of cases, contacts and exposures.

3. The seating plat can be used to show data concerning immunization or protection of pupils against communicable disease and facilitate the use of a plan of surrounding unprotected pupils with protected pupils during the prevalence of certain diseases. Those

mmunized against diphtheria or smallpox or recovered om measles could be seated nearest to nonimmunes, us separating the nonimmunes during the hours of hool session.

4. The use of a seating plat permits much closer idemiologic study on means of transmission of dis- ses in school, and encourages nurses and teachers to municable diseases can be kept current during a semester and filed for permanent reference after the semester closes. Cases in this study on which no accurate information could be obtained were shown on the plats without a line of association. If the practice of searching for the course of transmission comes into general use, the accuracy of information obtained is increased, and

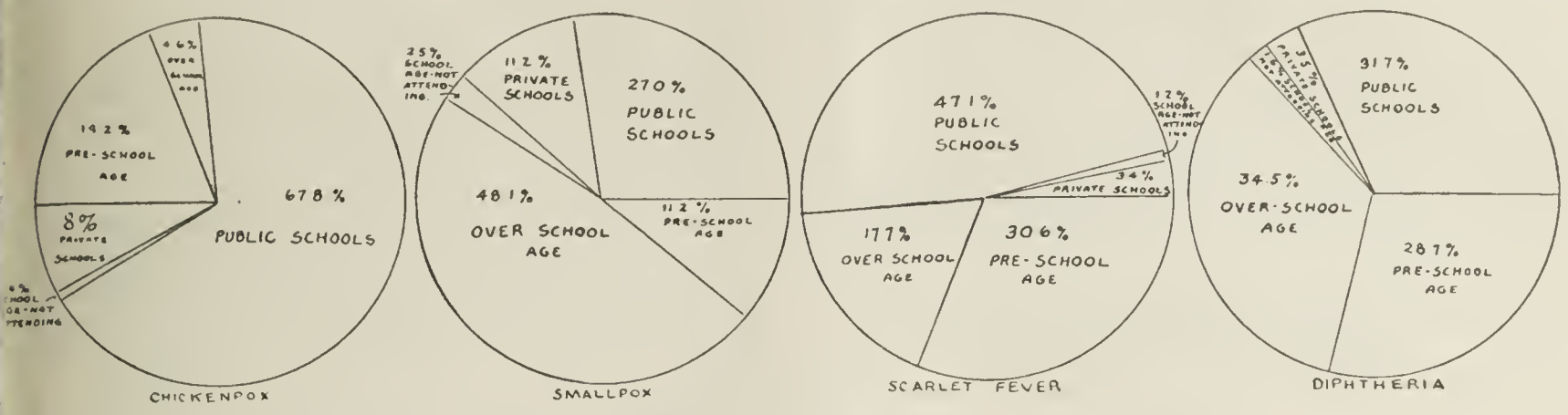


Fig. 3.—Occurrenee of chickenpox, smallpox, scarlet fever and diphtheria.

ve special thought to the possibilities of communicable isease control, as they see children during recreation eriods.

5. There is a check on the efficiency of communicable sease regulations, particularly in those cases which e returned as recovered or noninfectious.

6. The responsibility may be fixed for violation of hool health rules in case of an epidemic.

7. It affords a graphic means of demonstrating to rents that their children are not being exposed to reventable danger from communicable diseases in hool.

8. The tabulation of data gathered on schoolroom fewer cases remain on which information is not obtainable.

10. The preliminary work done on this study during a prevalence of diphtheria in October indicated that a theory of "over-the-shoulder" infection from a pupil sitting behind another pupil would be substantiated in those diseases due to direct contact with sprayed nose and throat secretions during coughing, sneezing, singing, speaking or whispering. While the study of the midwinter semester failed to substantiate this theory, it is believed that future studies made during a greater prevalence of certain diseases will establish this means of transmission as a factor worthy of consideration.

TABLE 1.—*Contagious Diseases in Eighteen Minneapolis Public Schools, from Jan. 2 to March 16, 1923*

hool	Diphtheria			Searlet Fever			Chicken-pox			Small-pox			Measles			Mumps			Pediculosis			Scabies			Tuberculosis			Impetigo			Conjunctivitis			Whooping Cough			Ringworm			Jaundice			Totals		
	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case	Case	Contact	Contact Case
.....	1	4	0	1	0	0	11	5	4	0	0	0	0	0	0	0	0	0	30	0	0	1	0	0	0	0	0	3	0	0	4	0	0	1	0	0	5	0	0	0	0	0	57	9	4
.....	1	0	0	1	0	0	13	3	4	0	0	0	3	5	0	0	0	0	17	0	0	0	0	0	0	0	0	3	0	0	11	0	0	4	0	0	0	0	0	0	0	0	53	8	4
.....	1	0	1	1	1	0	2	0	0	1	0	0	1	0	0	2	1	0	3	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	13	4	1
.....	4	0	0	0	0	0	1	0	0	0	0	0	0	0	0	6	0	0	2	0	0	1	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	17	0	0
.....	0	0	0	2	0	0	4	6	1	0	0	0	16	0	0	7	0	0	3	0	0	2	0	0	0	0	0	1	0	0	5	0	0	0	0	0	0	0	0	0	0	0	40	6	1
.....	4	4	0	1	0	0	2	1	0	0	0	0	0	0	0	5	3	0	19	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	35	8	0
.....	1	0	0	1	1	0	11	1	0	0	0	0	1	0	0	0	0	0	95	8	6	2	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	112	11	7
.....	0	0	0	2	1	0	5	2	0	0	0	0	1	1	0	4	1	1	95	0	0	3	0	0	1	0	0	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	116	5	1
.....	2	1	0	10	3	2	2	0	0	0	0	0	29	0	0	4	2	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	55	6	3
.....	0	0	0	3	3	0	5	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	4	2
.....	0	0	0	0	2	6	0	0	0	0	0	0	0	0	1	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	8	3	9
.....	3	3	0	1	1	0	0	2	0	0	0	0	0	0	0	4	13	4	14	0	0	3	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0	0	0	0	0	31	19	4
.....	0	0	0	2	2	0	10	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	19	3	0
.....	0	0	0	0	0	0	5	0	1	0	0	0	1	0	0	1	0	0	14	0	0	8	0	0	0	0	0	3	0	0	2	0	0	0	0	0	0	0	0	0	0	0	34	0	1
.....	0	1	0	0	2	0	0	0	0	3	0	0	0	0	0	0	0	0	15	0	0	11	0	0	0	0	0	3	0	0	0	0	0	9	0	0	0	0	0	0	0	0	39	3	0
.....	0	0	0	0	1	0	8	5	0	0	0	0	3	2	0	2	1	0	0	0	0	0	0	0	0	0	0	2	0	0	7	0	0	0	0	0	3	0	0	0	0	0	25	9	0
.....	0	0	0	2	4	0	5	0	1	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	13	5	1
.....	0	2	1	0	1	0	0	1	5	0	0	0	0	2	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	6	11
otals	17	15	2	27	22	8	84	28	18	2	1	0	56	10	4	36	22	9	312	8	6	34	2	1	1	0	0	22	0	0	35	0	0	39	1	1	8	0	0	2	0	0	675	109	49

lats permits a careful study of communicable disease icidence in schools; a study of the comparative inci- ence of communicable diseases in schoolrooms of ublic and private institutions; a comparative study of hool incidence as against the total incidence of certain iseases in the city, and the prevalence of certain iseases in certain schools.

9. The record showing residential or schoolroom ssociation as a factor in the transmission of com-

INSTRUCTIONS TO NURSES

Jan. 2, 1923.

Since the advent of medical inspection in schools, much effort has been applied to the problem of controlling communicable diseases among school children. It has been agreed among health officers that a properly inspected schoolroom is the safest place for a child during the outbreak of an epidemic. It is now proposed to prove this fact as well as to study the epidemiologic factors of diseases that occur among school children, and also with a reasonable accuracy

to determine the spread of infection within the schoolroom, school building and in residential association out of school.

The attached chart represents the seating facilities of a schoolroom. The rows are numbered from left to right and the seats are numbered from the front to the rear of each row. It is expected that the nurse will take the report of communicable diseases which is sent to each school daily and locate the seat used by the pupil who is ill or excluded as a contact. Having learned which seat was used by the pupil in question, the exact corresponding square on the chart is used to insert the abreviation of the disease, and the date of onset or last attendance is inserted in the space to the right of the square.

In order to be of the greatest value, a chart should cover a full semester. Entries should therefore be made in ink, and sufficient care used to avoid errors which would deface the chart. Should the same pupil be "out" on more than one occasion during a semester, an additional square may be placed above the one used on the first occasion. Thus, a pediculosis patient may have smallpox and require a second entry. Contact cases should be indicated by adding a flagellum to the square. Should the one excluded as a contact be reported later as a case, the flagellum should be crossed, and the last date entered below the first date. Care must be used not to connect flagella. [The symbols are given in Figures 1 and 2.]

By lines of association, it is meant that in the cases of pupils out of school for the same disease who were using seats not abutting on each other and who are close companions about the school building, a straight line showing direct exposure in this manner should be used to connect the squares representing their seats in the schoolroom.

By residential association is meant out of school contact between pupils out of school for the same disease who are occupying different apartments of the same building, next door neighbors, neighborhood playmates, etc. This situation should be indicated by a waved line connecting the squares which represent their seats in the schoolroom.

TABLE 2.—*Distribution of Cases and Deaths from Certain Diseases in Minneapolis During the Period from Jan. 2 to March 16, 1923*

		Preschool Age	Over School Age	Of School Age, Not Attending	Private Schools	Public Schools
DIPHTHERIA						
Total cases...	258	28.7%	34.5%	1.6%	3.5%	31.7%
Total deaths.	18	50.0%	11.2%	5.5%	5.5%	27.8%
6.9% of diphtheria cases resulted in death.						
SCARLET FEVER						
Total cases...	467	30.6%	17.7%	1.2%	3.4%	47.1%
Total deaths.	7	57.1%	42.9%			
1.5% of scarlet fever cases resulted in death.						
CHICKENPOX						
Total cases...	870	19.2%	4.6%	0.4%	8.0%	67.8%
No deaths from chickenpox.						
SMALLPOX						
Total cases...	108	11.2%	48.1%	2.5%	11.2%	27.0%
No deaths from smallpox.						

Aldehyd Content of "Moonshine" Liquor.—The chemists of the Internal Revenue Laboratory who have made thousands of analyses of aged in the wood whiskies prior to prohibition now note that samples which come into the laboratory in connection with raids on "moonshine" sugar, grain or fruit distilleries usually show a high content of acetaldehyd. The "ranker" the liquor, the higher the aldehyd content. The reason is, of course, apparent. The impossibility of fermentation control by the moonshiner results in a considerable oxidation of the ethyl alcohol into acetaldehyd and even acetic acid. The simple pot still and the eagerness for more profits in not discarding heads and tails did the rest, and the liquor presented to the trustful purchaser had everything that is needed to deliver a complete knockout.—J. M. Doran and G. F. Beyer: *Am. J. Pub. Health* **13**:831 (Oct.) 1923.

COMPRESSION FRACTURE OF THE SPINE DEVELOPING DELAYED SYMPTOMS

(POST-TRAUMATIC SPONDYLITIS, OR KÜMMELL'S DISEASE)*

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Post-traumatic spondylitis, or Kümmell's disease, developing as a result of compression fractures of the spine, particularly when seen in young children, is of great importance and rarely encountered.

That Kümmell's[1] disease as described in 1895 is now regarded as a distinct clinical entity is firmly established by most authorities who have written on this type of bone affection, and to Kümmell we are indebted for the first clinical and pathologic report, in which he describes six cases coming under his personal observation.

Post-traumatic spinal deformities developing after from two to six months, or even several years following the original injury, have been too frequently overlooked, or have had the vague and simple caption of back strains, arthritis, contusions, sprains, curvature of the spine or localized neuroses applied to them.

It is to emphasize the great importance of a thorough clinical observation in these cases of vertebral injury without cord lesions, together with a complete neurologic and roentgenographic examination that I am prompted to record a typical case of post-traumatic spondylitis, which has recently come under my care.

The essential predisposing cause is traumatism, whether the trauma to the spine is direct or indirect. In many instances the local tenderness or sensitiveness or pain over the injured portion of the vertebra is frequently very mild and may or may not disappear in a few days. Kümmell states that three distinct stages can be recognized in these cases: (1) the stage of initial injury to the spinal column, attended with a varying degree of surgical shock; (2) the stage of "relative well-being," in which the patient is able to attend to his duties and carry on his occupation, and (3) the development of the third stage, in which, after several weeks, months or even two or three years have elapsed, an angular kyphose appears, and with it the resumption of pain, both local over the spine, or radiating down the extremities, or of a neuralgic character, which frequently is very severe and requires for a time complete rest in the recumbent position.

As Kümmell's disease is essentially not fatal, the pathologic reports and the description of the gross and microscopic findings recorded in the literature in these cases are very meager.

Ludloff, at the Dresden Orthopedic Congress held in May, 1920, demonstrated a specimen of the lumbar spine obtained post mortem. Following traumatism in which no compression fracture was demonstrated, there was found at necropsy distinct contusion and rupture of the blood vessels of the lumbar segments; and, as a result of this nutritional impairment, necrosis involving the spongiotrabeculae of the affected segments was shown which resulted in a compression of the anterior portion of the lumbar bodies and the formation of an angular kyphosis.

* Read before the Section on Orthopedic Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Kümmell: Deutsch. med. Wchnschr., 1895, No. 2, p. 180.

It is important to remember that compression fractures of the vertebra, irrespective of the location of the fractured segment, occur in many instances without cord lesions, and that because paralysis does not exist, we should not disregard the possibility of a spinal fracture. The frequency of spinal fracture in the different areas of the column is best shown diagrammatically (Fig. 1). It must also be borne in mind that, in these cases of traumatic spondylitis, a compression fracture does not always exist, and that, as pointed out by Kümmell, the original traumatism to the spine resulting in a contusion of the spongiosa of the bodies of the vertebrae is sufficient to produce atrophy of the bony framework resulting in a slow and gradual compression of the segments involved.

Roentgenographic examination should invariably be made in every case of spinal injury, and an anteroposterior as well as a lateral view is essential. However, as pointed out by several contributors to the subject of post-traumatic spondylitis, the early roentgenograms may not show any demonstrable lesion, whereas after months or even several years, the collapse of the vertebral bodies and the compression of the intervertebral disks is clearly seen by the roentgenogram as the case advances. Mauclaire and Burnier,[2] emphasizing the relative frequency of delayed traumatic vertebral deformities, state that "even in comparatively slight injuries of the vertebral column they should be interpreted and treated as spinal fractures in all doubtful cases."

The differential diagnosis from tuberculous caries (Pott's disease), neuroses, contusions, ankylosing spondylitis, back sprain, and the not infrequent hysterical spinal manifestations or so-called railway spine, demand most careful and thorough consideration, both from a clinical and a roentgenographic standpoint. The prognosis is, as a rule, favorable, provided early treatment is instituted; and, although the deformity when once established cannot be reduced, nevertheless the increase in the size of the kyphos can be controlled by the wearing of a suitable immobilizing apparatus or snug fitting plaster-of-Paris jacket, and ankylosis either fibrous or bony may be obtained which will give functionally an excellent result. In the more severe types of the disease, particularly in the neglected cases, a radical ankylosing operation, such as described by Hibbs or Albee in the treatment of spinal tuberculous caries, should be advised.

REVIEW OF THE LITERATURE

Kümmell[1] reported a series of six cases of post-traumatic spondylitis in 1895, which at that time he believed to be a progressive osteoporosis following traumatism of the vertebral column.

The first case observed by him occurred in a man, aged 22, who jumped from a moving train to the station platform. The upper portion of the spinal column was violently pulled backward, but he did not fall. Immediately following the accident he suffered severely with pain in the back, which necessitated his remaining in bed for a few days, but he was then able to resume his work as a salesman. Six months later severe pain, localized over the traumatized area of the spine and also radiating down both extremities, required his obtaining surgical aid. On examination, the patient presented the typical clinical appearance of spondylitis with a well marked and angular deformity of the eighth and ninth thoracic vertebrae. Horizontal fixation and rest in bed for a short period gave prompt relief from the pain, and the wearing of a plaster-of-Paris corset resulted in a complete arrest of the disease, but with a permanent kyphosis of the spine in the affected dorsal region. The functional result was excellent, and he was able to resume his work without discomfort, wearing for several months a supporting apparatus. Five other cases occurring in young adults were included in the original report; all of the patients made a satisfactory recovery, but with a permanent deformity of the spine.

Grawitz[3] refers to these cases as benign spondylitis following traumatism, and records two cases which were under his personal observation. In one of these, which occurred in a man, aged 22, a partial paraplegia developed shortly after the accident, but with rest in the horizontal position and complete fixation of the column, the paralysis disappeared; but a gibbosity of the seventh to the ninth dorsal vertebrae remained.

In the same year, Kaufmann[4] added one case to the literature. He believed that in all cases a vertebral fracture exists, and he suggested the term "secondary traumatic kyphosis" to be applied to this type of spinal injuries.

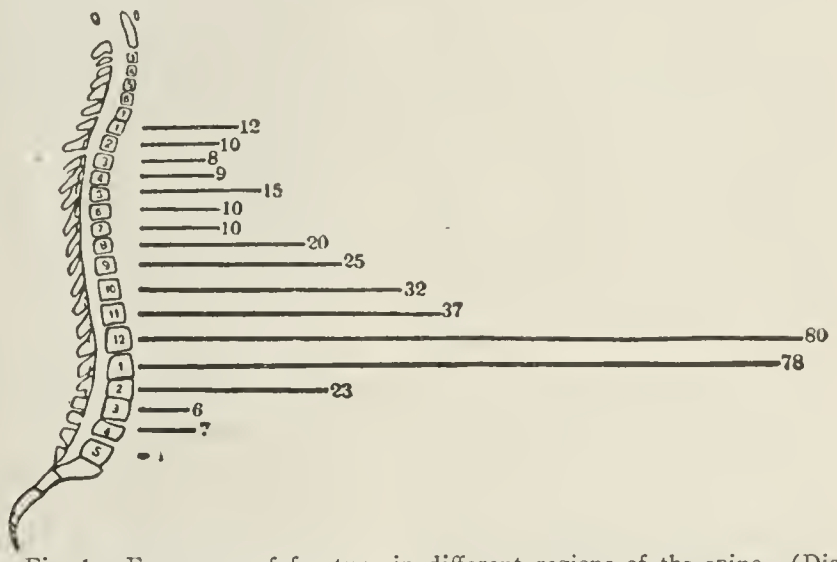


Fig. 1.—Frequency of fracture in different regions of the spine. (Diagram from Clinics of John B. Murphy; reproduced from article by Dr. J. Warren Sever, Surg., Gynec. & Obst. **22**: 338 [March] 1916.)

Kirmisson[5] reported two cases of vertebral deformities due to unrecognized spinal compression fracture occurring in persons aged, respectively, 18 and 11 years:

A boy, aged 18, sustained an injury to the spine by falling from a tree a distance of 15 feet; he struck on his back, and shortly after the accident there was a swelling localized over the lower dorsal area. After a month's rest and subsidence of the local swelling he returned to his work, but in the course of two months the acute pain returned, and the development of an angular deformity of the twelfth dorsal and first lumbar segments established the diagnosis of compression fracture with delayed spinal symptoms.

A boy, aged 11, fell from a grain stack but was able to walk immediately after the injury; in two weeks, however, a distinct deformity of the seventh, eight and ninth dorsal vertebrae developed, with a marked compensatory lordosis.

In 1896, Henle[6] contributed a series of four cases occurring in young adults.

In the first case, a man, aged 35, stepped on the ice and fell backward, striking on his back, and experiencing a severe pain in the middorsal region of the spine. The localized pain subsided in a few days, but shortly afterward returned with increasing severity. Rest in the dorsal position gave him relief from the pain, but on the slightest movement of the

2. Mauclaire and Burnier: Arch. gén. de chir. **6**: 274, 1912.

3. Grawitz: Charité-Annalen **20**: 169, 1895.
4. Kaufmann: Monatsschr. f. Unfallheilk., 1895, No. 6, p. 169.
5. Kirmisson: Rev. d'orthop. **7**: 481, 1896.
6. Henle: Arch. f. klin. Chir. **52**: 1, 1896.

spine the pain returned, referred not only to the spine but also to the abdomen and lower extremities. Immobilization in a plaster-of-Paris corset apparently gave no relief, and in seven months a small, angular kyphos was noticed in the dorsal region, with its apex at the tenth segment. This deformity was only slightly tender on pressure, but when the patient assumed the standing or sitting position, and when making pressure on the head, the pain was severe and always localized over the traumatized area. After several months of complete fixation in plaster-of-Paris jackets he was able to resume his occupation as an engineer.

This case was of particular interest because the early diagnosis when first observed was considered to be one of neurasthenia. This case emphasizes the fact that even in comparatively slight injuries traumatic spondylitis can develop.

Staffel [7] and Kirsch,[8] in 1897, each reported one case of Kümmell's disease in young persons coming under their care. In the same year one case was added to the literature by Vulpius.[9]

Schneller's [10] case is of particular interest:

A man, aged 43, while loading wood on a carriage, suddenly experienced a very severe pain in the back while lifting a heavy piece of lumber. He was obliged to remain in bed for several days; after a number of weeks he noticed improvement both as to the absence of severe pain and in his ability to walk with the aid of a cane. Fifteen months after the original injury, a well marked kyphosis appeared in the midthoracic spine, with the gradual disappearance of the pain. The diagnosis of post-traumatic spondylitis, due to indirect violence, was definitely determined.

Godonneche [11] contributed one case to this subject in 1897, and Heidenhain [12] added eleven cases, in all of which the secondary changes occurred soon after the original traumatism to the spine. In one of these cases a tuberculous spinal caries, secondary to the original vertebral fracture, occurred.

Wagner and Stolper's [13] report, published in 1898, is of unusual importance, for in the cases observed by them, no vertebral fracture was demonstrated, although both patients presented the true type of traumatic spondylitis, involving the lumbar segments.

Transitory paraplegia was present in the case recorded by Froelich [14] in 1898; and in Hattemer's [15] cases, in addition to the secondary traumatic kyphosis, there was present also a dislocation of the compressed vertebral segments.

Woerner [16] added seven cases to the literature on this subject. In his opinion, the diagnosis of traumatic spondylitis is not dependent entirely on the formation of a gibbus, although this deformity is usually present. Scoliosis is frequently present and can be easily demonstrated by roentgenography. In many instances the angular deformity can be prevented if the cases are early recognized and suitable immobilizing apparatus is applied.

The youngest case of Kümmell's disease recorded up to the year 1900 was reported by Hergens [17] in a child, aged 8, who, following a fall, complained of backache. Four days later, an angular deformity of the sixth dorsal vertebra was seen which was painful on pressure and increased in size, although an immobilizing corset was applied shortly after the accident.

Golebiewski's [18] case of healed compression fracture of the eleventh and twelfth dorsal vertebrae was complicated by an injury of the spinal cord, and occurred in a laborer, aged 28, who fell from a wall a distance of about 20 feet. Following the accident and owing to the compression of the bodies of the vertebrae, the patient's height was diminished about 4 cm.

Ruland [19] contributed seven cases, reported in 1900. The youngest case in his series occurred in a 16-year-old boy.

Bonsdorff [20] contributed two cases coming under his observation. He called attention to the extreme importance of careful examination of these cases in accident insurance practice.

Three cases were reported by Wegner [21] in 1901, and in the same year Krueger [22] contributed one case of traumatic spondylitis caused by a forcible rotation of the spine, resulting in a marked scoliosis and the development of an angular deformity of the third and fourth lumbar vertebrae.

In 1903, Brehmer [23] added one case, and in the same year Brodnitz [24] stated that the roentgenographic findings in the case observed by him showed no abnormal vertebral change at the time of the accident or even as late as eight months after the injury, although, clinically, four months following the accident a distinct angular gibbus appeared at the first lumbar vertebra.

Reuter [25] speaks of the pathologic changes in a case of "spondylitis traumatica," in which there was seen, at postmortem, rupture of the spinal ligaments, luxation of the bony trabeculae and extensive hemorrhage into the bony cellular tissue, and compression of the vertebral bodies.

In Beduschi and Bossi's [26] case, paralysis of the right leg, with involvement of the bladder and rectum occurred; under treatment, it gradually disappeared.

In Chappatt's [27] series of seven cases, the youngest case was in a lad of 12 who fell from a tree a distance of about 10 meters; after a fortnight, lumbar pains developed, and the formation of an angular kyphosis of the twelfth dorsal and first lumbar vertebra occurred.

Grisel,[28] in 1907, laid emphasis on the difficulties that may arise in differentiating tuberculous caries from traumatic deformities of the spine of the Kümmell type.

Petersen [29] laid stress on the differentiation between Pott's disease, preceded by trauma, and traumatic spondylitis with delayed gibbus formation.

Guillain and Laroche [30] contributed one case in 1908, and Markus [31] reported one case in which, in addition to the angular kyphosis, there was a slight S shaped spinal scoliosis.

In 1909, Brauer [32] published the report of two cases of Kümmell's disease involving the cervical spine.

7. Staffel: Monatsschr. f. Unfallheilk., 1897, No. 7, p. 204.
8. Kirsch: Monatsschr. f. Unfallheilk. **4**: 140, 1897.
9. Vulpius: Monatsschr. f. Unfallheilk. **4**: 201, 1897.
10. Schneller: München. med. Wchnschr., 1897, No. 2, p. 39.
11. Godonneche: Thèse de Paris, 1897.
12. Heidenhain: Experiences with Traumatic Spondylitis, Monatsschr. f. Unfallheilk. **4**: 65, 1897.
13. Wagner and Stolper: Deutsch. Chir. **40**: 244, 1898.
14. Froelich: Rev. médicale de l'est. **30**: 284, 1898.
15. Hattemer: Beitr. z. klin. Chir. **20**: 103, 1898.
16. Woerner: Fortschr. a. d. Geb. d. Röntgenstrahlen **2**: 83, 1899.
17. Hergens: Inaug. Diss., Leipzig, 1900.
18. Golebiewski: Lehmann's Handaltanten **19**: 158, 1900.
19. Ruland: Inaug. Diss., Bonn, 1900.
20. Bonsdorff: Traumatic Kyphosis with Gibbus Formation, Finska läk-sällsk. Handl. **42**: 191, 1900.
21. Wegner: Deutsch. militärarztl. Ztschr. **30**: 157, 1901.
22. Krueger: Tr. Gesellschaft für Natur, und Heilkunde zur Dresden, 1901; München. med. Wchnschr., 1902, No. 10, p. 421.
23. Brehmer: Inaug. Diss., Greifswald, 1903.
24. Brodnitz: Centralbl. f. Chir. **30**: 902, 1903; Tr. II Congress of German Society for Orthopedic Surgery, June, 1903.
25. Reuter: Arch. f. Orthop. **2**: 137, 1904.
26. Beduschi and Bossi: Arch. di Orthop. **21**: 353, 1904.
27. Chappatt: Thèse de Nancy, 1906.
28. Grisel: Rev. d'orthop. **8**: 167, 1907.
29. Petersen: Inaug. Diss., Berlin, 1907.
30. Guillain and Laroche: Bull. et mém. Soc. méd. d. hôp. de Paris, 1908, p. 516.
31. Markus: Aerztliche Sachverständigen Zeitung, 1908, No. 22.
32. Brauer: München. med. Wchnschr., 1909, No. 8, p. 425.

Redard,[33] in his lecture delivered at the Second International Medical "Accident Congress" in 1909, reported two cases of industrial accidents resulting in injuries of the vertebral column, and mentioned three cases that came under his treatment. The roentgenographic findings in all of his cases showed a collapse or compression of the affected vertebrae. He recognized as a true type the post-traumatic vertebral deformities, described by Kümmell, but added that this type must be distinguished from the remote vertebral deformities which follow true compression fractures of the vertebrae and which are characterized by pronounced gibbus formation or a lateral deviation of the vertebral column.

Maingot[34] added one case to the literature in 1910; two cases were recorded by Schanz[35] in the same year.

That traumatic spondylitis occurs in very young children was observed by Temkin[36] in 1910, reporting a case of a child who at the age of 10 years had fallen backward from a ladder, a distance of 1.5 meters, injuring the spine. Eighteen months after the accident there was a distinct scoliosis and a lateral compression of the body of the fourth lumbar segment.

In 1911, Schulz[37] reported twenty-one typical cases of traumatic spondylitis which came under his observation at the Hamburg-Eppendorf General Hospital. In this series he stated that the original injury to the spine was, in the majority of cases, relatively slight. Schulz referred to the medicolegal aspect, which sometimes may be encountered, and reported one case in a man, aged 35, who fell from a high scaffolding, sustaining a vertebral fracture, in which the angular deformity of the spine did not develop until several months after the original trauma, when there appeared a definite Kümmell kyphosis.

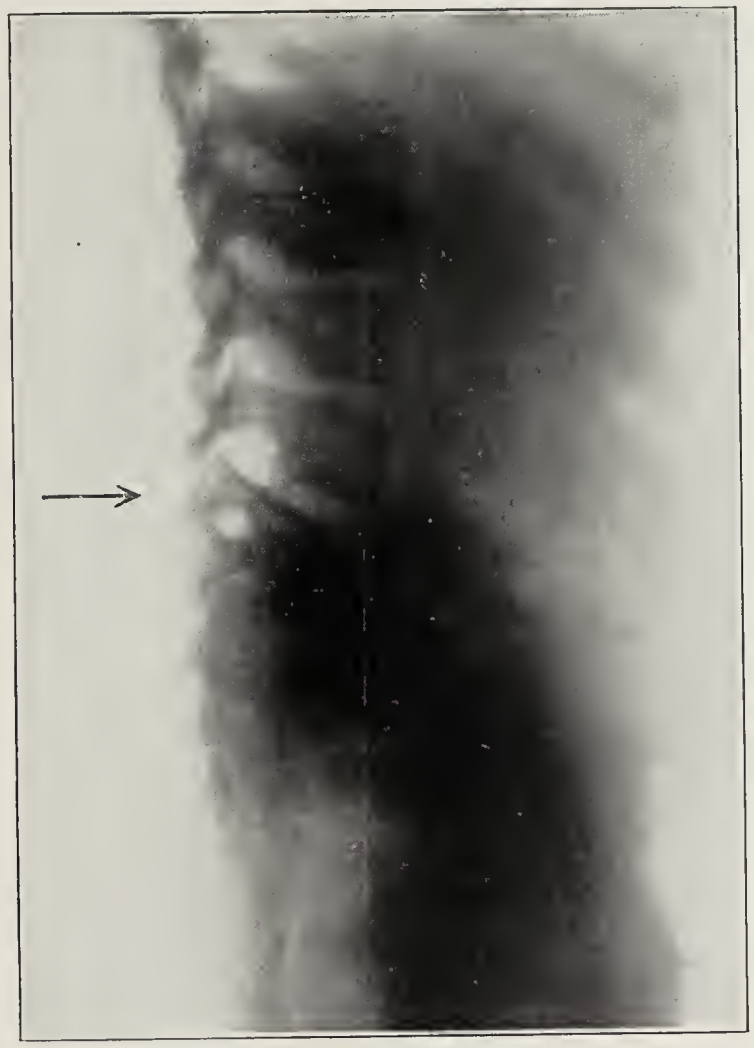


Fig. 2.—Lateral view of lumbar region of spine, Oct. 2, 1922, showing marked compression fracture of fourth lumbar segment, with thinning and compression of intervertebral disks and angular deformity of fourth and fifth lumbar vertebrae.

In 1911, Imbert and Vial[38] mentioned the fact that one year after Kümmell's original report, Verneuil contributed one case, which he demonstrated before the Paris Medical Academy. This case was of particular interest, for the original diagnosis was considered to be rheumatism, affecting the abdominal viscera and the abdominal muscles, although a previous history of extreme muscular effort on the part of the patient in trying to avoid falling on the ice had been elicited. Four months after this injury, a slight angular kyphosis appeared at the ninth dorsal vertebra.

Verneuil[39] mentioned those obscure cases of vertebral fracture which are caused by violent muscular contractions and are frequently unrecognized, in which a very common symptom is that of girdle or neuralgic pains in the thoracic region, with a delayed gibbus deformity. He reported two cases, illustrative of this type of spinal accident.

De Anna[40] added two cases to the literature occurring in middle aged adults, and Achard and Flandin,[41] one case.

Mauclaire and Burnier[42] described two cases of Kümmell's disease which was previously known of by the French surgeons as "insidious vertebral fractures." In one of their cases a scoliotic lumbar curvature, due to a right lateral displacement at the level of the third lumbar segment and a compression of the lumbar body and flattening of the intervertebral disks, was shown by roentgenographic examination. These writers believe that the prognosis is favorable in Kümmell's disease provided early treatment is instituted and proper supporting apparatus applied.

In Mallin's[43] case, reported in 1913, the angular deformity did not develop until eighteen months after the spinal injury.

Ewald[44] stated that, in the case observed by him, pain in the traumatized area of the spine did not appear until nine months after the accident, and was coincident with the appearance of a spinal deformity. Roentgenographic examination showed a well defined vertebral fracture.

Balthazard,[45] in 1914, described a case of traumatic spondylitis, which resulted in the death of the patient six months after the accident. The necropsy findings showed a marked spinal scoliosis, with a compression fracture of the anterior portion of the body of the eleventh dorsal vertebra, while the posterior part of this segment was intact, owing to extreme forward flexion of the spine at the time of the injury. In addition to the vertebral compression fracture there was a rupture of the transverse processes, but the articular processes were not fractured. He believes that the exact pathogenesis of this disease is still theoretical, and that in many cases no vertebral fracture can be demonstrated. This is the first complete report of the postmortem findings recorded in the surgical annals on this subject.

33. Redard: Ztschr. f. orthop. Chir. **24**: 80, 1909.
34. Maingot: Tr. Soc. de radiol. méd. de Paris, 1910, p. 244.
35. Schanz: Jahresb. d. Ges. f. Natur. und Heilk., 1910.
36. Temkin: Thèse de Paris, 1910.
37. Schulz: Beitr. z. klin. Chir. **27**: 363, 1911.
38. Imbert and Vial: Presse méd. **19**: 561, 1911.
39. Verneuil: Bull. de l'Acad. de méd., 1892, No. 39, p. 496.
40. De Anna: Inaug. Diss., Berlin, 1911.
41. Achard and Flandin: Gaz. d. hôp. **84**: 862, 1911.
42. Mauclaire and Burnier: Arch. gén. de chir. **6**: 274, 1912.
43. Mallin: Hospitalstid. **6**: 105, 1913.
44. Ewald: Med. Klin. **10**: 886, 1914.
45. Balthazard: Rev. de chir. **19**: 276, 1914.

Frazier [46] records the case of a man, aged 42, who came under his supervision. He points out the difficulties that may arise in clinically differentiating these cases from such spinal conditions as hypertrophic arthritis, the ankylosing forms of spondylitis, and the hysterotraumatic injuries of the vertebral column.

Glaser [47] contributes one case:

A man, aged 55, met with a severe accident by being thrown from his bicycle, striking his head and neck violently against the ground. The diagnosis arrived at immediately following the injury was a cerebral concussion. Five years after the original trauma he was admitted to the hospital, complaining chiefly of pain in the cervical spine. This pain was very severe and was referred to the neck and shoulders, extending over the entire skull. Extreme pain and tenderness was elicited on pressure over the cervical spine from the first to



Fig. 3.—Lateral view of lumbar region of spine, March 24, 1923, showing marked compression fracture of fourth lumbar segment, with thinning and compression of intervertebral disks and angular deformity of fourth and fifth lumbar vertebrae.

the fourth segments. The Wassermann reaction was positive, and intravenous injections of neo-arsphenamin were administered, which gave no improvement. Death resulted suddenly.

The necropsy findings showed the cervical vertebrae from the first to the fourth to be roughened, and from this roughened area exuded a yellowish purulent fluid. The vertebral bodies were eroded, roughened and necrotic. The spinous and transverse processes were also necrosed. The microscopic findings showed a chronic inflammatory process, with the formation of fibrous masses and atrophy of the spongiosa of the bone. No syphilitic or tuberculous changes were seen.

This case is of particular importance, owing to the fact that the necropsy findings and microscopic examinations were carried out in detail, and also that the stage of "relative well being" lasted for nearly six and one-half years following the accident. The patient during this stage compained only of vertebral rigidity, confined largely to the cervical spine.

Braun [48] contributed one case in 1919, and Duschak [49] reported one in which he stated that the roentgenographic examination was negative following the injury, and that no compression fracture of the affected vertebrae could be seen.

Ferrannini [50] reports one case, which he considers typical of Kümmell's disease, that presented compression of the vertebral bodies and the formation of a double kyphosis of the lumbar spine.

In 1920, Baker [51] added to the literature a compilation of seven cases of Kümmell's syndrome. In his conclusions, he stated that a compression fracture of the spinal bodies is frequently not diagnosed or is incorrectly diagnosed at the time of the original injury, and that the clinical symptoms may not appear until long after the vertebral trauma. The prognosis depends on the early diagnosis and the institution of proper treatment.

In 1921, Gorsch [52] gave the clinical history and roentgenographic findings of a case of compression fracture of the first lumbar vertebra with delayed symptoms, occurring in a man, aged 56, in whom the roentgenograms taken shortly after the injury showed no vertebral fracture. The crushing or compression of the first lumbar body was clearly revealed, however, three months after the accident, as was also the development of the angular kyphosis. He adds that "in Kümmell's disease there are none of the usual signs of spinal fracture present."

In 1921, Kümmell [53] contributed a second article on the subject of post-traumatic spondylitis. He states that since his original publication there have been many misunderstandings of the exact nature of the disease; and he again clearly outlines the clinical picture presented in this type of bone injury. He quotes the experimental work of Lange, who has definitely shown that the vertebral bodies break down or become compressed after a certain amount of weighting pressure is exerted on them, but that this collapse is preceded by very definite processes. First, the weighting pressure produces no demonstrable changes in the vertebral spinal segments until a certain pressure has been exceeded, and when this limit is reached the bodies become compressed according to the weight exerted on them; and, with the removal of this weighting, they either resume their original shape and configuration, or become permanently collapsed. It is natural to assume that with this compression the delicate bony framework will be damaged or destroyed and infiltrated with blood.

His conclusion, therefore, is that in some cases of traumatic spondylitis a compression vertebral fracture does not exist, but that a forcible traumatism to the spongiosa of the bodies of the vertebra suffices for the gradual production of atrophy of the bony framework and the slow compression and collapse of the vertebral body. Roentgenographic examination of these cases a short time after the injury shows no abnormal findings, but after months or even years elapse there is seen by

46. Frazier: Treatise on Surgery of the Spine and Spinal Cord, 1918; Traumatic Spondylitis, p. 449.
47. Glaser: Med. Klin., 1918, No. 15, p. 360.
48. Braun: Handbuch der Unfall-Medizin **1**: 545, 1919.
49. Duschak: Wien. klin. Wchnschr. **30**: 1599, 1920.
50. Ferrannini: Stud. Riv. di Sc. Med. **11**: 41, 1921.
51. Baker, R. H.: Surg., Gynec. & Obst. **31**: 359 (Oct.) 1920.
52. Gorsch: Ann. Surg. **73**: 360 (March) 1921.
53. Kümmell: Arch. f. klin. Chir. **118**: 876, 1921.

roentgenograms a collapse of the body of the vertebra and the compression also of the intervertebral disks.

He states that it is probably not correct to consider a "rarefying osteitis" following traumatism to the spine as the origin of the disease, but that this cause must be sought in the most "variegated gradations" as a result of the spinal injury, of which a compression fracture is one but not the only contributing factor. In the mildest type there may be only a slight contusion of the spongiosa of the body of the vertebra, with hemorrhagic infiltration and periosteal thickening. Kümmell lays stress on the fact that the characteristic feature in this symptom complex is that the primary traumatism presents no clinically demonstrable lesions, and distinct clinical symptoms develop after months or years following the original trauma.

REPORT OF AUTHOR'S CASE

History.—A boy, aged 9 years, who was born in Illinois, and who had resided in Colorado for the past fourteen months, was one of fifteen children, six of whom were living. The father was living and in good health with the exception of having occasional attacks of bronchial asthma. The mother was living and was supposed to have had pulmonary tuberculosis and was sent to Colorado. The clinical and roentgenographic examination made of the mother on a recent date showed no evidence of a pulmonary tuberculous lesion. The child had had measles and diphtheria in early life. With the exception of these illnesses he had always been a healthy, robust boy up to the time of his sustaining a spinal injury.

In August, 1918, when 5 years of age, he fell over a heavy iron wash tub, striking the lower portion of the spine against the tub and a cement floor.

Immediately following the accident he was unconscious for five or ten minutes, and on regaining consciousness he complained of severe pain in the back and thighs. The skin over the traumatized area showed no abrasion, and there was no ecchymosis. There was no involvement of the bladder or rectum. He was kept in bed for two days, and with the complete subsidence of the pain he was allowed to be up and about, and was able to play like other children. One week after this injury a swelling of the soft parts over the lumbar area was seen, which disappeared in a few days with the use of hot compresses.

Two months after the accident he complained of severe pain in the lower portion of the back, radiating down the anterior and median aspects of the thighs to the knees. Motion of the spine, particularly in forward bending, elicited great pain, which was more severe at night. There was no abdominal discomfort, and the bladder and rectum were not involved. There was no evidence of paralysis of the lower extremities. At this time an angular deformity was noticed by the mother, situated in the region of the lower lumbar vertebra, which was painful on pressure. Rest in bed in the horizontal position for a period of about two weeks gradually gave relief from the pain, both local over the spine and from the referred pain down the thighs. The permanent angular kyphosis remained.

On account of the increase in the size of the kyphosis, the child was brought to Dr. Hart of Denver for examination, who referred the case to me.

The first roentgenograms taken by Dr. Hart showed no evidence of tuberculous caries, but the lateral view of the lumbar spine demonstrated a compression spinal fracture of the fourth segment, and thinning of the intervertebral disks between the fourth and fifth lumbar vertebrae.

Examination.—Oct. 22, 1922, the boy was moderately well nourished, and walked without the support of apparatus, with no evidence of a limp. The left scapula was more prominent than the right.

There was an angular kyphosis involving the fourth and fifth lumbar segments, with slight pain on pressure over the spinous process of the fourth segment. There was no infiltration over the gibbosity and no evidence of psoas spasm. There was no deviation laterally of the spinous processes.

Motion of the vertebral column above the deformity was normal in flexion and on lateral or twisting movements of the spine. Hyperextension of the lumbar spine was restricted, but no pain was experienced in any motion of the column.

There were no motor or sensory disturbances in the back or lower extremities. Motion of the hip joints was normal.

The knee jerks and Achilles reflexes were normal, and there was no evidence of cauda equina involvement and no incontinence of the bladder or rectum. The heart, lungs and abdomen were normal.

The neurologic examination, made by Dr. C. S. Bluemel, showed no evidence of spasticity of the upper or lower extremities, and the gait was normal. There were no sensory disturbances of the abdomen, lower extremities or perineum. There was no ankle clonus, and Romberg's symptom was not present. There were no Gordon, Babinski or Oppenheim reflexes. The abdominal and cremasteric reflexes were normal.

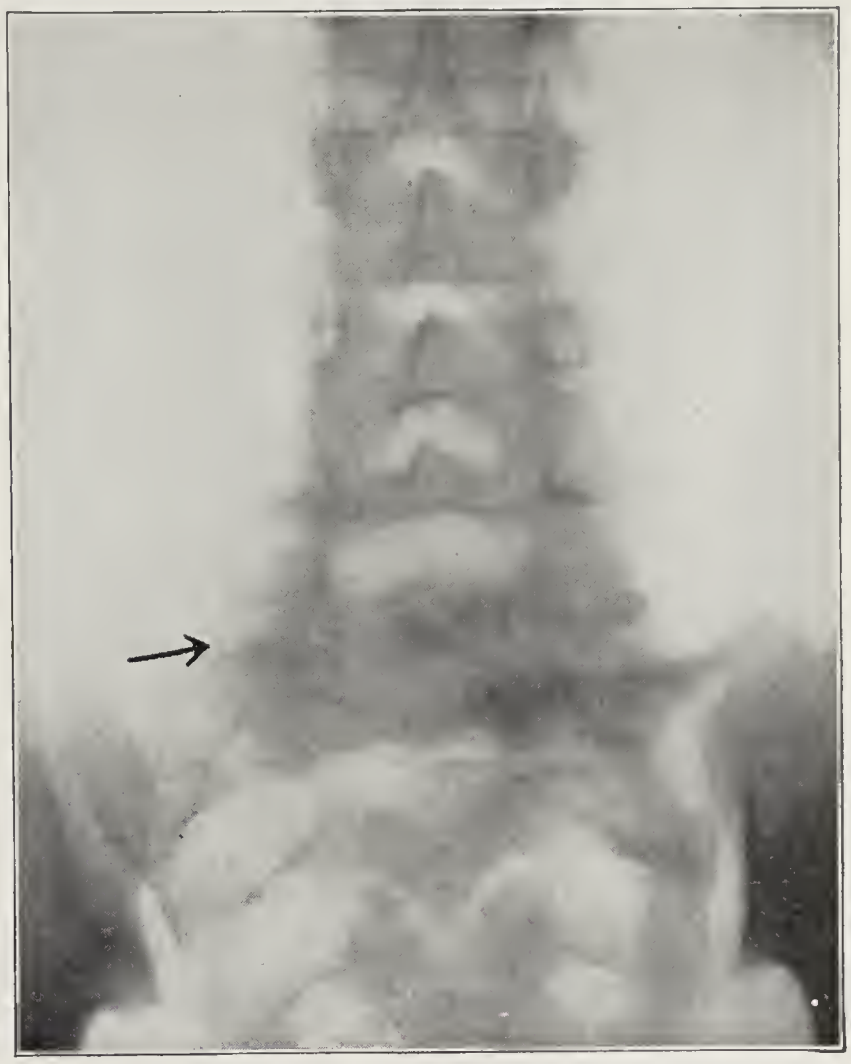


Fig. 4.—Anteroposterior view of lumbar region of spine, March 24, 1923, showing marked compression of intervertebral disk between fourth and fifth lumbar segments. The spinous processes are not fractured, and there is no lateral deviation of the lumbar column.

The pupils were large but otherwise negative. The eye grounds were normal. The skin was dry and slightly roughened. The result of the neurologic examination showed no cord or cauda equina or posterior spinal nerve root disturbances, and with the exception of the angular deformity the spine was negative.

The urine examination was negative, and the Pirquet skin reaction and the complement fixation test for tuberculosis were negative. The complete complement fixation test showed 100 per cent. hemolysis with all antigens. The blood Wassermann reaction was negative.

The second series of roentgenograms, taken in October 1922, and again in March, 1923, by Dr. S. B. Childs, showed no evidence of tuberculous caries of the spine.

Figures 2 and 3 are lateral views of the lumbar spine and sacroiliac joints. The spacing between the fourth and fifth lumbar vertebrae is partially obliterated, but there is no lateral deviation of the lumbar column. The spinous processes are not fractured.

In figure 4, an anteroposterior view, the lumbar spine shows a marked compression fracture of the fourth lumbar segment

and thinning and compression of the intervertebral disks. The posterior angulation is seen involving the fourth and fifth lumbar vertebrae.

The lateral (Fig. 5) and posterior (Fig. 6) photographic views show the well marked angular kyphosis of the fourth and fifth lumbar segments, caused by the compression fracture in this region.

The clinical diagnosis at the time of the first examination and confirmed by repeated roentgenograms, taken several weeks apart, was that of post-traumatic spondylitis, or Kümmel's disease, having as the etiologic factor a compression spinal fracture of the fourth lumbar vertebrae.

Treatment and Results.—The treatment instituted at the time of the first examination was the application of a plaster-of-Paris jacket with the patient in the horizontal position. These jackets were removed and reapplied at frequent intervals in order that the case could be most thoroughly examined and any increasing deformity noted. As there has been no increase in the size of the kyphosis since the patient came under my care, it was not deemed necessary to perform an ankylosing spinal operation. The child is now up, and com-

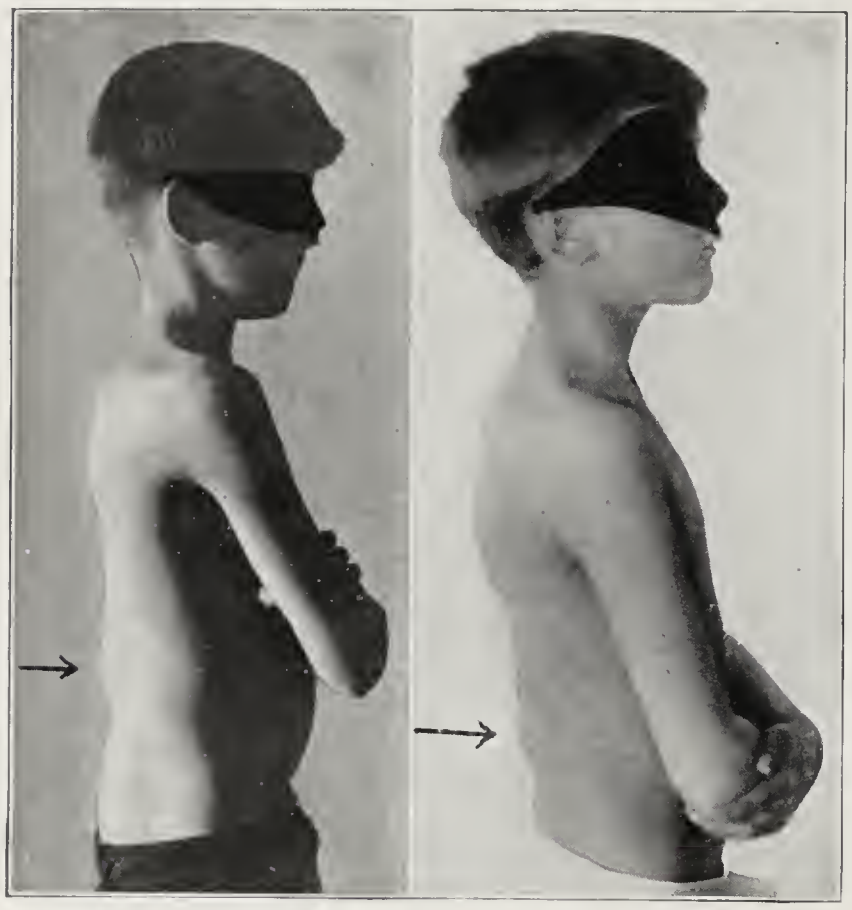


Fig. 5.—Marked angular deformity as seen from the lateral view.

plains of no pain or discomfort but continues to wear a snug fitting plaster-of-Paris jacket to prevent further deformity.

In the review of the literature of the reported cases we find but five cases in which this symptom complex has occurred in young children. Kirmisson reports a case occurring in a boy, aged 11. In Hergen's report the child was but 8 years old. In Chappatt's and in Petersen's cases the children were 12 years of age, and in the clinical record of Temkin, the child observed by him was but 10 years of age. So far as can be ascertained, therefore, the patient who came under my care is the youngest child in whom the disease has been observed, having sustained the original spinal injury when 5 years old, which resulted in a compression spinal fracture with delayed symptoms, with a permanent angular kyphosis of the fourth lumbar vertebra.

CONCLUSIONS

1. Kümmell's disease is a distinct clinical entity, having as its basic origin a traumatism to the spine, which may be mild or severe.

2. This traumatism, resulting in post-traumatic spondylitis, may be caused by a direct or indirect injury to the vertebral column.

3. There are three distinct and frequently clearly outlined clinical stages of the disease, resulting in a permanent angular spinal deformity.

4. Compression fractures are not always present, but in some instances severe contusions of the spongiosa of the vertebral segments is sufficient to produce damage to the bony framework and the slow and gradual collapse of the spinal segments.

5. The roentgenographic findings show no demonstrable bony change immediately after the injury, but after several months or even years a collapse and compression of the bodies of the vertebra can be seen. Two views are essential, anteroposterior and lateral.

6. The disease may occur following traumatism to the spine at any age, but it is rarely seen in young children.

7. Oftentimes, repeated clinical and roentgenographic examinations are necessary in order that a correct diagnosis can be established. Spinal cord injuries are not usually encountered in cases of Kümmell's disease.

8. The prognosis depends on the early recognition of the disease, and the institution of adequate immobilizing apparatus. In some cases, an ankylosing operation of the spine is advisable.

9. The differential diagnosis from tuberculous spinal caries, back strains, spinal neuroses, hypertrophic arthritis, and the true ankylosing type of spondylitis must be carefully considered.

516 Majestic Building.

Complete Complement Fixation Test with Blood Serum

Antigens	Hemolysis Per Cent.
Acetone insoluble lipoids of human heart	100
Kolmer's	100
Chol. alc. ext. of human heart	100
Gonococcus	100
Staphylococcus	100
Streptococcus	100
Pneumococcus	100
Tuberculosis, saline	100
Tuberculosis, Besredka	100
Wassermann reaction	Negative

ABSTRACT OF DISCUSSION

Dr. Alfred Edward Gallant, Los Angeles: There is no doubt that there are more of these cases than are recognized. At the Los Angeles General Hospital, in the last four years, we have had sixty-six cases of fracture of the spine. Unfortunately, we cannot follow these patients. They are given the routine treatment of rest in bed and plaster jackets and braces, and allowed to go. I operated in a case of Kümmell's disease. A boy, aged 14, was playing in a sand pit. The earth caved in on him, crushing his spine. He was more or less improperly treated, from the history I was able to obtain from his people. He came to Los Angeles when he was 16. He had a very marked kyphosis of the dorsolumbar region, with a beginning pressure paralysis. He was put on a Whitman frame for five weeks in order to reduce some of the kyphosis. Then he was operated on and a double Albee graft was inserted. He was kept on a Whitman frame all the time, even during the operation.

Dr. William Arthur Clark, Pasadena, Calif.: A man, aged 50, for several years had had prickling and tingling sensations on the back and sides of both thighs. The only history of injury dated back twenty years. His symptoms began about ten years ago. He was unable to get any physician to take any interest in him at that time. Recently his

symptoms have been getting worse and disturbing him a great deal. By putting him to bed, with traction, the symptoms disappeared for a while. He is all right while he is lying down. When he gets up the symptoms return. The roentgenograms show an extreme amount of callus around the fifth lumbar vertebra, evidently the results of the injury sustained twenty years ago when he fell off his horse and landed in a sitting posture on the base of his spine. He did not attribute very much importance to it at the time. I may be wrong in my assumption that this injury is the cause of his symptoms, but I have concluded that he had a compression fracture of the articular processes of the fifth lumbar vertebra which resulted in an exuberance of callus, causing neurologic symptoms.



Fig. 6.—Angular deformity of the fourth lumbar segment.

DR. WALTER G. STERN, Cleveland: In the study of the etiology of Kümmell's disease, which, as I understand it, has nothing to do with compression fracture of the spine, but is a chronic and more or less localized hypertrophic traumatic inflammation of the spine with cord or root symptoms, I had an unusual opportunity to see the work of Professor Kalisko, professor of medicolegal pathology at the University of Vienna, and of the late Dr. George Schroll, assistant to Dr. Lorenz. They were working on the theory of Reidinger and Kümmell that this disease was due to minute traumas to the bone and to hemorrhage into the structures of the spine. They attempted to prove it. At that time we already had very good roentgenograms at the University of Vienna. The roentgenographer was allowed to make all the roentgenograms of living subjects that he pleased, and was asked to diagnose all the traumas to the spinal column. The neurologist was then called in, and was allowed to diagnose whatever lesions he could on the spinal column. The surgeon was called in, and was allowed to diagnose whatever symptoms of fracture or injury to the spine he could diagnose. At the necropsy the spinal column was carefully dissected and all the minute lesions were noted. The different symptoms that had previously been diagnosed were ruled out, and the surprising results showed that practically none of the minor anatomic lesions found in the spinal column had been diagnosed intra vitam. There were minute cracks and fractures into the spine, and there were minute hemorrhages into the bodies, laminae and articular processes of the spine; there were hemorrhages into the ligaments and the lateral structures of the spine, and hemorrhage in the intervertebral disks. So I believe the experiments of Kalisko and the unpublished work of his assistant Schroll will bear out the thought that Kümmell's disease is caused by minute multiple traumas to the osseous and ligamentary structures of the spine, the traumas causing mostly cracks and small hemorrhages.

DR. FOSDICK JONES, Denver: I was much interested in the presentation of Dr. Clark's case. I should judge from his description and from the roentgenograms that this was a case of Kümmell's disease, in which the delayed symptoms occurred several years after the original spinal injury. In Kümmell's last article on this subject (*Archiv für klinische Chirurgie,* November, 1921), he clearly demonstrates the fact which Dr. Stern has spoken of, namely, that the disease does not always result from a compression fracture of the spinal segments, but that in many instances trauma to the vertebral column without compression of the bodies is followed by rupture of the blood vessels and injury to the periosteum and atrophy of the spongiosa of the vertebral bodies, a gradual compression of these segments, with a permanent kyphosis developing. One writer reports two cases in which this disease occurred simply by muscular contraction, and not by direct trauma to the spine. The so-called spinal neurosis or railway spine must be differentiated from Kümmell's disease. It is this type of injury that not infrequently leads to medicolegal investigations.

OBSTRUCTION TO THE LYMPH CHANNELS BY SCAR*

LEO ELOESSER, M.D.
SAN FRANCISCO

Transplants of skin and the underlying soft parts, whether they are made as free grafts at one sitting, or as Italian plastic operations in several stages, are prone to be the seat of an annoying edema. Both the free graft and the Italian plastic transplant are islands of tissue completely surrounded by scar. In both of them edema is likely to persist for a long time, if not indefinitely; and also, when once it has disappeared, to recur. This edema is much less common in pedicled flaps, even in those in which only a very narrow pedicle is retained.

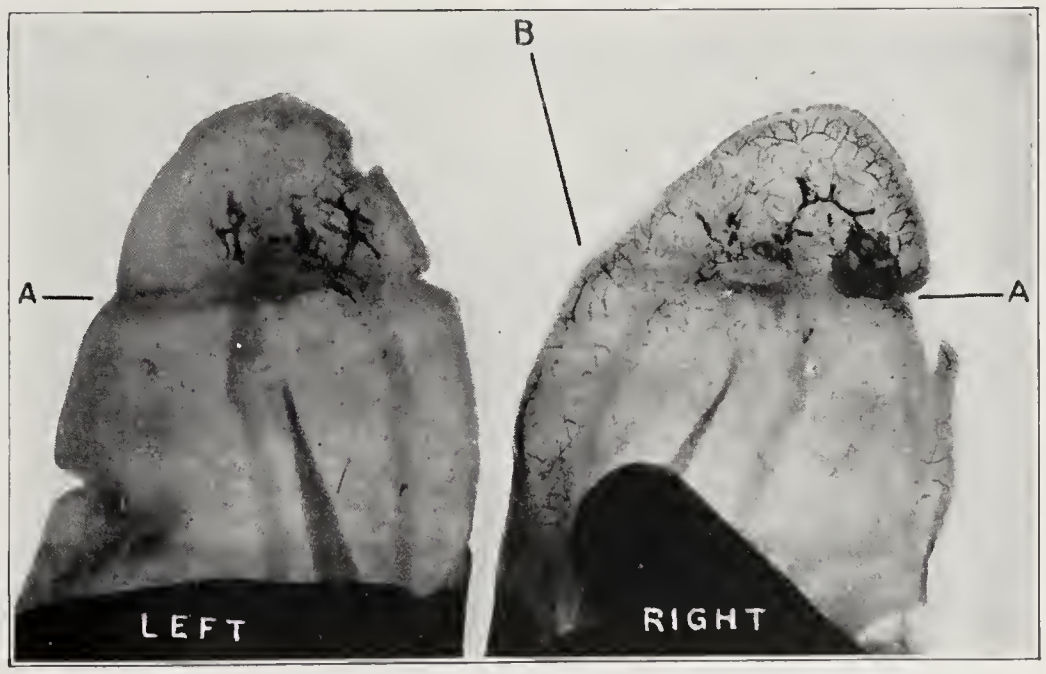


Fig. 1.—A suspension of barium sulphate has been injected into two rabbits' ears distal to a healed scar running across the ear. A roentgenogram of the left ear shows that the barium has been stopped by the scar. The scar on the right does not quite reach the left margin of the ear; while most of the barium stops at the scar, some of it has run along the fine lymphatic arcades at the unscarified edge and has reached the base of the ear. *A*, scar; *B*, unscarified edge.

In an attempt to inquire into the causes of this edema, I undertook some experiments with the help of Drs. Thompson, Eiskamp and Meherin. Once embarked on

* From the Division of Surgery, Stanford University School of Medicine.

* Read before the Section on Orthopedic Surgery at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

them, I have been led afield; questions have arisen that have a bearing on the causes of elephantiasic edema in general.

Clinical observations made during the injection of procain solution for purposes of local anesthesia have some bearing on this subject. Scar tissue offers an almost impermeable barrier to the diffusion of a hypodermic injection. It is almost impossible to infiltrate scar tissue itself, so great is the force required. If one makes the injection alongside the scar, one sees the solution diffuse up and down but not across it. It is impossible to make a satisfactory infiltration anesthesia in scar tissue.

Theoretically, it might seem that the cause of the difference between pedicled flaps and free grafts, the reason why free grafts are liable to be or to become edematous while pedicled flaps are not, might lie in an obstruction presented by scar tissue to the flow of lymph. The difficulties of injecting solutions into scar tissue would be explained by the same theory.

I have not been able to find out from the literature whether lymph vessels possess the power of regeneration and growth through scar tissue or not. Even the very complete older work of Marchand on the healing of wounds, on whose fundamental studies of the regeneration of all manner of tissues—blood vessels, nerves, bone, muscle and various glandular organs—most later work is based, contains no notes on the regeneration and growth of lymph vessels. At the Washington meeting of the American Surgical Association in 1921, Halsted reported some experiments on dogs. He had in several stages severed all of the soft parts of an extremity down to the bone. He was unable to produce an edema by this means. These limbs, whose whole cross section at a certain level, excepting only the bone, consisted of scar, did not become edematous. He concludes, therefore, that an aseptic scar offers no obstruction to the return flow of lymph.

Ignorant of these experiments, which Dr. Mont Reid had performed for Dr. Halsted, I had attacked the problem in another way. Halsted's object was completely to sever all the lymph vessels of a limb. We chose, instead of a limb, the severance of whose lymphatics offered considerable technical difficulty, the rabbit's ear. We severed the skin of the dorsum only, considering that an incision through one surface of the ear alone would accomplish a complete scarification of the lymph vessels of this surface. The two surfaces of the ear are separated by a broad, thin leaf of cartilage; no lymph vessels traverse the cartilage. There is therefore no direct lymphatic connection between the two surfaces of the ear. We made incisions through the dorsum of rabbits' ears down to the cartilage, but usually not through it. These incisions were allowed to heal, and after varying intervals, a suspension of barium sulphate or India ink was injected under the skin of the ear distal to the scar.

It was difficult to inject the barium sulphate into the lymph vessels. The suspension often spread through the subcutis and gathered about the site of injection as an irregular blob. In a few animals, however, we were able to inject the vessels themselves. In all of them the scar offered a complete obstruction to the passage of barium. In one (Fig. 1) the barium filled not only the larger lymph vessels accompanying the central artery, but also the finer arcades at the very margin of the ear. The scar did not quite reach the margin of the ear, so that the marginal arcades remained unobstructed and the barium traveled in them to the base of the ear. Although it was not possible to make satisfactory photographs of the specimens injected with India ink, the ink was better suited to our purposes than the suspension of barium sulphate.



Fig. 2.—Rabbit's ear injected, distal to a scar, with India ink. The lymph channels on the left have not crossed the scar; the large channel on the right has, but its lumen, as it traverses the scar, is much narrowed. *A*, scar. Photograph by Dr. Blaisdell.

When the India ink was injected slowly, first a round spot of black was observed to appear beneath the skin; suddenly from this spot, at one point or another, the ink darted into a lymph vessel, along which it ran rapidly, sometimes spreading from a main large vessel into smaller branches, sometimes entering simultaneously several smaller branches near the site of injection. It rapidly coursed along the vessels until it reached the scar, when it stopped. If one continued to inject, it fairly slowly made its way across the scar, evidently along minute constricted channels; but once the passage of the scar was accomplished it again ran along rapidly, filling out the large lymph channels as before. In some animals the incision was not carried completely across the ear: when these ears were injected, the ink would run up to the scar, and then instead of crossing it, would deviate to one side or another, or would flow backward along small channels until it struck the unscarified portion of the ear, along whose uninterrupted lymph spaces it would proceed and by this route fill out the channels in the distal part of the ear.

These experiments, then, showed that scar causes a relative stenosis of the lymph channels, obstructing the passage of grosser particles (barium sulphate) but not of finer ones (India ink). This obstruction persists in a scar several (four) months old.

It is noteworthy that although the lymph vessels of these ears were partially obstructed, the ears were not edematous. This is the same result that Halsted obtained. He was unable to produce an edema by severing the lymphatics. He considered that the chronic edema, the surgical elephantiasis seen after operations involving the lymphatics, such as operations for cancer of the breast with removal of the axillary glands, was due not to a severing of the lymphatics but to a chronic infection.

Following this lead, we made some further experiments whose final results I am not yet in a position to report, but which gave interesting information.

In the specimens mentioned above, the ink has beautifully outlined a well defined tracery of lymphatic vessels. In a second series of rabbits we were unable to inject the lymphatics at all.

The ears of these animals we inoculated with a strain of streptococci given us by Dr. Stone of Dr. Gay's laboratory at the University of California. The strain is one isolated by Dr. Gay from an empyema and mentioned by him in numerous publications. With it he has succeeded regularly and constantly in producing an erysipelas. A number of our animals died after inoculation of the fresher and more virulent strains. In from twenty-four to thirty-six hours their ears were red and intensely swollen, and hung down heavily at the side of the head. Those that died had effusions into the chest, pericardium and abdomen, some of them pneumonia. In those that survived, the erysipelas gradually subsided, leaving at the end of a week or ten days a barely perceptible edema and thickening of the skin of the dorsum of the ear. Injection of older and less virulent cultures produced much milder reactions, some almost no reaction. The scar offered no impediment to the progress of the erysipelas.

The lymph channels of these ears, both the more acutely erysipelatous ones and those whose erysipelas had subsided, could not be injected with ink. In some of them, when much force was used, a few channels filled with ink, but slowly and imperfectly. In most of them, no matter what the force, the ink spread diffusely around the site of injection without finding its way into any channels. The channels were completely blocked. It is curious and interesting to note that this block occurred, and that it was impossible to inject the lymphatics not only in the acutely and subacutely erysipelatous ears, but also in those whose erysipelas had subsided and which showed few, if any, signs of their past disease.



Fig. 3.—A short scar (its length indicated by the two arrows) traverses the whole thickness of the ear. The injection has traveled around the scar, but two fine lymph channels (the middle ones) cross it. During injection it could be seen that the tracery of lymph vessels distal to the scar filled, not by way of the fine vessels crossing the scar, but by the vessels to the right, entering these and then running backward toward the scar through the middle vessels. *A*, scar. Photograph by Dr. Blaisdell.

CONCLUSION

Further experiments on the production of elephantiasis by repeated injections of bacteria, and studies on the permanence of the inflammatory lymphatic block, are in progress. This much, however, I am able to report: A healed scar partially, but not completely, obstructs the lymphatics; there is some, but not a perfect regeneration of the lymphatics across it. Infection with a certain strain of streptococci (Gay) completely blocks the lymphatics.

135 Stockton Street.

ABSTRACT OF DISCUSSION

DR. WALTER G. STERN, Cleveland: The subject of edemas and swelling, particularly after injury, is of constant interest to us, but I do not think that they have been explained as yet, and I am sure that the beautiful experimental physiologic work done by Dr. Eloesser and others will one day shed some light on why these various edemas persist after injuries. It is well known that in many cases in which, for instance, a fracture of the tibia has occurred in a limb that had been previously normal in size and circulation, the edema has persisted as high as the middle of the thigh. Such a phenomenon has never been satisfactorily explained. Dr. Nathan of New York attempted to explain the edema and the swelling of the soft parts after comparatively simple fractures. His experiments showed that the soft parts were damaged for at least 2 inches above and below the site of injury. He believes that he can show how in certain simple Colles' fractures that are caused not by direct violence but by a little slip and a little pressure on the palm of the hand, as in a light person falling down or off a chair, the edema may persist in the fingers and the forearm 3 or 4 inches above the seat of the fracture.

DR. LEROY P. KUHN, Chicago: When I first began to look into this subject, I was at a loss for a time to realize just what more could be accomplished than had already been done by Kondoleon in his operation—changing the lymphatic circulation. It seems to me that scar tissue offers the chief barrier and is the one thing we have to overcome in this work. Dr. Eloesser has shown in his experiments how the circulation can be forced through connective tissue. From the information that we now have on this subject, we are in a position to start out and do a great deal of work for the benefit of the patient. Of course, instead of having edema that has been formed and the ill effects resulting from it, with the enormous scars that we sometimes see, we may in time be able to bring about a much better result.

DR. EMMET RIXFORD, San Francisco: There is evidence that lymph vessels have a considerable capacity for regeneration; but whether the new vessels will go through scar tissue in sufficient size to drain properly is a question to be determined. The time element is probably of enormous importance. We know clinically that in a great many of these cases, the edema is not permanent; that if one waits long enough, the edema, even in a very extensive transplant, often disappears. For example, I have one observation of a transplanted flap, measuring approximately 4 by 8 inches, from one leg to the other, which was edematous for about a year. The edema gradually lessened and finally disappeared altogether. One has to distinguish between real edema and apparent edema. If one transplants a piece of skin to a man's nose, it is very apt to appear afterward like a knob, something obviously stuck on. That is due to contraction of the scar at the base and in the periphery—pushing up the center—and may be called apparent edema, whereas the actual edematous features of it are comparatively slight. As the scar stretches, the prominence disappears and the transplant becomes flat. The eventual thinness of the scar in these cases probably accounts for the opening up of passages through it. It is, perhaps, a quantitative question. Blood vessels open

up through scars in order to nourish these flaps that have been transplanted, and it seems reasonable to suppose that the vessels of the drainage system will also penetrate; but whether they open up enough to permit ready experimentation is another matter. The granules of India ink are exceedingly fine, but fluid may pass where ink granules may be stopped. One or two ideas occur to me in the matter of the relation of infections to the blocking of lymph vessels and spaces. I am thinking particularly of the edema that occurs in the skin after extensive infiltration of cancer of the breast. That edema is not primary; it occurs apparently only after Nature has done all it can to drain the area by means of the anastomoses of the lymphatic channels, the process being something like this: If the lymph vessels which normally drain a certain area are obstructed by carcinoma, there is lymph stasis; back pressure is effective in opening up the anastomoses of the lymph vessels, which are chiefly in the periphery. Then cancerous cells pass with the lymph into some neighboring system of lymphatics which is in turn blocked, and so on, until finally one after another of the available channels is obstructed and the drainage system breaks down when they are all obstructed. It is then that we have the pigskin edema. I can conceive that infection of a certain proportional degree of virulence might do the same thing, possibly by plastic exudation, possibly by actual physical destruction of the lining of the cells of the lymphatic spaces. The whole matter is exceedingly interesting. Dr. Eloesser's experiments, while not complete, are of determinative character and will be a most valuable contribution to this rather embarrassing subject.

DR. LEO ELOESSER, San Francisco: In speaking of the edema occurring after cancer of the breast, I had reference more to the edema of the arm, which is seen at varying intervals, not only immediately following operations, but also, sometimes quite inexplicably, a year or two or more after the operation, without any evidence of recurrence of cancer. It is this that Halsted so beautifully discusses in his last article on surgical elephantiasis. It seems to me, furthermore, that Dr. Rixford has probably hit the keynote when he says that the lymphatic obstruction due to scar is one of degree. I think these lymphatics are partially but not completely obstructed; and when some slight infection occurs which normal lymph vessels could carry off, the constricted vessels cannot, and edema results. This is only theory, and not as yet substantiated.

Future of Health Officer.—In these progressive times there is a magnificent future for the medical officer of health. "Prevention is better than cure," and though he will frequently be expected to prevent the unpreventable, and remove the irremovable his opportunities to improve the physical condition of the people will be abundant, and his influence for good on the health of the community enormous. In all circumstances, and on every possible occasion, he should strive to work hand and glove with the practitioners in his district—his work then will be far easier of accomplishment and more satisfactory in achievement than if a state of armed neutrality or open warfare existed between him and them.—E. B. Turner: *Lancet* **2**:771 (Oct. 6) 1923.

PHYTOBEZOARS *

W. E. HART, M.D.
DECATUR, ILL.

The term phytobezoars is dervied from the Greek word *φυτόν*, a plant, and the Persian word bezoar, having reference to the concretions found in the stomach and intestines of animals. In ancient times, the bezoars, found in ruminants, were highly esteemed as a remedy against poisons and infectious diseases, being worn as a charm against evil spirits, snake poisons, plague, leprosy, epilepsy and dysentery. The bezoars found in the human animal, and removed at operation, are of four varieties:

1. The trichobezoar, or hair-ball, is the most common, a large number being reported. These bezoars are found in young girls, who have acquired the habit of chewing the ends of the hair, or that of rolling combings or pulled hair into small compass, and swallowing it. These masses often attain the size of a complete cast of the stomach.



Fig. 1 (Case 2).—Mass in stomach.

2. The trichophytobezoar is a bezoar consisting largely of hair, with fibers of vegetable matter and food detritus enmeshed in the hair. These should be classed as trichobezoar.

3. The shellac concretion is found in painters, or workers in furniture factories where a strong alcoholic solution of shellac is used as a polish. This is sometimes swallowed straight, but those of more refined tastes add water, which precipitates the shellac. Cases have been reported by Hallas,[1] Tideman, Grauer, Friedlander and Vonnegut. These masses may attain a large size also, the two reported by Hallas weighing 1,745 and 2,000 gm., respectively.

4. The phytobezoar, or food-ball, so called, consists of the skins, seeds and fibers of fruit or vegetable matter, such as persimmons and prunes, salsify, celery with food detritus, such as starch granules, especially those of the potato, fat globules, striated muscle fibers, elastic tissue, fatty acid crystals, and squamous epithelium. These are rare, only five cases being recorded, those of Schreiber,[2] Peple,[3] Outten,[4] King[5] and Dr. Quain for Dr. Buckwill.[6]

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* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Hallas, E. A.: Ueber Schellackconcremente im Magen und Duodenum, Berl. klin. Wchnschr. **51**: 440 (March 9) 1914.
2. Schreiber, J.: Ueber einem Phytobezoar in Magen einer Frau und dessen Diagnose; Operation; Heilung, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **1**: 729, 1896.
3. Peple, W. L.: Globus Diospyri Virginianae Seminum, Report of a Case, Virginia M. Month. **48**: 596 (Jan.) 1922.
4. Outten, W. B.: A Case of Double Gastrolith Removed by Gastrotomy; Recovery; Death by Phthisis Three Months Afterward, M. Fortnightly **6**: 445, 1894.
5. King, H. P., cited by Outten (Footnote 4).
6. Quain (for Dr. Buckwill): Stomach of an Insane Patient Filled with Cocoanut Fiber, Which Caused Death by Perforation, Tr. Path. Soc. London **5**: 145 (May 16) 1854.

The eight cases reported in this series presented no hair and belong to this variety, *Diospyros virginiana,* or common persimmon, largely composing the mass in six of the cases, a considerable quantity of celery fibers in the seventh and prune and raisin skins and stems in the eighth. Schreiber reported a case in 1896 in which a mass was removed at operation from the stomach of a peasant woman. This mass measured 12 by 6 by 5 cm., with a maximum circumference of 20 cm., and was composed of plant cells and tangled compressed plant fibers, with scattered micrococci and masses of detritus. The patient related that she had been in the habit of eating large quantities of blackroot, a variety of salsify. Dr. Charles Martin [7] of Dallas, Texas, related a case in which a bezoar was removed from the stomach of an inveterate tobacco chewer, which was thought to consist largely of tobacco. No inquiry was made as to the ingestion of persimmons. Persimmon-bezoars are compact masses, and may be roughly spherical or conical, with the apex somewhat flattened, bases smooth, edges rounded, and showing the effect of attrition, as in the case of Outten. They may have a wide base and narrow body, corresponding to the fundus or pylorus, They may even be cylindric, as in Case 7, owing to the fact that the mass passed through a gastroenterostomy opening and lodged in the small intestine, causing obstruction.

They can be readily fractured with the fingers, having somewhat the consistency of putty or clay. The surface is usually greenish-yellow, or mottled light and dark brown, or they may be covered with a carbonaceous deposit.



Fig. 2 (Case 3).—Appearance of stomach.

The seeds of the persimmon may be seen sticking out from the surface like peanuts in peanut candy. The average size is about 8 by 5 cm. They lose much of their size and weight when dried. In Outten's case, in which two bezoars were found, they measured 12.5 cm. (5 inches) and 6.9 cm. (2¾ inches) in lengh. The circumference at the base of each was 27.5 cm. (11 inches).

The combined weight, one-half hour after removal, was 1,560 gm. Four days later they weighed 617.6 gm.

Hooyker [8] of Groningen removed a phytobezoar at necropsy weighing 880 gm. (28 ounces). This mass had the outline of and almost filled the stomach, which was considered of normal size. The composition was not given. These bezoars will immediately rise to the surface of a receptacle containing an opaque meal, gradually settling as the barium precipitates. The odor has been described as that of fermenting fruit in the recent cases, but is usually that of stomach contents during digestion. On broken sections these show more or less homogeniety, of a brown or yellowish brown, with the seeds, skins and fibers distributed irregularly throughout. They may or may not have a seed or number of seeds forming a matrix. Digestants, of the strength usually tolerated by the stomach, have no effect on these masses.

ETIOLOGY

The mode of formation of these bezoars is not definitely known. One writer attributes their formation to the fact that the persimmon contains 14.10 per cent. of gums and pectin [9] which favors cohesion. The muscular action of the stomach undoubtedly is a factor in molding and compressing these masses. In three cases hyperacidity was present, and in two of these gastric ulcer was demonstrated, the ulcer history antedating the ingestion of the persimmons. It is possible that the hyperacidity may predispose to their formation. The skins and seeds may be seen on the surface of the bezoars, which suggests that little if any is added after their original formation.

SYMPTOMS

The symptoms are those of an acute gastroenteritis of a severe type, occurring as a rule soon after eating the persimmons, or there may be a delay of a few hours to a day or two. With the subsidence of the acute symptoms, which may last several days, the patient may feel fairly comfortable, but there is rarely a complete return to normal. There may be nothing more than a sense of fulness or weight in the epigastrium, or there may at any time be a complete recurrence of all the symptoms. Attacks of diarrhea alternating with constipation of an obstinate type are common.

In the two cases complicated by gastric ulcer, the symptoms were attributed to the ulcer. In one case the lump could be felt by the patient while in the recumbent position. The pain may be referred to the kidney region or to the groin, and in one case to the right or left eye. Increase in temperature and pulse rate are usual during the acute attacks, and often during the exacerbations. Pressure over the tumor elicits no particular pain or even marked tenderness. Eating may increase or diminsh pain, even when complicated by gastric ulcer.

CLINICAL DIAGNOSIS

The value of a carefully taken history is here again emphasized in diagnosing this condition. The presence

7. Martin, Charles: Personal communication to the author.
8. Hooyker, cited by Bruen, E. T. (quoted by Outten, Footnote 4).
9. Constituents of the Pulp of the Persimmon, Bull. 60, Purdue University Agricultural Experiment Station.

of a very freely movable tumor in the epigastric or umbilical region, which is not painful to pressure, unless complicated by some other pathologic condition such as gastric ulcer, and which may disappear and reappear during examination or on change of position of the patient, unless held in position, is significant. With this, the history of the ingestion of persimmons, followed by the symptoms of a severe type of gastro-enteritis, usually within a few hours, which subsequently subside, only to recur probably in a few days, makes a picture hard to reconcile with any other pathologic condition. The mass remains within the stomach and moves with peristalsis.

Urine, blood and stomach analysis show no changes in uncomplicated cases. There is no great loss of weight, as a rule, yet Schreiber reports one case in which the patient was emaciated, this case being the one in which a phytobezoar composed of salsify fibers was found. They have been known to pass through a

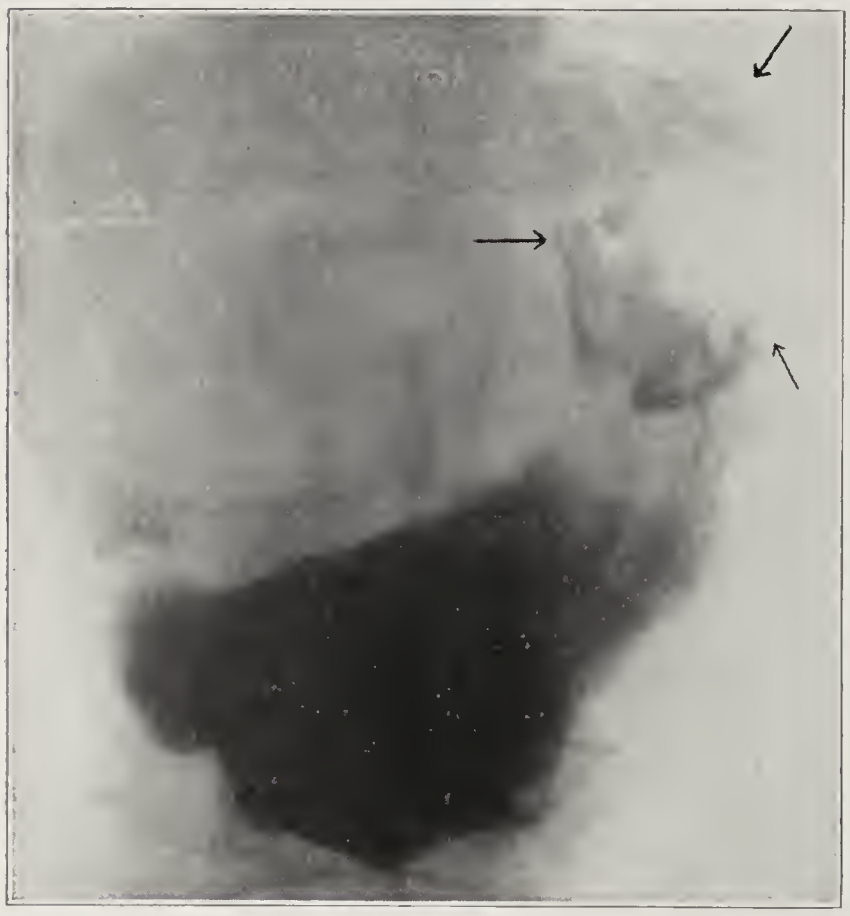


Fig. 3 (Case 6).—Ulcer crater on lesser curvature and mass in pars cardiaca.

gastro-enterostomy opening and lodge in the small bowel, completely occluding the lumen. Such was the condition found in Case 7. This occurrence illustrates how easy it is to overlook their presence, even when the stomach has been surgically treated for some other pathologic condition. The history of the patient's having eaten persimmons was obtained after the second operation. He had eaten persimmons once only, in October, 1920. Erroneous diagnoses have been made, such as floating kidney, carcinoma, tumor of stomach, movable spleen, hair-ball, polyp and adenoma.

The possibility of multiple bezoars must not be overlooked, as Outten reports that after removal of one bezoar, the stomach was sutured; when a second one, half the size of the first, was discovered, necessitating a second incision for its removal. It would seem hardly possible to overlook a body 2¾ inches in length and weighing 220.8 gm., but such are the facts.

The quantity of persimmons eaten bears no special relation to bezoar formation, as one patient swallowed, unintentionally, one unripe persimmon and within an hour two apples. It is possible that the character of the vomitus, being usually watery or of mucus, is due to the bezoar acting as a ball-valve in the cardiac antrum, preventing the ejection of food material.

ROENTGENOLOGIC

With the ingestion of the barium meal, the mass is likely to be seen in the antral portion of the stomach, depending somewhat on the size, as a clear round shadow, or light area, in the darker shadow of the barium. The appearance may suggest a large air bubble or filling defect, which may be seen to rise out of the antrum and float to the surface of the meal. Pressure over the stomach may displace the mass, which may rise above the level of the barium, showing as a rounded shadow in the clear air space in the fundus of the stomach.

When the bezoars are large, the meal may be seen to form as a cap covering something in the stomach, and canalize along the greater or lesser curvature, between the mass and the stomach walls.

The displacement of the intragastric mass can be observed as it is moved upward or sidewise by manipulation.

The shadow may disappear entirely, to reappear when bimanual pressure is exerted over the lower thorax. As the stomach empties, the barium streaked mass may be seen in the lower part of the pars cardiaca or pars media, depending on the relative size of the bezoar and of the stomach.

DIFFERENTIAL DIAGNOSIS

A. Trichobezoar:
   1. Female, with long hair; may get history of hair chewing or swallowing.
   2. May crepitate.
   3. Hair sometimes vomited, or may be found in the stools.
   4. Hair may be found following gastric lavage.
   5. Gradual formation.

B. Phytobezoar:
   1. Tumor extremely mobile.
   2. Males more common.
   3. Does not crepitate.
   4. Acute gastro-intestinal attack.
   5. Rapid formation.
   6. History of ingestion of certain fruits or vegetables.
   7. May be canalization of barium in hair-ball and bezoar.
   8. Hyperacidity common; may be complicated with ulcer.

C. Carcinoma:
   1. Filling defect constant.
   2. Hypo-acidity common.
   3. Tumor not so freely movable.
   4. Emaciation of variable extent.
   5. Age.
   6. Pain usually on palpation or pressure.

D. Other tumors of the stomach:
   1. These show constant defects.
   2. Nonmobile.
   3. Do not disappear and reappear.

E. Polyps with long pedicle:
   1. May get dimpling at point of attachment of pedicle.

TREATMENT

The treatment is essentially surgical, though other methods have been tried and good results recorded. Digestants have no apparent effect on these masses outside the stomach. Massage proved effective in one case reported by Outten, who, citing King, states that a tumor was demonstrated in the stomach of a boy,

aged 14 years, who gave a history of having eaten a quantity of persimmons. Massage of the tumor resulted in the natural voiding of a quantity of persimmon seeds and skins after two weeks' treatment. This method is uncertain and even hazardous in cases complicated by gastric ulcer. Through the kindness of



Fig. 4 (Case 8).—Mass near pylorus.

Drs. Mills and Simpson of St. Louis, I report a case (Case 8) in which a bezoar was demonstrated roentgenologically. Diluted hydrochloric acid was given because of an achylia gastrica. Within a few days, hard, black masses were evacuated in the stools, which were found to consist of vegetable detritus, apparently prune and raisin skins, with pieces of raisin stems. The conclusion was that the hydrochloric acid resulted in the disintegration of the mass by a stimulating proteolytic action, dissolving the vegetable cement substances. Roentgenograms taken later showed an apparently normal stomach, with no evidence of the bezoar shadow remaining.

The necessity of a thorough exploration of the stomach at the time of operation may well be emphasized, bearing in mind the possibility of multiple bezoars, and the fact that these bezoars may be found in the extreme cardiac antral region. The incision through the parietes should be large enough to admit the whole hand of the operator.

In the first seven cases, gastrotomy was performed, with one death, from peritonitis five days later, said to be due to the fact that the patient drank the contents of a hot water bottle soon after the operation. In Outten's case, pneumonia developed on the eighth day, death from phthisis following three months later.

REPORT OF CASES

Case 1.—S. B., a man, aged 54, a teamster, patient of Dr. Don Deal of Springfield, Ill., ate heartily of persimmons, Oct. 10, 1918. Within six hours, vomiting and purging commenced. There was a palpable mass in the left abdominal region. The patient experienced great pain, paroxysmal in character, accompanied by retching, vomiting and purging. A five-hour roentgenogram showed a filling defect in the pars media. A diagnosis of pyloric obstruction was made. Gastrotomy was performed, Feb. 3, 1919. A foreign body said to consist of persimmon seeds and skins was removed. The patient died, February 6, of peritonitis, said to have been caused by his drinking the contents of a hot-water bottle soon after the operation. The duration of the condition was 116 days (nearly four months).

Case 2.—C. R. B., a man, aged 39, a farmer, patient of Dr. Will Wood of Decatur, Ill., was a heavy drinker. He had had no digestive trouble before. Dec. 5, 1922, he ate about 1½ pints of persimmons and some cranberry sauce. Four hours later he experienced severe pain in the epigastrium, with nausea but no vomiting. The pain continued for three or four days. The vomitus consisted largely of mucus, and was very sour. A diagnosis was made of foreign body in the stomach, probably a persimmon mass, based on the observation of a mass at the roentgenologic examination, and the patient's affirmative answer in regard to the ingestion of persimmons. A gastrotomy was performed, Jan. 12, 1923. A bezoar consisting of persimmon seeds and skins and other food débris, 3 by 2 by 1½ inches, located in the extreme cardiac portion of the stomach, was removed. Recovery was uneventful. The duration was five weeks.

Case 3.—C. H., a man, aged 38, a farm hand, patient of Dr. Charles L. Patton of Springfield, Ill., on Thanksgiving Day, 1921, ate a regulation dinner of chicken, potatoes, cheese, stewed cranberries, and a large quantity of celery. A day or

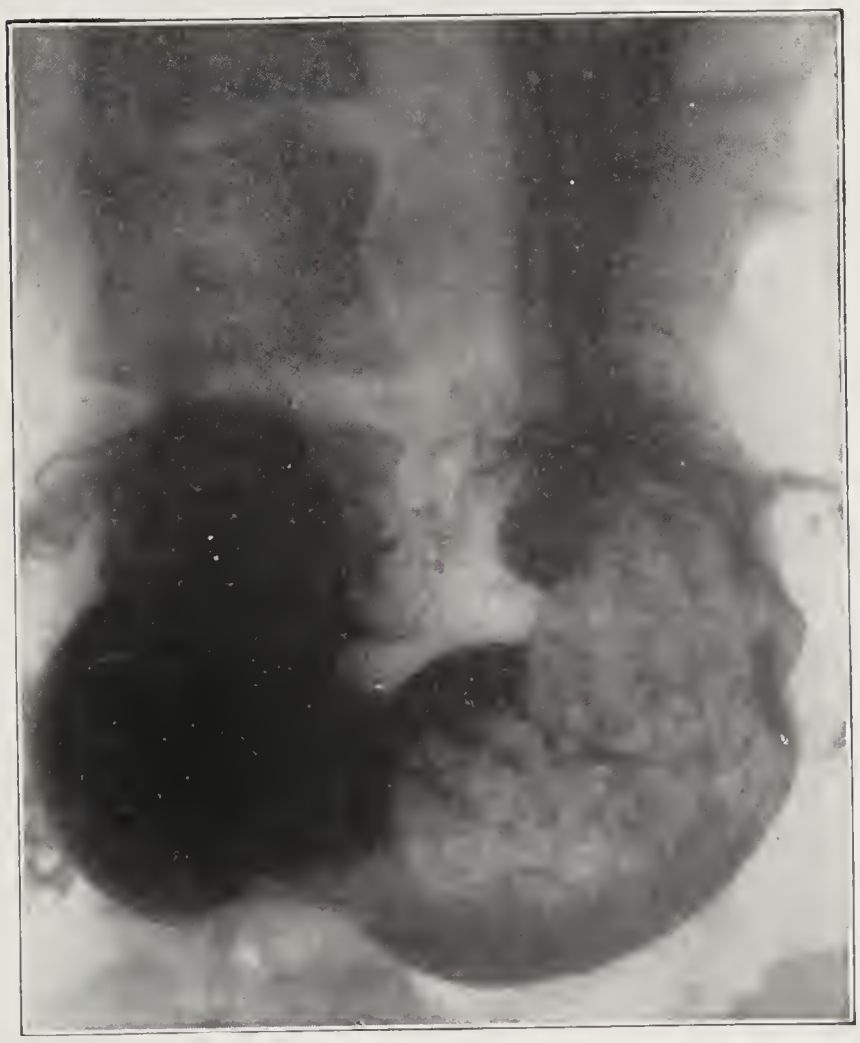


Fig. 5 (Case 8).—Mass in fundus.

two after, he began to notice a sensation of fulness in the epigastrium, with dull pain, coming on once or twice a week, usually very soon after meals, but occasionally an hour or two after eating. The pain was usually worse in the afternoon or evening. It was always relieved by alkaline powders. December 1, he felt sick, and did not eat. The next day he felt a dull pain before breakfast, which later developed into severe cramping. The pain was in the epigastrium. It con-

tinued for four days despite much calomel and salts. He vomited several times, the vomitus consisting of large amounts of bile-stained material without blood. Morphin finally relieved him. Since then he had had more or less cramping about navel. Any but the lightest liquids increased the epigastric pain and also caused pain in the lower part of the abdomen. Bowel movements and enemas gave only temporary relief. The patient had had no fever that he knew of. An Ewald meal gave: free acid, 92; total, 112. No diagnosis was definitely made. Operation was performed, Feb. 4, 1922. A mass the size of a small hen's egg was found in the small bowel about 6 inches from the ileocecal valve. The bowel was ulcerated, and almost perforated at this point. The bowel was opened, and a foreign body 2 by 1½ by ¾ inches



Fig. 6 (Case 8).—Mass near cardia.

was removed. Further examination revealed a mass in the stomach, which was removed. This mass measured 3 by 2½ by 2 inches, and consisted of some form of vegetable fibers, matted together with mucus and resembling a shredded wheat biscuit. The mass was completely covered with a layer of mucus, bile tinged, and dark green. There has been no cramping since the operation. The duration of the condition was seventy-six days (2 and one-half months).

Case 4.—Miss A. C., aged 40, a patient of Dr. M. P. Parrish of Decatur, Ill., had occasional attacks of indigestion. She ate a large quantity of persimmons on the evening of Nov. 16, 1921. She had considerable pain soon afterward, and used methods to promote vomiting, which, together with a purgative, relieved her. No preoperative diagnosis was made. A gastrotomy was performed, November 23, and a bezoar was removed, the size and shape of a goose egg, consisting of persimmon seeds and skins. Recovery was uneventful. The duration of the condition was seven days.

Case 5.—N. S. F., a man, aged 53, a brass finisher, patient of Dr. M. P. Parrish of Decatur, Ill., had had no previous stomach trouble. Nov. 8, 1919, while out coon hunting at 1 a. m., he ran across a persimmon tree. While tasting the fruit, he unintentionally swallowed one unripe persimmon. He returned to camp in a half hour, and ate two small apple before retiring. In a short time pain was noticed in the epigastrium, accompanied by nausea and vomiting. He felt as if there was a ball in his stomach which should come out. The vomiting ceased the next day, when a severe diarrhea began, which lasted about two weeks. Constipation then supervened, necessitating laxatives nightly. The pain was frequently felt, always coming on when the stomach was empty, and always being relieved for two or three hours after eating. The stools were always black at this time. The vomitus was always very acid. No preoperative diagnosis was made. Gastrotomy was performed, Jan. 28, 1920. A bezoar the size and shape of a large goose egg, consisting of persimmon seeds (?) and skins was removed. Recovery was uneventful. The patient now has occasional sensations of distress after eating. Acid foods cause no particular distress. Constipation persists. The duration of the condition was eighty-one days.

Case 6.—J. S., a man, aged 35, a farmer, patient of Dr. F. E. Smith of Decatur, Ill., had had stomach trouble for eight years, consisting of severe pain in the epigastric region, with eructations of a very sour material. Acid food always increased and other food always relieved the pain. The patient ate a considerable quantity of persimmons in November, 1921. He was awakened during the night by a very severe pain in the epigastrium, with nausea, and vomiting of mucus. He could feel a lump in his stomach when lying down. He vomited considerable blood one week before operation. Gastric analysis revealed: total acid, 74; occult blood ++ ++. A diagnosis of ulcer of the stomach was made. Roentgen-ray examination showed an ulcer crater on the lesser curvature and a mass in the pars cardiaca the significance of which was not appreciated until the mass was felt and the stomach opened. Gastrotomy revealed a bezoar half the size of a fist, consisting of persimmon seeds and skins and other food débris. The patient recovered. The duration of the condition was nine months.

Case 7.—F. M., a man, aged 53, a hardware merchant, patient of Drs. A. F. Sippy and Carl Davis of Chicago, had had pain in the epigastrium, coming on three or four hours after meals, for many years. Eating always relieved him. Sodium Bicarbonate, 1 dram, also would relieve him, until a year or so before the present trouble; since then it only nauseated him. In November, 1920, he ate a large quantity of persimmons. He had never eaten them before. After eating them he felt "sick all over." Purgatives moved the bowels, but no relief from the pain was obtained. The pain lasted four or five days, and then gradually subsided. He had a number of similar attacks until May 8, 1922, when he entered the Presbyterian Hospital under the care of Dr. A. F. Sippy. Physical examination revealed no palpable mass. Gastric analysis showed hyperacidity. Roentgen-ray examination revealed a gastric ulcer of the lesser curvature. Diet and treatment for four or five weeks produced no material improvement. Malignancy being suspected. the patient was transferred to the service of Dr. Carl Davis, who operated, June 5. An incision was made in the left rectus, and the upper part of the abdomen was explored. The gastric ulcer was resected, and proved to be benign. Gastro-enterostomy was performed in the usual manner. No evidence of a mass in the stomach was noted. Recovery was uneventful. The patient was discharged, June 18, 1922. Feb. 3, 1923, he was seized with a severe pain in the epigastric region. Three hours later the pain, now of very severe character, shifted to the umbilical region. Vomiting supervened. A diagnosis of intestinal obstruction was made by Dr. Carl Davis, and operation was performed, February 5. A large foreign body was removed from the small bowel a few inches distal to the site of the gastro-enterostomy. This mass was cylindric, 3 inches (7.5 cm.) long, and 2 inches (5 cm.) in diameter, consisting of a "yellowish homogeneous material surrounding the mass of persimmon seeds which formed the matrix of the body." The mass had a nodule or shoulder at one point. Recovery was uneventful. Three series of roentgenograms did not reveal the presence of the bezoar. The duration was approximately two years, two and one-half months (819 days).

Case 8.—Mrs. W., a middle-aged, slender woman, highly neurotic and very introspective, patient of Drs. R. Walter Mills and Guy Simpson of St. Louis, was referred complaining of vague, not especially indicative, dyspeptic symptoms. She had herself noticed a very easily palpable epigastric tumor, which was evident on inspection. A test meal revealed



Fig. 7 (Case 8).—Normal stomach after disintegration and evacuation of mass.

achylia gastrica. A roentgen-ray examination indicated a very evident intragastric defect in the pyloric region of the stomach. The impression was that of a benign adenoma, the size of a small fist. On manipulation, it was found that the tumor could be readily dislocated to any portion of the stomach. The idea of a pedunculated tumor was entertained. Dr. Simpson, discovering the achylia gastrica, administered dilute hydrochloric acid, and within the next few days hard masses were evacuated in the stools. These masses were quite black, showed fractured surfaces, and on examination were found to be composed of vegetable detritus, apparently prune and raisin skins, bits of raisin stems, etc. After the recovery of this mass in the excreta, the tumor disappeared from the stomach. It seems possible that the administration of the hydrochloric acid resulted in the disintegration of the tumor, perhaps by a stimulating proteolytic action dissolving vegetable cement substances.

ABSTRACT OF DISCUSSION

Dr. F. A. Kinslow, San Francisco: It is interesting to speculate just why these masses should form, and the association with hyperacidity in nearly all of the cases, and with ulcer in some cases, seems to have some significance. In most cases gastritis was present. The symptoms came on very soon after the mass had been ingested. Also, the mass seems to have been formed soon after it was ingested, as the outside seemed to be covered with persimmon skins, which would not have been the case if it had been added to. In the coconut fiber mass and the celery mass, the mode of formation must be different from the formation of the persimmon mass. Probably their mode of formation was similar to the hair-ball formation. I think they were added to. It seems significant that more of these cases are not seen. Dr. Hart picked up his cases away above the persimmon belt, and there would seem to be more of these cases that are either not recognized, or the symptoms are of such a trivial nature that the patients carry the masses around for years and never consult a physician.

Dr. Sidney K. Simon, New Orleans: I have not encountered, knowingly, any bezoars. But, if Dr. Hart, living in an Illinois community, where fruit ingestion is not unusually high, encountered so many cases, I believe that it will be found that the presence of these food masses, or bezoars, is a great deal more common than we have had reason to believe from the present statistical information. The point that is stressed particularly is the fact that these cases may simulate carcinoma of the stomach, both from the clinical side and from the radiologic side. It is very possible that some of the so-called inoperable carcinomas of the stomach are allowed to drift, and possibly some of those that turn up as miraculous cures without operation are, in fact, cases of food collections in the stomach belonging to the bezoar class.

Dr. W. E. Hart, Decatur, Ill.: I did not touch on the differential diagnosis. Hair-ball occurs in females, only one case in a male being reported. This man had a long beard which he was in the habit of chewing. Hair-balls may crepitate, and form slowly, with no history of an acute gastroenteritis, as in phytobezoars. There is usually no marked disturbance in nutrition in phytobezoars, but there may be in a hair-ball, as the mass is augmented by the continued process of hair swallowing. A history of the ingestion of persimmons is significant. In carcinoma, loss of weight is the rule; the tumor is usually painful to pressure; the filling defect or shadow is constant in location, and cannot be moved from one end of the stomach to the other, as in bezoars. The gastric analysis is very likely to show hyperacidity in the various types of bezoars, as in the three of the seven cases reported. In other tumors, such as fibroma, engioma and papilloma, the filling defect or shadow is constant, and cannot be changed materially.

Clinical Notes, Suggestions, and New Instruments

SUBSTITUTE FOR FRACTURE BED IN CASES OF FRACTURE WITH LARGE CASTS

R. C. Webb, A.B., M.D., Minneapolis

When a patient is placed in a large cast, such as a double spica, there are certain difficulties which occur in the nursing, and various frames and special types of beds have been



Patient lying in hospital bed on special mattress with middle section removed.

devised to aid in the care of the patient. A recent case occurring in my practice was that of an electrical engineer with a subtrochanteric fracture of the femur. A Lane plate was applied and the patient placed in a double spica cast extending from the nipples to the toes on the side involved, and to the knee on the other side. He was then placed on a "fracture bed" with a mechanical contrivance for lifting

the frame on which he lay. The bars of the frame were not wide enough; it caused him some discomfort, and additional nurses were required to manipulate the apparatus. This, with the mechanical inconsistencies from an engineering standpoint, added to the nervous strain and resulted in a search for a satisfactory substitute.

The special frame and bed were discarded, and a sectional mattress the width of the bed and in three sections was secured and placed on rather wide slats across the spring. The section at the head of the bed measured 36 inches, the middle section 15 inches, and the section at the foot 24 inches, thus giving a mattress of the usual length and width for hospital beds. A piece of "compo" board 15 inches wide and as long as the width of the bed was fastened to the under surface of the middle section, and handles were sewed to each end, making it easy to grasp and slip back and forth under the patient, who in the meantime raises himself slightly with his elbows and is supported by the upper and lower sections. Thus, one nurse can easily insert a bedpan by merely withdrawing the middle section. The mattress can be turned one section at a time, and by covering each section with separate sheeting the bed can be made with ease. By drawing the lower section to one side, a wider range of motion is afforded the free knee.

This type of mattress is comparatively inexpensive, and has the additional advantage of being useful on any bed when not in use for special cases. It obviates the usual method of calling in the "whole force" when such a patient has to be moved, and avoids the usual risk to the affected part.

300 La Salle Building.

PERINEAL HERNIA *

Joseph D. Heiman, B.S., M.D., Cincinnati

Hernias are of frequent occurrence and the subject is a large one about which much has been written, but there are few cases of perineal hernias on record. In 1918, Moschcowitz [1] pointed out that, owing to the number of defects made in the fascia of the pelvic outlet by the urethra, vagina, rectum and blood vessels, perineal hernias might be expected to be



Fig. 1.—Appearance of hernia when patient strained.

common. In spite of this, going back in the literature as far as the eighteenth century, he could find only twenty-eight typical cases. The case here reported is of such a nature. It is also interesting from the standpoint of operative interference for the relief of prolapse of the uterus.

* From the Gynecological Service of the Cincinnati General Hospital.

1. Moschcowitz, A. V.: Surg., Gynec. & Obst. **28**: 514 (May) 1918.

REPORT OF CASE

History.—I. Y., aged 47, entered the gynecologic service of the Cincinnati General Hospital, Jan. 23, 1923, complaining of a rupture between the vagina and the rectum. She has been the subject of numerous operations, seven in all, only two of which had no direct bearing on her present illness. As a young girl she was compelled to work very hard and

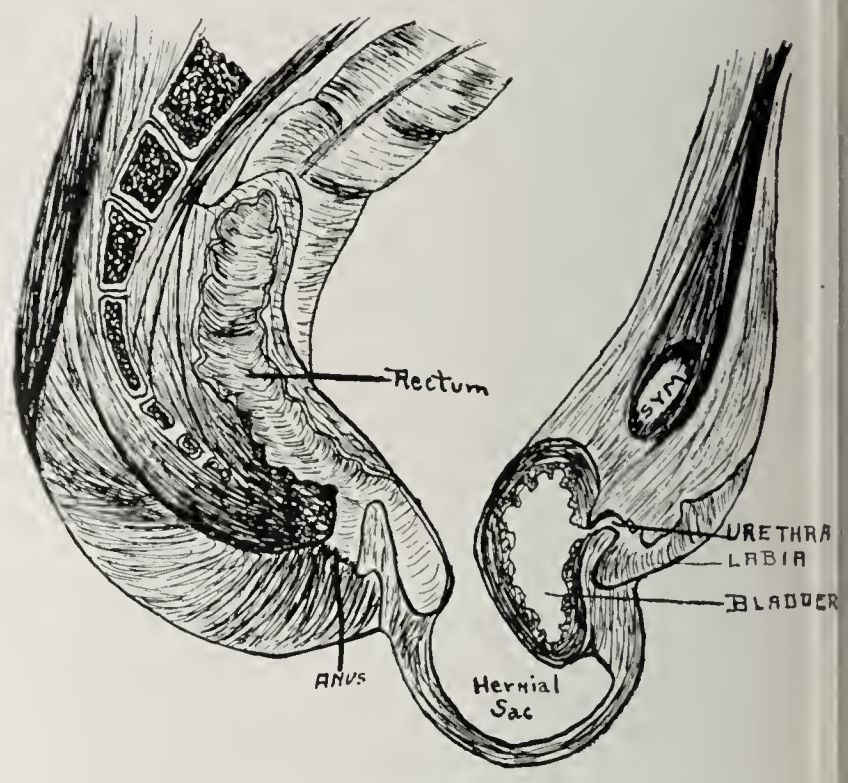


Fig. 2.—Relation of parts.

developed a prolapse. Her first operation, in January, 1899, was for the relief of this, by the vagina, without success. During the next two months she had two laparotomies for the same condition before it was improved. She was in bed three months after the last operation. In 1911, both tubes, ovaries and uterus were removed for the recurrence of prolapse. She then developed a bulging and protrusion of the vaginal walls, so that in 1912 the vagina was completely closed. The next two operations, in 1921 and 1922, were for umbilical and ventral hernias.

Aside from this, the history was negative. Menstruation had been normal. The patient had been married and had one child after the development of the prolapse.

Within about three weeks after closure of the vagina, she began to notice a bulging in front of the rectum which gradually increased in size, and became painful and larger on sneezing, coughing, straining and the like.

Examination.—The patient was well developed; the heart, lungs and abdomen were normal. Some bleeding which she reported in the stools was probably due to hemorrhoids. The Wassermann reaction was negative. Vaginal examination was impossible because all that remained of the vagina was a short, blind pouch. Rectal examination showed the pelvis to be empty. The perineal body was composed of nothing but skin, the center of which lay in wrinkles and was very loose in the recumbent position. By rectum this could be bulged out with the finger. When the patient coughed, a mass the size of a lemon protruded in the midline between the vagina and the rectum.

Operation and Result.—The patient was operated on, January 26, by Dr. Sigmar Stark. Tenaculum forceps were placed at the posterior end of each labium minus, and a third in the median line posterior to the hernial protrusion; the skin between was dissected back, disclosing a hernial sac. The bladder, attached low to the peritoneum of the culdesac which formed the hernial sac (Fig. 2), was separated by blunt dissection and brought to a higher elevation. The hernial sac was excised as high as possible, and in closure by transverse suture, complete obliteration of the culdesac was effected. The rectum was likewise freed from the hernial sac subsequently, and turned in behind the new perineum. The levator ani muscles with deep fascia on both sides were brought together in the midline, beginning in front of the

ectum and extending upward almost to the urethra with No. 2 chronic catgut. There were no complications or mishaps.

Recovery was uneventful except for a small area of superficial sloughing, which granulated in slowly, and can be seen in Figure 3. The patient was discharged from the hospital, March 1, much improved, with an excellent perineal body and no bulging.



Fig. 3.—Appearance on straining, two months after operation; small area of superficial sloughing in center, which was healing.

COMMENT

This case is cited not only for its interest as an unusual type of hernia but also for two other reasons: 1. To show the folly of doing a laparotomy for the relief of prolapse of the uterus without first performing a satisfactory plastic operation on the muscles and fascia of the perineum and pelvic diaphragm. 2. To show that by removal of a prolapsed uterus, descent of the vaginal walls, together with the bladder and rectum, is not prevented.

RUPTURE OF AN AORTIC ANEURYSM INTO THE SUPERIOR VENA CAVA

WILLIAM N. ANDERSON, B.Sc., M.D., OMAHA
Assistant Professor of Medicine, University of Nebraska College of Medicine

Marsh 23, 1922, I was called to see a white man, aged 55, who presented such a unique group of physical signs that I deem them of enough significance to report. This case is not at all new, for many such have been described previously.

On a hunting trip, six months before, the patient had a cold followed by a cough, with considerable chest pain. Following his outing he felt weak and was easily exhausted, and the cough persisted. Since this time he had noticed some dyspnea on exertion, but had been able to carry on his work as a barber without any great difficulty, until five days before I saw him, when he was awakened suddenly at night with orthopnea. The following morning he noticed that his face was badly swollen and his skin was blue. These conditions had persisted, so that he was compelled to stay up; for when he lay down his head seemed too large and he was extremely cyanotic. He had been restless, walking round most of the time and being unable to sleep.

He had had measles and mumps as a child, and acute articular rheumatism at the age of 35. At 27 he had syphilis and gonorrhea. His weight in 1910 was 200 pounds (91 kg.), but was now 165 pounds (75 kg.).

His appearance bespoke heart trouble, yet it was different from any case that I had seen before. Although his legs and body, from his waist down, were not unduly fat, from his lower chest upward he seemed very large and extremely cyanotic. This apparent fat was in reality an edema, as could be easily determined when the skin was pinched, there being a distinct line of demarcation at the costal border. It seemed to increase in degree as one passed toward the head, the face being so swollen that the eyes peeked out of narrow slits as in acute nephritis, differing, however, in that there was no pallor. The lips, and particularly the ears, were extremely dark, and when the head was lowered they turned almost black. The pupils were irregular, and reacted slowly to light and in accommodation.

The neck was uniformly thick, not because of any glandular enlargement, and above the right clavicle there was a pulsating mass about the size of a hen's egg. The veins around the right shoulder were markedly dilated, as though there was an attempt at anastomosis. The arms and hands were markedly swollen and cyanotic. Just above the line of edema at the lower costal border, and extending round the entire chest, there was an area three-quarters inch wide of dilated capillaries, such as one often sees on the thigh in and around varicose veins. The whole precordium seemed to bulge with systole, but the point of maximum intensity of the heart was in the sixth interspace just outside the midclavicular line.

There was increased vocal fremitus, dulness, and increased conduction of breathing, voice, and whisper over both bases posteriorly. There was a marked widening of the cardiac dulness over the base, particularly toward the left, but also to the right of the sternum to such an extent that it measured

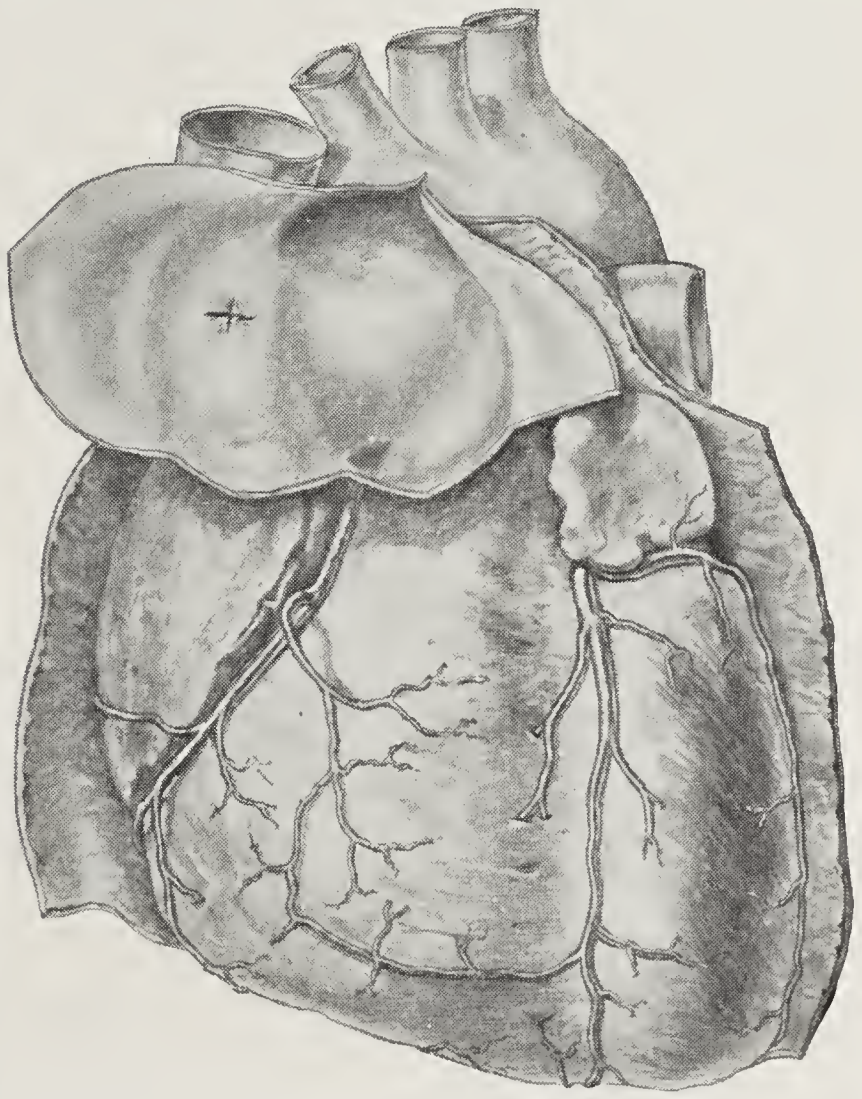


Fig. 1.—Drawing of heart in situ, showing aorta opened and communication into superior vena cava.

6 inches in the third interspace. The first sound on the left side of the heart was voluminous and followed by a systolic murmur. At this place, however, as well as all over the precordium, could be heard a bruit, both in systole and in diastole. This could be heard with greatest intensity in the second and third interspaces at the right of the sternum, and transmitted into the vessels of the neck, particularly into the

pulsating tumor above the right clavicle. The heart was regular.

Although the abdomen was well padded with fat, the lower edge of the liver was easily palpable three fingerbreadths below the costal border, and it was somewhat painful on pressure. The spleen was not palpable. There was a large right inguinal hernia. The lower limbs were devoid of edema. The knee jerks were absent, but the Babinski reflex was present to a slight degree on both sides. The blood pressure was 150 systolic, 0 diastolic. The urine was highly colored, and contained a small amount of albumin and a number of large, granular casts.

The patient was admitted to the University Hospital the same day. The temperature was normal; pulse, 102; respirations 28. The case was considered one of aortic aneurysm with increased mediastinal pressure and decompensation; accordingly, digitalis and morphin were administered. When I described the case to my senior, Dr. LeRoy Crummer, next day, he referred me to the case reports of rupture into the superior vena cava and, on reading the reports, one could not help but see the almost exact similarity of all these cases.

The electrocardiogram showed no apparent deviation from normal. The Wassermann reaction was four plus. The urinary output was 10 ounces during the first twenty-four hours. The roentgen-ray examination verified the large



Fig. 2.—Appearance of patient, semirecumbent.

aneurysmal dilatation of the aorta with mediastinal pressure, but, because of the serious condition of the patient, he could not be kept long enough for fluoroscopic examination.

His condition remained about the same, except that the attacks of dyspnea seemed to be getting a little more frequent, restlessness was more extreme, and increasing quantities of morphin were required for relief. On the fifth day the attacks of dyspnea were succeeded by short spells of irregular breathing, until he passed into coma, and death followed ten days after the rupture had apparently taken place.

A necropsy was not allowed, but permission was given to open the chest and examine the heart in situ. The depth of the structures rendered photography impossible; accordingly, a drawing (Fig. 1) was made. There was a considerable amount of clear fluid in both pleural cavities; this had probably accumulated since entrance to the hospital and since the roentgen-ray examination. The pericardium was adherent but easily separated, leaving a rough bread and butter appearance. There was no fluid. The aorta was enlarged to the size of a grapefruit, and the wall was thinned out so that it had the appearance of the auricle. When this was opened, as shown in the drawing, and the clots removed, there was found an irregular opening that would easily admit a lead pencil into the superior vena cava. The cava itself was much dilated upward, and projected to the pulsating mass above the clavicle. The heart itself was not opened or removed.

801 City National Bank Building.

A NEW ADJUSTABLE NASAL CLAMP

FOR IMMOBILIZATION OF FRACTURES OF THE NOSE, AND FOR POSTOPERATIVE CORRECTION OF EXTERNAL NASAL DEFORMITIES *

LUIS P. BERNE, M.D., NEW YORK

Immobilization is just as important for the ultimate success following operation for the correction of bony deformity of the nose, as it is in fracture of the long bones.

Fixation of the bony parts of the nose in proper alinement, or the application of either pressure or compression, is indispensable. This applies to the postoperative treatment of

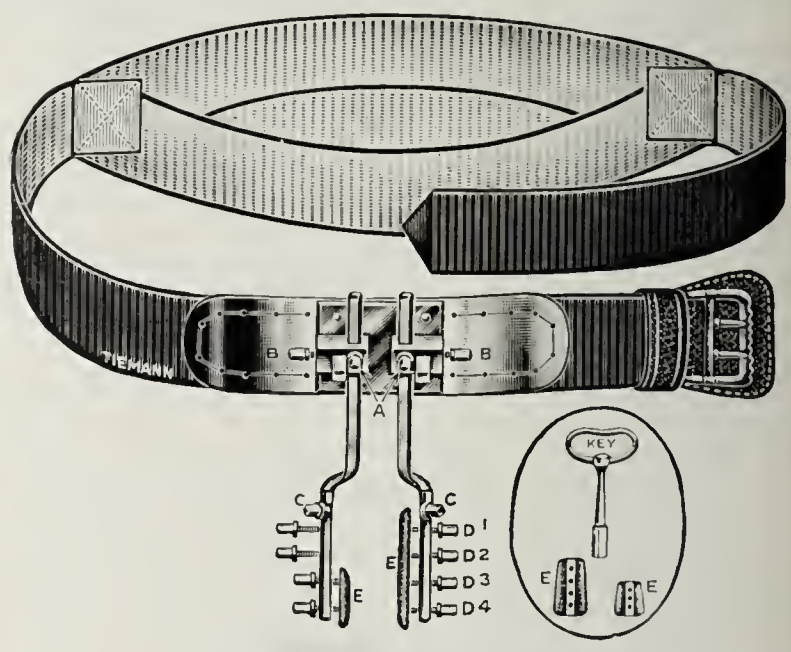


Fig. 1.—Adjustable nasal clamp.

traumatic fractures, and also following operations for the correction of external deformities when medial alinement or diminished width of the base is necessary.

The support here illustrated has been devised to meet all these requirements. It is adjustable to any nose.

Adjustment in an up and down, and an anteroposterior, direction is obtained by the screws *A* and *B* (Fig. 1) of the head band. Rotation of the lower half (nasal portion) into any position is accomplished by means of two rods which are controlled by the screws *C C*.

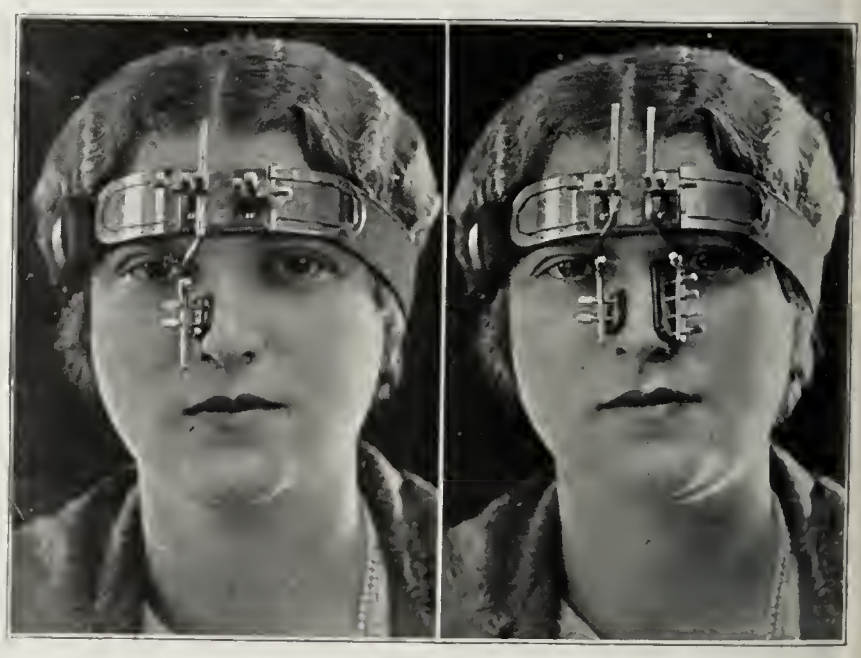


Fig. 2.—Use of clamp: *A*, when unilateral pressure and immobilization are required; *B*, when bilateral compression and immobilization are required.

Uniform pressure and compression in addition to immobilization are obtained by tightening the four screws *D* 1, 2, 3 and 4, of the nasal rods, when they are fitted into the cups of the respective plates *E*. The padded plates are obtainable in four sizes: 1, 2, 3 and 4.

353 West Eighty-Fifth Street.

* Instrument demonstrated before the New York Academy of Medicine, Feb. 28, 1923, the King's County Medical Society, March 22, 1923, and the Seventy-Fourth annual session of the American Medical Association, San Francisco, June, 1923.

ROENTGEN-RAY APPEARANCE IN A CASE OF CONGENITAL HYDROCEPHALUS

R. A. Bartholomew, M.D., Atlanta, Ga.
Associate Professor of Obstetrics and Clinical Gynecology, Emory University School of Medicine

Mrs. C. P., aged 26, white, primigravida, whose family, ersonal and menstrual history were negative, consulted me, ıug. 19, 1922, becausc of pregnancy. The last menstrual eriod had occurred, March 22, since which time there had een no show of blood. Nausea and vomiting had begun arly in May, and continued moderately severe for about two ıonths. Fetal movements had been noticed for the past everal weeks.

The patient was fairly well nourished, weighed 120 pounds 54.4 kg.), and was of average hcight. There was no genral adenopathy and the heart and lungs were normal. The lood prcssure was 110 systolic, and 65 diastolic. The abdoıen was normal except for the enlargement of the uterus, hich extended several centimeters above the umbilicus. etal movements were distinctly seen. The measurements f the inlet indicated a moderately flat type of pelvis, ıe diagonal conjugate measuring 11.5 cm.; but the outlet as normal. A Wassermann test was not made, as there emed to be no indication for it.

An abdominal examination, made October 27, t the end of the seventh month, showed the ındus slightly more than half the distance from he umbilicus to the ensiform cartilage; the resentation, left occipito-anterior, but nothing pparently abnormal on palpation of the fetal arts. The fetal heart rate was 135 a minute.

December 4, examination showed the fundus everal centimeters below the ensiform cartilage, nd the presentation, right occipitoposterior. he head was movable and felt abnormally ırge, but this was interpreted to be due to ıct that the fetus itself seemed to be larger ıan normal. December 13, another examinaon indicated that the head was dispropor-onately large. December 20, it was noted that ıe head felt not only extremely large but also istinctly cystic in consistency, strongly sugestive of hydrocephalus.

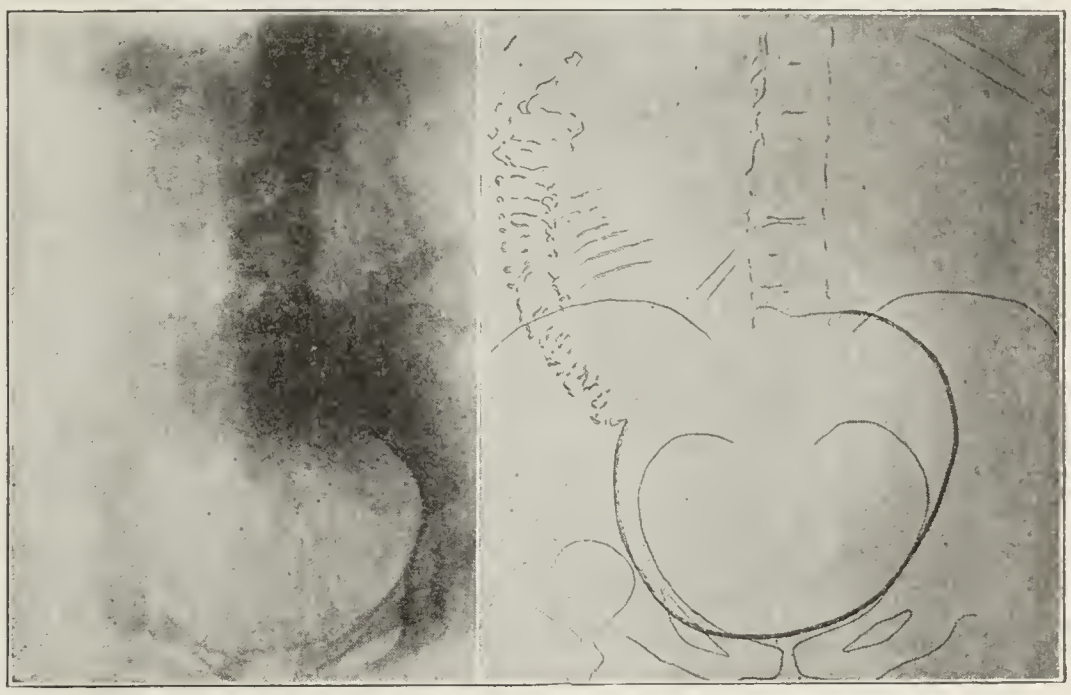
December 27, the patient was sent to Dr. J. J. lark, who made a roentgen-ray examination f the abdomen. This examination showed exeme disproportion of the head to the pelvis, hich he also thought was probably due to ydrocephalus. The presentation of the fetus continued to be ight occipitoposterior and the head freely movable over the ılet.

The patient's blood pressure, urine and general condition ad been normal on each examination; but, since she had eached full term, shc was advised to take castor oil and uinin, which she did on the morning of Jan. 6, 1923. Early ıe following morning she had several labor pains and a rematurc rupture of the membranes, with escape of dark, reenish fluid.

Thereafter, from January 7 to January 12, daily observaons showed the presentation to be right occipitoposterior, ıd auscultation of the fetal heart over a period of from ve to ten minutes at each visit showed the rate to be perstently from 75 to 95 a minute, with occasional irregularity ı rhythm. During this time the patient had no pains, and er general condition continued to be normal.

Labor began about 1 a. m., January 12, but throughout the ıy the pains were irregular, occurring at from five to fifteen inute intervals and of rather short duration. The presen-tion was right occipitoposterior, the head remaining freely ovable and the fetal heart sounds slow, from 100 to 110 a inute. Rectal examination at 10 p. m. showed the head igh up at a finger's length, freely movable, and the cervix out 6 cm. in diamcter. At 11 p. m., after explaining the ondition to the husband, and obtaining permission to perorm a craniotomy, a vaginal examination was made. The cervix was found to be dilated about 7 cm.; and, bulging through the opening, could be felt a portion of the soft, cystic, movable head. The edges of the cranial bones could not be felt at any place within reach of the finger except behind the pubes. Counter pressure on the abdomen showed the head to be extremely large, verifying the diagnosis of hydrocephalus.

Under pretext of rupturing the membranes, a long pair of scissors was pushed through the scalp, releasing a very large amount of cerebral fluid. The scissors were directed into various portions of the head, and smaller accumulations of fluid emptied, assisted by pressure on the head through the abdominal wall. The head decreased rapidly in size, crepitation of the cranial bones being distinctly felt, and the fluid became bloodtinged from the severing of cerebral vessels. The fetal heart sounds ceased within five minutes after the craniotomy was done, and within ten minutes the labor pains, which previously had been irregular, infrequent and weak, became regular and severe at from two to three minute intervals. The baby was delivered, stillborn, January 13, at 12:55 a. m. The placenta was expressed complete about twenty minutes later, and showed no anomalies. A slight second degree laceration of the perineum was repaired before the patient reacted from the anesthetic.



Hydrocephalus at ninth month of pregnancy; at right, traced outline.

The baby was a boy, weighing 8½ pounds (3.8 kg.) exclusive of the fluid lost from the head. The head was typically hydrocephalic, showing very wide sutures and fontanels; when it was filled with water, the occipitofrontal circumference was 52 cm. The spinal column showed a spina bifida involving the lower eight dorsal vertebrae, and the left foot was clubbed.

A necropsy was not performed.

On closer, subsequent examination of the roentgen-ray film, the evidence of spina bifida could be seen quite distinctly, although it had escaped observation on first examination. The patient had an uneventful convalescence.

COMMENT

Points of interest in connection with this case are the corroborative evidence offered by the roentgen-ray examination, the outline of this head being distinctly greater than that of any of the cases studied in connection with the colored maternity service at the Grady Hospital; also, the unusually slow fetal heart rate during the week preceding labor and during labor itself. This phenomenon may possibly be explained by vagus stimulation resulting from the marked increase in intracranial tension in hydrocephalus. In cases suspected or diagnosed preceding birth, it would be of particular interest to note whether fetal bradycardia is characteristic of hydrocephalus.

20 Ponce de Leon Avenue.

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SATURDAY, DECEMBER 1, 1923

PROBLEMS OF LIFE IN THE TROPICS

The various physiologic problems concerned with life in the tropics have assumed an increasing importance in recent years. The penetration of civilized man into "the remotest corners of the earth" has brought persons, adapted through generation after generation to the climatic peculiarities of the temperate zones, into new conditions of environment. The white races are being transported, through the exigencies of commerce and colonial expansion, into domains inhabited almost exclusively by the black-skinned races. The question of the ability of the newcomer to withstand the new environment is one of no small moment in the readjustments of population and the evolution in industrial expansion that are going on. The indigenous races are likewise concerned, in that for them, too, new social and economic conditions are certain to alter the traditional habits and modes of living.

The need of information about the situations thus being created has been appreciated more deeply in this country ever since our occupation of the Philippines. Some of the European governments have faced the paucity of dependable information in an official way much longer. Yet the last quarter century, which has witnessed so many important discoveries in science, cannot be said to have advanced our understanding of physiology in the tropics greatly, although it has improved the sanitary conditions in tropical and semitropical zones, and enriched our knowledge of tropical medicine. Indeed, it almost seems as if the mastery of disease in the tropics has been more successful than the mastery of normal living in these regions.

There are, however, some positive contributions. As Breinl has pointed out, for life in the tropics the physiologic response of the warm blooded animal organism to the increased external temperature is of the greatest practical interest and importance. Under normal conditions, the temperature equilibrium is maintained by heat production and heat loss; the former is brought about by chemical means—by the combustion of food material in the body; the latter, by physical means—by radiation and convection and by evaporation of sweat. Radiation and convections, however, exercise a comparatively unimportant part in the heat-regulating mechanism of the clothed human being in the tropics where the outer temperature is high and frequently approaches that of the body; under these conditions the human organism relies for its cooling mainly on the heat loss due to the evaporation of sweat. Humidity is a factor interfering more or less with the latter process; and there are regions of tropical heat in which the atmospheric moisture as well as the temperature is exceptionally high. For such places, in particular, the problem of the tolerance of personal discomfort, particularly when work increases the heat production of the body under conditions of imposed loss, has been much debated. Haldane's [1] studies have indicated that the temperature of the human organism exposed to humid heat begins to rise after a period varying according to the individual and the conditions, and then continues to do so. The rise in body temperature corresponds with the reading of the wet bulb temperature, and is virtually independent of the dry bulb temperature. During rest in still air, wet bulb temperature of about 31.1 C. (88 F.) could be borne without any abnormal rise in rectal temperature; but when the thermometer rose above that temperature, the rectal temperature immediately began to rise, being accompanied by an increase in the pulse rate, profuse sweating and dyspnea, until finally exhaustion set in. During muscular exercise in still air, this increase in body temperature began at a lower wet bulb reading (27 C., or 80.6 F.), while in moving air much higher wet bulb temperatures were required to produce the same effect. Breinl's [2] observations, carried out on a large scale on laborers in North Queensland, Australia, under supposedly severe conditions of humid heat, are in harmony with laboratory studies in showing remarkably good powers of adjustment. Even when the wet bulb themometer reached 30 C. (86 F.), the averages for rectal temperatures were only between 37.7 and 38.3 C. (99.9 and 100.9 F.), with a maximum of 38.8 C. (101.8 F.) and a minimum of 37.5 C. (99.5 F.). The heat regulating mechanism of the laborer was not severely affected, and he was still able to maintain a temperature equilibrium, although at a somewhat higher level.

The extreme views broadcast by certain writers about the severe effects of sunlight in the tropics have also proved to be untenable. The greater intensity of the rays is due solely to the less oblique path of the rays striking the earth, whereby they have passed through a smaller layer of atmosphere. As a result, a lower degree of absorption and scattering has taken place, and the chemical and physical activities of these

1. Haldane, J. S.: J. Hyg. **5**: 494, 1905.
2. Breinl, A.: An Inquiry into the Effect of High Wet Bulb Temperatures upon the Pulse Rate, Rectal Temperature, Skin-Shirt Temperature and Blood Pressure of Wharf Labourers in North Queensland, M. J. Australia, April 16, 1921.

ays are therefore greater, the nearer to the equator. This greater activity of the sun's rays manifests itself n every-day life; but as yet there are no really cogent easons for believing that any ill effects of the tropical un are due to light rather than heat, however interest-ng the speculations about direct insolation may be. The truth is that we are still largely ignorant of the undamental facts on which to base final judgments. Heat regulation, basal metabolism, and circulatory and ematopoietic functions appear to remain unimpaired nder suitable conditions of living. Even the alleged eurasthenia of tropical residents may be somewhat of myth. What is needed today is more fundamental nvestigation, the sifting of fact from fancy, in order to scertain whether, in truth, tropical regions militate gainst successful invasion by persons who have been djusted to other environments.

THE DISCOVERER OF THE BABCOCK TEST FOR MILK FAT

Sherman has reminded us that "milk is the one article f diet whose sole function in nature is to serve as food." s importance accordingly assumes enormous propor-ons. The milk consumed as such in the United tates is estimated to approximate one third quart liter) per person daily, in addition to which a much rger quantity is used for the manufacture of cheese nd butter that also enter the dietary of man. To those ho are impressed more forcibly by a dollars-and-nts evaluation of the subject, it may be interesting to arn that the milk industry involves the equivalent of ore than half a billion dollars annually. Of course, e importance of this business to our population is far reater than its money value can indicate. No other od is more vital to national health and efficiency. It kes a preeminent place in the nourishment of the ung, and it furnishes an incomparable source f nutriment in the dietary of the sick and the nvalescent.

A product of this sort must obviously be safeguarded gainst dangerous contamination; hence the institution f systems of efficient inspection and other precautions esigned to insure milk sanitation and a safe milk pply. But, obviously, milk has offered a ready portunity for adulterations that reduce or impair its utritive value rather than render it likely to transmit fection. Since the milk fat or cream element is the ost valuable component of the fluid, it has been ngularly liable to dilution or removal; while, further-ore, the energy value of the milk varies largely with s comparative richness in the fats. Between skimmed ilk and the richest Jersey or Guernsey milk there is wide latitude of fat content; and the determination f the latter is often particularly desirable in modifying diet into which milk enters largely.

Thanks to an invention of an American chemist, rof. S. M. Babcock of the University of Wisconsin, a rapid, simple method for the accurate estimation of the fats in milk was made available in 1890. The announcement spread rapidly throughout the entire dairy world, and apparatus for the familiar "Babcock test" for milk was introduced not only into chemical laboratories but sooner or later into every creamery in the smallest hamlet. The importance of the Babcock test to every institution or individual concerned with milk can scarcely be exaggerated. It was enhanced by the fact that the scientist gave his invention freely for public use without exercising the lucrative rights that a patent would have secured for him. March 27, 1901, a medal was given to Dr. Babcock by the state of Wisconsin, bearing the inscription, "In recognition of the great value to the people of this state and to the whole world of the invention and discoveries of Prof. Stephen Moulton Babcock of the University of Wisconsin and his unselfish dedication of these inventions to the public service, the state of Wisconsin presents to Professor Babcock this medal." The medical profession joins in the felicitations that are being extended to Professor Babcock at this season in celebration of his eightieth birthday anniversary.

THE RELATIVE VALUES OF FATS

Most of our readers will recall the expression, "Fat is fuel for the fighters," a slogan made familiar throughout this country by the billboard appeals of war time. Before 1914, the use of fats in this country was probably more generous than that of any other country. Whereas the American ordinarily consumed 3½ ounces a day, the Englishman used 3⅛, the German 2⅓, and the Frenchman 1½ ounces. Following the progress of international hostilities, these figures changed greatly for the European countries. The fats obtained from domestic animals (butter, lard, suet and tallow, for example) were produced in much smaller amounts than usual, on account of lack of food for the stock obtainable from abroad. The vegetable fats and oils are made chiefly from the seeds of plants growing in warm countries (olive, cottonseed, peanut), and these could not be imported as usual for lack of ships. To make the situation worse, fats were needed not only for food but also for making glycerol and other compounds used for munitions and for various other industrial purposes, including the manufacture of soap.

From the standpoint of governmental needs, the situation as regards the fat supply in 1917-1918 made necessary both an actual cutting down of consumption and a substitution of one kind of fat for another—the vegetable oils for the animal fats. This was not difficult, for the possible substitutes were numerous and fairly familiar. Aside from butter substitutes such as oleomargarin and nut or vegetable margarins made from coconut, cottonseed and peanut oils, lard substitutes represented by mixtures of vegetable oils with harder animal fats and hydrogenated oils—fats made solid by

passing hydrogen through them under proper conditions —came into legitimate prominence, though they had been available long before.

It was quite natural that pronounced changes in the dietary habits and traditions of a country should awaken some misgivings as to both the desirability and the physiologic wisdom of the substitutions. The urge of patriotic sacrifices in the direction of saving fats is no longer with us, so that inquiry as to the nutritive values of some of the newer products is pertinent. That the subject is one of interest to the medical profession is attested through inquiries received by The Journal regarding the relative digestibility and utilization of animal and vegetable fats in particular. The government laboratories have anticipated the demand for information by investigations of at least fifty more or less common fats and oils.[1] The outcome seems to indicate that the digestibility coefficient of the fats having melting points above body temperature (37 C., or 98.4 F.) varies inversely with the melting point. It has also been found that most of the common oils are utilized from 93 to 98 per cent. by the human body. Nevertheless, some oils were found to cause digestive disturbances, and some oils are less tolerated by the body than others. Therefore, before we can say whether or not an oil or a fat is suitable for use in the human dietary, we must know not only its coefficient of digestibility but also its effect on the human body when eaten in quantities at least equal to those in which butter or other common fat is used in the average dietary.

The true fats, that is, the glycerids of fatty acids, are primarily sources of energy for the organism, and from this standpoint they have approximately equal value, their availability being determined essentially by texture and consequent ease of digestion. The factors that determine a choice include relative cost, suitability for special culinary uses, palatability and traditional preferences. A large number of investigations indicate that the digestibility of the other ingredients of the ration is not essentially altered by the character of the fat included with them. By careful regulation of the processes used, it is possible to "harden" oils by hydrogenation so that the products have any desired melting point. The result of studies in various American laboratories [2] lead to the conclusion that these hardened oils are utilized as well as natural fats of corresponding melting points. Of course, there are pathologic conditions, particularly those involving the failure of biliary and pancreatic secretions, which place limitations on the digestibility and absorption of any sort of fat.

More important than these features of digestibility is the fact that naturally occurring fats may be "carriers" of nutritive values or potencies not expressed in terms of energy. They may contain more or less fat-soluble vitamin A and antirachitic substance. These cannot be neglected. They are present far more richly in fats of animal origin than in those from vegetable sources. Green vegetables also contain vitamin A, so that the dietary is not dependent solely on animal fats for a supply. The vitamin content has come into prominence as an important consideration in all questions of nutrition. The dietitian, however, should distinguish clearly between fats as adequate sources of energy and fats as carriers of vitamins. The two features need not be identified in a single item, nor does the absence of one necessarily vitiate the value of the other. The wholesomeness of a fat is not determined primarily by its vitamin content, though the choice of fats for individual uses may be guided at times by such a consideration.

After all, one should recall that fats and oils are much alike in chemical composition and properties. The kinds that different nations have eaten have depended chiefly on climatic and economic conditions. Thus, olive and coconut oil are used in tropical and semitropical countries; lard and butter, in meat producing countries. In recent years, with the development of industries and transportation, the variety, especially of the vegetable products, has been largely extended.

The fact that some fats are solid and some oily does not affect their comparative wholesomeness, but it does make a practical difference in the way we use them. Sicilian peasants may enjoy eating olive oil with their bread, but most Americans prefer a stiffer "spread." The conclusions issued by the U. S. Food Administration during the war remain cogent today: Except for the vitamin present, there is no difference in the food value of different kinds of fat. All yield equal amounts of energy, and are digested with virtually the same ease and completeness. Scorched fats, such as are found in foods that have been fried at too high a temperature, sometimes prove troublesome and have given fried foods the reputation of being indigestible; but this is probably due to the poor cooking rather than to the fat itself. Although fats do not usually cause any digestive disturbances, they do remain in the stomach longer than the other nutrients, and this seems to have a most interesting effect on the sensation of hunger. That sensation begins to be felt after the stomach has been empty for a time. If there is little or no fat in the meal, the sensation begins more quickly, and this probably explains why a diet poor in fat seems so unsatisfying and why one rich in fat seems "hearty." Fat in the diet has a marked "psychologic" value. Food without fat is likely to be without flavor and monotonous. If a food is distinctly unpleasant and different from that to which a person is accustomed, actual digestive upset may result. However, all the more recent investigations indicate that the margin between the amount and kinds of fat we may desire and that which we actually need is wide beyond expectation.

1. Langworthy, C. F., and Holmes, A. D.: Bull. 310, 1915; Bull. 505, 1917; Bull. 507, 1917, U. S. Agric. Dept. Holmes, A. D.: Bull. 613, 1919; Bull. 630, 1918; Bull. 687, 1918; Bull. 781, 1919, U. S. Agric. Dept.

2. Holmes, A. D., and Deuel, H. J., Jr.: Digestibility of Some Hydrogenated Oils, Am. J. Physiol. 54: 479 (Jan.) 1921.

Current Comment

EXERCISE AND THE CIRCULATION

One of the immediate effects of muscular exercise is ne acceleration of the heart beat. Even with a comaratively slight performance, the pulse rate of an dult may rise to 100 a minute; when the work done is eavier, the figure may exceed 150. Under such conitions it is evident that profound changes must be roduced in the circulation, indirectly influencing all he tissues of the organism. It is commonly believed hat the capabilities of the circulation form the foreost limiting factor in the ability of the organism to ngage in strenuous muscular performance. As the orking structures demand an uninterrupted supply of ne indispensable oxygen, which can reach them only rough the blood stream, it becomes apparent that the irculation must have a significant part in maintaining n adequate available quota. Recent experiments by Himwich and Barr [1] leave little doubt that, contrary to hat one might expect in times of demand, not only ne oxygen capacity but also the oxygen content of the lood is usually augmented during and after short eriods of vigorous work. Consequently, no part of ne hyperpnea attending ordinary exertion can be ttributed to an anoxemia—a lack of oxygen in the rterial blood—although after severe and exhausting xercise such a factor may come into play. The mobiliation of red corpuscles with their oxygen-carrying emoglobin, the stretching of the alveolar membranes rough the more vigorous breathing, and the conseuent better diffusion into the lung, all contribute to nable the blood to retain more oxygen. Indeed, the nvestigations of Himwich and Barr lead them to the nanticipated conclusion that perhaps the severity of ne exercise that a normal person will tolerate may be etermined by the amount of oxygen that can diffuse rough the lung membrane rather than by the apabilities of the circulation.

BACTERIOLOGIC DIAGNOSIS OF CHANCROIDAL INFECTION

While our knowledge concerning venereal diseases n general has grown rapidly in recent years, we lack a eady and reliable means for making a bacteriologic iagnosis in chancroidal infections. The causative gent in chancroidal infections is the bacillus of Unna-Ducrey, which can be demonstrated in ordinary smear reparations by means of the Gram stain, the organism taining the counterstain. Chancroidal infection, howver, is often mixed with syphilitic infection, and in ich cases differential diagnosis of the two infections ay be difficult, if not impossible, unless a complete xamination of smear and dark-field preparations is ade. Haxthausen [2] states that of cases diagnosed as ancroidal infection, and treated by specialists as such, ghteen in three hundred presented symptoms of yphilis later. While it is nearly thirty years since Unna and Ducrey described the bacillus of chancroid, no practical method of cultivating the organism that may be used in diagnosis has been introduced. Recently, Teague and Deibert [3] described what seems a simple means of growing the organism in culture for diagnosis, by inoculating pus directly from the chancroid into tubes of sterile clotted rabbit blood heated to 55 C. for five minutes. After incubation for twenty-four hours, smears from the exuded serum may show characteristic chains of gram-negative streptobacilli, associated frequently with gram-positive organisms. Teague and Deibert obtained positive cultures of the bacillus of Unna-Ducrey in 50 per cent. of all venereal ulcers examined, most of the negative cultures being obtained in cases clearly not chancroidal in character. They conclude that a cultural diagnosis of chancroid may be obtained in a large proportion of cases, probably about 90 per cent. In order to perpetuate cultures obtained in the way described, Teague and Deibert transplanted the colonies into clotted rabbit blood heated at 55 C. for fifteen minutes, incubating for twenty-four hours and then preserving the culture in the refrigerator. Such cultures may remain alive at least three and sometimes four or more weeks. They studied a large number of pure cultures with special reference to serologic classification, but apparently without obtaining any indication that the bacillus falls into definite groupings. The method described by Teague and Deibert seems to be a relatively simple procedure, but it probably will require a great deal of further investigation in the hands of competent observers before its real practical value may be definitely established. If it should prove successful, it will mean a real advance in the diagnosis of chancroidal infection.

1. Himwich, H. E., and Barr, D. P.: Studies in the Physiology of uscular Exercise, V, Oxygen Relationships in the Arterial Blood, Biol. Chem. **57**: 363 (Sept.) 1923.
2. Haxthausen: Hospitalstid. **66**: 489 (July 11) 1923.
3. Teague, O., and Deibert, O.: J. M. Res. **43**: 61 (Jan.-March) 1922; J. Urol. **4**: 543, 1922.

CLINICAL INVESTIGATION ON PRIVATE PATIENTS

> The cases whose metabolism is here recorded have been private patients of the writer. . . . The experiments were performed *with* the patients rather than *upon* them. . . . The investigators and the patients considered themselves united in a partnership, having for its object the accumulation of knowledge for the benefit of all diabetics rather than for the given individual under investigation in particular. . . . These statements . . . demonstrate, first, that private patients are especially desirable subjects for scientific investigation; and, secondly, cooperation and an intelligent understanding of what is the purport of an experiment considerably lessen the labor of supervision and are of the greatest assistance in preventing errors, whether wilful or unintentional.

This paragraph, from the introduction to Joslin's [4] new volume on diabetic metabolism, calls attention to a partnership which has thrown much light on hitherto dark problems of diabetes. To perform the experiments requires intelligence and cooperation. Joslin secured the cooperation of his intelligent patients, and as a result all diabetic patients will receive the benefit of the investigations. Other workers in clinical medicine have used similar methods. Much of Mackenzie's work on heart disease was done in private practice; the history of gout is filled with studies of the disease

4. Joslin, E. P.: Diabetic Metabolism with High and Low Diets, the Carnegie Institution of Washington, 1923.

often made by the observer on himself. Sydenham, Harvey and Hunter contributed valuable observations on the disease as it affected themselves. Yet Joslin's study is probably the first that stresses the importance of working with the more intelligent private patient in laboratory experiments. Frequently, much fear has been felt that intensive investigation of a disease was not good for the welfare of the more highly strung private patient. As a result, small hospitals with no community (charity) service have not felt the urge of advancing medical science, and large hospitals have too often used only their ward services for investigation purposes. Physicians, in practice, experiment every time they give a dose of a drug or, in fact, therapy of any kind, for patients differ in their reactions to substances that may be administered. How much better to recognize this factor and then to carry the thought to its logical conclusion. Every patient requires study; study is synonymous with the desire for truth, and truth is the basis of any possible development. Private patients may be allowed to appreciate these facts, and when they do, are usually eager to participate in the honor and the glory of the work.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

University News.—Governor McRae in a speech at a banquet of the students and faculty of the University of Arkansas Medical Department, Little Rock, November 12, promised new buildings for the medical school as part of his general tax program for the relief of all public schools in the state. The enrolment has practically doubled during the last year and lack of room for further expansion makes new buildings necessary. Extra hospital facilities are part of the program. Steps were taken at this meeting toward the erection of a memorial to the physicians of Arkansas who lost their lives during the World War.

CONNECTICUT

Connecticut's Part in the Diploma-Mill Scandal.—According to the reports, a special grand jury has been created in Connecticut for the further investigation of the serious part which Connecticut has had in the recently exposed diploma-mill activities. According to the news comments these activities appear to center in the Connecticut Eclectic Examining Board. Reports state also that the Eclectic Board has attempted to transfer a part of the blame on the Connecticut state health department. In reply, Dr. Stanley H. Osborn, state health commissioner, stated that "the law makes it obligatory on the part of the health department to issue licenses to all who have been passed by the (three separate) examining boards." He explained that the "capacity of the state department of health with relation to the eclectic examining board was little more than that of a clerk." "In order to revoke the licenses of any eclectic physicians," Dr. Osborn said, "written requests to that effect must be received from every member of the eclectic examining board." He stated also that Section 2857 of the General Statutes required that "every applicant for (medical) examination shall be examined by the committee representing the same school of practice in which the applicant was graduated." Dr. Osborn showed that Connecticut Eclectic Examining Board had not limited itself to graduates of eclectic colleges as prescribed by law, but accepted for examination almost any medical graduate who presented himself.

Laxity and carelessness in the issuing of medical licenses on the part of the Eclectic Board as referred to in the news reports, is illustrated by the following letter, a photographic copy of which was reproduced in several newspapers. This letter is alleged to have been written by Dr. Frank Webb of Bridgeport, Conn., and is said to be an important part of the evidence in the investigation.

Frank Webb, M.D.
1670 Iraniston Ave.
Phone Barnum 1205

H. G. Heller, M.D. Bridgeport, Conn., Dec. 11, 1922.

Dear Doctor:—I am sorry to say that you did not pass you failed on Chemistry. I went up to Durham to Dr. Markham and tried to get him to mark you; but he showed me your papers and we could not twist them around so they could conform to law. Are you registered in Arkansas if not take the eclectic board there and then get reciprocity with us, as we want you here particularly myself as you know. One of the doctors got 97 7/10 in chemistry. Personally I think it is about time that old Ernest Markham was off the board and I think that I will drop him when his term expires which is in 2 years. With kindest regards and regrets that you will be delayed in coming to our state I am,

Fraternally yours,
Frank Webb, M.D.

P. S. Can you send me Dr. White's address? Write soon to your friends.
F. Webb.

Under the caption "The Eclectics Take a Purge," an editorial in the Bridgeport (Conn.) *Telegram* refers to the situation as follows:

The Eclectic society in Bridgeport yesterday made a beginning toward purging itself by withdrawing its endorsement of Dr. James Christian for membership on the eclectic examining board. But why did they ever endorse a man who, on his own first attempt, could not pass a board even so lenient and broad-minded in its outlook on "doctors"?

The situation into which the State of Connecticut has gotten itself by laxity and carelessness in the issuance of medical licenses is illustrated by the fact that but for the timely newspaper exposure, the Kansas "diploma-mill" might be sending its young men into Connecticut by the carload, with a number of its own "graduates" sitting on the examining board and passing them through as fast as they came!

It is all very well for the eclectic examining board to point out that the state board of health is not without its responsibility in this matter. The state board has only a perfunctory scrutiny of applications for medical licenses. But there is no gainsaying the fact that when the fakers came into Connecticut to get medical licenses they always, somehow, gravitated before the eclectic board for their examinations and never anywhere else. And that fact is enough to condemn the eclectic board and its methods in the minds of any intelligent person.

The Connecticut Chamber of Commerce is said to be taking steps looking toward the improvement of their laws regulating medical practice in that state. Revisions are contemplated to bring about a higher standard and a more rigid regulation of medical practice with a view to safeguarding the people of the state against illiterate and incompetent doctors. The Chamber of Commerce aims to secure these improvements by independent action, states the report, inasmuch as "repeated efforts of reputable physicians before the General Assembly have failed to secure satisfactory regulations" for the very reason that "inferior and quack doctors have always raised the cry that such movements were governed by selfish motives."

The Diploma Inquiry Continued.—The first result of the special grand jury investigation of the "diploma mill" was that all physicians in Connecticut claiming graduation from the St. Louis College of Physicians and Surgeons are said to have had their licenses revoked by the state department of health, November 22, on recommendation of the grand jury. It was disclosed that special cars were used by Dr. Robert Adcox and Dr. D. R. Alexander to bring recruits to Connecticut for their "medical examinations." Four trips east were made each year and the candidates for doctors "shingles" included barbers, drug clerks, carpenters, soda dispensers, plumbers, automobile mechanics and traffic cops. A phonograph was provided for entertainment and the questions (obtained in advance) were "rehearsed" on the train. Further investigation by the grand jury showed that fake diplomas have been issued from fifteen alleged medical schools in the country in which are included, it is stated, the Eastern University School of Medicine (later the Maryland College of Eclectic Medicine and Surgery), Baltimore; the Oriental College, Washington, D. C., of which Dr. H. P. Holler is dean, and where, it is said, more degrees have been offered than there are on the thermometer, and the Atlanta Eclectic Medical College, Atlanta, Ga. [We have no college listed under this name.—ED.] Investigation will be made of diplomas issued by these institutions. Evidence bearing on the activities of the Naturopathic Health School, 759 East Thirty-Seventh Street, Chicago, showed that this school advertised its course for $36 and issued literature which stated: "Unbelievable as it may seem this school actually instructs how by simple scientific procedure to restore many classes of dead persons to life." Investigators say there are many graduates

of this school in New York as well as numerous students of the National College of Chiropractic, Grand Rapids, Mich., which, it is reported, offers a diploma for a correspondence course in chiropractic at $15. Another fact brought out in this investigation was that a circular letter was sent out last spring, with Dr. James A. Christian's name attached, asking recipients of "diplomas" for $125 each for a proposed $35,000 "slush" fund with which to get the state legislature to protect the licenses issued. Governor Templeton has asked Mr. Alcorn to inquire into the authenticity of foreign medical school diplomas also on which many foreign born physicians now in the state have been admitted to practice. Professor Sachs who voluntarily came from St. Louis as a witness has promised to give the names of 1,000 quacks and also the names of regularly licensed physicians of New York, Boston and Chicago, who for a money consideration, it is reported, took medical examinations in Connecticut for the quacks. Evidence was presented pointing to the existence of a well organized reference bureau from which references could be obtained in addition to actual state licenses which would give the holders of fake credentials admission to recognized institutions. Subpenas have been issued for Achilles and James Demarco of New York, who, it is alleged, obtained medical diplomas through Dr. Adcox which enabled recipients of purchased credentials to obtain licenses to practice in New York. It was stated that the Demarcos were given what is tantamount to the exclusive privilege of supplying "doctors" to New York. A warrant was issued for Dr. George E. Sutcliffe on a charge of manslaughter following evidence that during his five months practice in Farmington, six of his patients had died. Dr. Edwin M. Ripley, who sold his practice to Dr. Sutcliffe, has been removed as medical examiner for Farmington after holding office sixteen years. Dr. James W. Cottner, another graduate of the Kansas City School of Medicine and Surgery has also been removed as school physician at Stratford.

ILLINOIS

Chicago

Pasteur Lecture.—The Pasteur Lecture was delivered by Dr. Otto Folin of Harvard University Medical School, Boston, November 23, before the Institute of Medicine of Chicago at the City Club. His subject was "What We Have Learned About Uric Acid."

Society News.—A joint meeting of the Chicago Laryngological and Otological Society and the Chicago Neurological Society will be held, December 3, at the Auditorium Hotel. Following the fellowship dinner a symposium will be held on "Relation of Diseases of Ear, Nose and Throat and Inflammatory Diseases of the Brain and Meninges."

Birth Control Clinic in Court.—A decision by Circuit Court Judge Fisher, November 23, commanded the city to issue a license for a birth control clinic in Chicago. The judge ordered a writ of mandamus directed against the mayor of the city and the city health commissioner. It is stated that an appeal will be taken from the decision. It is reported that quarters for what is termed the "Parents' Clinic" have been established at 1347 North Lincoln Street and equipped at private expense.

Cultists Refused Clinic Tickets.—A committee was recently appointed by the Chicago Medical Society to interview members of the Cook County Board to ask that the custom now in vogue of permitting cults to buy tickets admitting them to the clinic services of the Cook County Hospital, Chicago, be discontinued. The committee of physicians appeared before the public service committee, and the president of the board offered a motion that the practice be abolished. The motion was passed unanimously by the fifteen commissioners present.

Illegal Practitioners Arrested.—According to reports, Juan Derrick, under indictment by the grand jury, is being held on two charges: forgery of the name of Dr. James M. Hall of Chicago, and practicing medicine without a license.——Eugene Kuhne, president of the Biofood Corporation, was arrested, November 23, by John W. Follmer, state inspector for the department of registration and education, on a charge of operating a "cure-all" medicine business in violation of the medical practice act. Kuhne's Biofood literature "guarantees" to cure nineteen different ailments, it is stated.

Personal.—Dr. Otto L. Schmidt was elected president of the Chicago Historical Society at the sixty-seventh annual meeting, November 20.——Prof. W. Lee Lewis, Evanston, Ill., head of the department of chemistry, Northwestern University, has been appointed director of scientific research for the Institute of American Meat Packers with headquarters in Chicago.——Drs. Don C. Sutton, Frederick G. Dyas, Edwin P. Ziesler, Frank J. Novak, Frederick Mueller, Louis Bothman and Samuel M. Feinberg have been appointed to the staff of the Frances E. Willard National Temperance Hospital.

Outbreak of Typhoid Fever.—In the district bounded by Twenty-Ninth Street on the north, Seventy-Ninth Street on the south and Lake Michigan and South Halsted Street, nearly one hundred cases of typhoid have appeared within the last week with two deaths, it is reported.——Forty-six stores in Evanston, Wilmette, Kenilworth, Winnetka, Glencoe and Highland Park have been ordered by the health authorities to cease handling or selling a certain brand of oysters, to which, it is claimed, the north shore typhoid epidemic has been traced. It was found that every one of the patients in Evanston had eaten the same brand of oysters shortly before taken sick. Nearly thirty cases have been reported along the north shore.

Free Dental Clinic.—The children's new free dental clinic at the Cook County Hospital was formally dedicated, November 21, with nearly 4,000 dentists, county officials and child welfare workers in attendance. Don M. Gallie, D.D.S., presided. This is the first clinic in Chicago to provide free dental treatment for children, it is said. It comprises seven dental service outfits, an examination room, a surgical room and a roentgen-ray department. Children are selected for treatment by physicians at the Cook County Hospital, the juvenile court, the county agent and the bureau of social service. Dr. Arthur D. Black, dean of Northwestern University Dental School, stated that plans are being made to establish a free clinic for adults and to enlarge the children's clinic.

INDIANA

License to Practice Refused.—The state board of medical registration and examination has refused Adolph Tixler, Gary, permission to practice medicine in Indiana permanently, it is reported. Tixler was once given a temporary permit to practice but it was suspended last summer, when the board was informed that he had been discharged from the United States Army after a court martial. Tixler had continued practicing, it is stated, in violation of the law after his temporary permit was suspended.

IOWA

Hospital News.—The superintendent of the University Hospital of the State University of Iowa Medical School, Iowa City, announces the opening of an annex to be given over solely to the care and treatment of diabetes cases. ——The new Samaritan Hospital Association recently voted to continue operation of the institution at Sioux City, instead of merging it with another hospital.

MARYLAND

De Lamar Lectures.—Prof. Friedrich Fülleborn of the School of Tropical Medicine, Hamburg, Germany, delivered a lecture on "Filariasis" as one of the de Lamar lectures in hygiene, at the School of Hygiene and Public Health, Johns Hopkins University, November 26.

Meeting of Book and Journal Club.—The Book and Journal Club, of the Medical and Chirurgical Faculty, met November 20, in Osler Hall. Charles Stevens of Baltimore gave an illustrated lecture on "Pioneers of Medicine." There was also a loan exhibition of pictures, books and instruments. Dr. William H. Welch presented the Frederick Wiesenthal coat of arms to the faculty, which, the gift of John Milton Griffith, was brought to this country from Prussia by Dr. Wiesenthal.

MASSACHUSETTS

Clinical and Surgical Association.—A delegation of members of the Massachusetts Clinical and Surgical Association were the guests at Fall River, November 14, of Dr. Philemon E. Truesdale at his new hospital.

MINNESOTA

Diphtheria Closes Schools.—The schools and churches of Preston have been closed by the health officer to prevent an epidemic of diphtheria.

Personal.—Drs. Christian L. Roholt, Waverly, and John J. Catlin, Buffalo, were elected president and secretary-treasurer, respectively, of the Wright County Medical Society at the annual meeting in Buffalo, recently.——Dr. John C. Staley,

who has been superintendent of the Ancker Hospital, St. Paul, since the death of Dr. Ancker the first part of the year, has resigned on account of poor health.

Society News.—At the annual meeting of the Minnesota Hospital Association in Milwaukee, Dr. Karl H. Van Norman, superintendent of the Miller Hospital, St. Paul, was elected president. William Mills, superintendent of the Swedish Hospital, Minneapolis, was elected secretary.——At the annual meeting of the Minnesota State Sanitary Conference in St. Paul, recently, Dr. Ludwig L. Sogge, Windom, was elected president; Dr. George G. Balcom, Lake Wilson, vice president, and Dr. Albert J. Chesley, Minneapolis, secretary-treasurer.

MISSOURI

"Prepare for Inspection."—Dr. Cortez F. Enloe, state health commissioner, announced, November 13, that every physician and surgeon, osteopath, chiropractor, or any one practicing any form of healing in Missouri, will be listed by the state board of health and their credentials and records thoroughly investigated.

NEBRASKA

Personal.—Dr. Stanley C. Clements has succeeded Dr. Roland Breuer as examining physician at the state tuberculosis association's clinic at Lincoln.——Dr. Harrison I. Shull, Auburn, pioneer physician, has retired from practice at the age of 83.

NEW JERSEY

New Hospital Superintendents.—Dr. Alfred A. Mutter, Kearney, has been appointed resident medical director of the New Jersey Home for Disabled Soldiers, Kearney, to succeed Dr. Burtis E. Goldberg, Arlington, who resigned recently. ——Dr. Howard R. Dukes, Kearney, has been appointed medical director of the West Hudson Hospital, Arlington, to succeed Dr. Widmer E. Doremus, who resigned. Dr. Burtis E. Goldberg has been appointed first assistant to Dr. Chester R. Brown on the medical service.

NEW YORK

New Medical Society.—The Riverside Medical Society has been organized in New York by physicians of the west end section of the city. Dr. Isador W. Kahn is president; Dr. Martin Cohen, vice president; Dr. Samuel Morse, secretary, and Dr. Morris Murray Peshkin, treasurer. The first meeting was held at the Hotel Majestic, November 20. Dr. Smith Ely Jelliffe was the principal speaker.

Tuberculosis Campaign.—A series of lectures and clinics are now being given to physicians at Syracuse with the cooperation of the Medical College of Syracuse University, the city health department and the Syracuse Health and Tuberculosis Demonstration, which is financed largely by the Milbank Foundation (The Journal, November 17, p. 1700). All phases of the tuberculosis problem are being presented with special attention to early diagnosis. Among those giving lectures and clinics are: Drs. Edward R. Baldwin, Trudeau Sanatorium, Saranac Lake; Oliver W. H. Mitchell, professor of bacteriology, Syracuse University; Charles Hendee Smith, professor of clinical diseases of children, Columbia University, New York City; Henry G. Bugbee, St. Luke's Hospital, New York City, and Livingston Farrand, president of Cornell University, New York City.

United Hospital Fund.—The forty-fourth annual report of the United Hospital Fund, published November 14, covers the work of fifty-six hospitals. During the year (ending June 30, 1923) 201,271 patients were treated, of whom 41,310 were treated without charge. Forty-five of the hospitals are in New York City, eleven in Brooklyn. Of the patients who paid something for their care 20,248 were public charges for whom the city paid in part and 88,596 were ward patients, part of whose expenses were paid by themselves or relatives. The total expense of operating all the hospitals in the fund was $15,641,369. Receipts of the fund were $643,626, an increase of $58,069 over last year. Legacies were as follows: Charlotte Williams, $187; Eleanor Fisher Clarke, $4,916; Philip Findler, $3,248, and Julius Loewenthal, $500. The report refers to adequate ambulance provision as one of the most vital necessities in the city and urges that the service be taken over by the city and managed like the police and fire departments.

New York City

Hospitals to Consolidate.—Following a survey of the hospital situation in the downtown district, the boards of directors of the Beekman Street and Broad Street hospitals have decided to consolidate the two institutions.

Tuberculosis Campaign in Bowling Green District.—Emphasis has recently been laid on the fact that the Bowling Green district of Manhattan is twenty-five years behind certain other sections of the city in fighting tuberculosis. The death rate in this section of the city is that of twenty-five years ago, and for every tuberculosis death it is estimated that there are six living persons who have the disease. The Bowling Green Neighborhood Association is starting a campaign to combat the disease in that part of the city.

Associated Out-Patient Clinics of the City of New York.—At a meeting of the section of medicine of the Associated Out-Patient Clinics held, November 21, the standards for medical clinics drafted by the executive committee of the section were discussed. The program included these topics: "Should the number of patients admitted be limited in relation to the number of physicians?" "Should patients be diagnosed in the general medical clinic before assignment to special classes?" "Is thoroughness of records essential to efficient work in medicine?" "Should records be filed centrally?" "What should be the relation of the out-patient staff to the medical staff of the hospital?" "Value and use of standards." "Suggestions for further activities of the section." The proposed standards were adopted and will be published at a later date.

Quacks in New York.—Recent exposures in Connecticut of men who are practicing medicine under the protection of bogus medical diplomas has led to a survey of the situation in New York. During the course of exposures in Connecticut charges were made that there were among the interns of the Lying-In Hospital several who held diplomas from alleged Missouri diploma mills. The records of the hospital show that among all the interns employed in the hospital during the last few years only three presented credentials from the St. Louis College of Physicians and Surgeons and each of these had had actual medical instruction in other institutions. Dr. S. Dana Hubbard, director of public health education of the department of health, makes the statement that there are from 1,200 to 1,500 persons practicing medicine illegally in Greater New York, most of whom are chiropractors.

OHIO

Quarantine for Diphtheria.—An outbreak of diphtheria at Burbank has caused Wayne County health officials to quarantine the entire village.

Hanna Lecture.—Prof. A. Biedl, Prague, Czechoslovakia, delivered the eleventh Hanna lecture at the medical library of Western Reserve University School of Medicine, Cleveland, November 19. His subject was "The Nervous and Endocrine Control of the Functions of the Alimentary Tract."

OREGON

Dr. Josephi Honored.—The degree of LL.D. is to be conferred on Dr. Simeon E. Josephi, Portland, by the University of Oregon at the commencement exercises at Eugene, in June, 1924, in recognition of his long services and to commemorate the twenty-five years he spent as dean of the medical school of that university. Dr. Josephi was first dean of the Medical School of the University of Oregon.

PENNSYLVANIA

Medical Library Bequeathed to Hospital.—The medical library of the late Dr. Jacob Rosenbloom, Pittsburgh, has been bequeathed to Beth Israel Hospital, New York City, it was announced, November 18. The collection is valued at $50,000.

Philadelphia

Welfare Campaign Closes.—The year's campaign of the welfare federation to raise $3,000,000 with which to support the 130 member agencies was closed, November 15. A total of $2,883,978 was raised. The trustees of the federation will undertake to raise the additional sum.

RHODE ISLAND

New Medical Practice Act.—The Rhode Island Board of Health has directed the secretary, Dr. Byron U. Richards, to make a survey of the laws of several states with a view to amendments of the present medical practice act of Rhode Island, which will be sought at the next session of the state legislature. One of the chief aims of the proposed amendments will be to provide a heavier penalty for violations

of the medical practice act. The maximum fine under the present law for a serious violation of the statute is $50. Another change sought is to require better preparation of persons seeking to practice medicine in Rhode Island.

TENNESSEE

County Physicians Organize.—The Tri-State County Medical Society was organized, November 8, at McKenzie, by physicians of Henry, Carroll and Weakley counties. Dr. Augustus A. Oliver, Paris, was elected president; Dr. Harris T. Collier, McKenzie, vice president, and Dr. R. M. Little, Martin, secretary. Meetings will be held the first Tuesday in each month.

TEXAS

Dr. Cary Honored.—The board of trustees of Baylor University College of Medicine, Dallas, recently officially named the medical science building in honor of Dr. Edward H. Cary, Dallas.

Missouri "Diplomas" in Texas.—Dr. Thomas J. Crowe, Dallas, chairman of the state board of medical examiners, is gathering evidence against a group of ten so-called physicians practicing medicine in one county alone who are holders of "diplomas" issued by one or the other of the Missouri schools now under investigation following the issue of fake diplomas. Many other such diploma holders are practicing in the state, it was announced at a meeting of the board of councillors of the state medical association held at Fort Worth, recently.

VIRGINIA

Personal.—Dr. Richard H. Meade, Jr., Richmond, has been appointed a medical missionary to St. James Hospital, Nanking, China. Dr. Henry R. Taylor, Norfolk, is in charge of the institution.

Medical Association of the Valley of Virginia.—At the annual meeting of the association in Staunton, recently, Dr. John M. Emmett, Clifton Forge, was elected president; Drs. David M. Kipps, Front Royal, Achilles L. Tynes, Staunton, and Benjamin B. Dutton, Winchester, vice presidents, and Dr. Alex F. Robertson, Jr., Staunton, secretary.

WISCONSIN

Appointment by State Board of Control.—The State Board of Control has announced the appointment of Dr. C. C. Atherton, Kankakee, Ill., as superintendent of the Southern Wisconsin Colony and Training School for the Feeble-Minded. Dr. Atherton suceeds Dr. H. M. Werner, resigned.

Ninth Councilor District Meeting.—Fifty physicians from central Wisconsin attended the quarterly meeting of the Ninth Councilor District Medical Society, at Marshfield, November 22. Those who spoke before the society were: Drs. S. R. Slaymaker, Chicago; Edward L. Miloslavich, Milwaukee; K. W. Doege, Marshfield, and Mr. J. G. Crownhart, secretary of the state society.

Personal.—Paul F. Clark, Ph.D., professor of medical bacteriology at the University of Wisconsin, has returned from a semester's leave of absence. Dr. Clark served as delegate at the Pasteur centenary in Paris.——Three additions to the faculty of Marquette University School of Medicine, Milwaukee, have been announced by Dean Jermain. The new members are: Dr. Frederick Eigenberger, Sheboygan, pathologist; Dr. Joseph P. Hettwer, London, England, and Dr. Harry H. Beckman, New York.——Drs. Ralph Kaysen, Morrelle M. Bunch, Arthur H. Cohn and Urban A. Schlueter have been appointed police surgeons for Milwaukee.——Dr. Henry C. Werner has resigned as superintendent of the Southern Wisconsin Home for the Feebleminded and Epileptic, Union Grove, effective December 1.——Dr. Guerney Taylor, Milwaukee, has been elected secretary of the Wisconsin Anti-Tuberculosis Association.

CANAL ZONE

Society News.—The Medical Association of the Isthmian Canal Zone held its one hundred and ninety-eighth meeting at the Ancon Hospital recently. Dr. Jesse L. Byrd, health officer of Cristobal-Colon, presented "A Résumé of the Antimalarial Campaign at Cristobal-Colon, 1917-1922," and Dr. Dalferes P. Curry gave a lantern slide demonstration of the field work of the division of sanitation. Dr. Byrd pointed out that Cristobal-Colon, once most unhealthy, has been made thoroughly sanitary, yellow fever being practically eradicated, and malaria controlled.

CANADA

Special Training in Tuberculosis.—Special training in tuberculosis will be given in the various medical colleges of Canada. The arrangements at Queen's University Faculty of Medicine, Kingston, Ont., provide for one afternoon weekly at Mowat Sanatorium for the fifth year with particular attention to pulmonary tuberculosis; other clinics are devoted entirely to chronic nonpulmonary conditions. The University of Toronto Faculty of Medicine, Toronto, teaches tuberculosis by bedside clinics in the three clinical years. In the final year a systematic course is given, including lectures and bedside clinics. In the outpatient department of the Hospital for Sick Children, Toronto, a special clinic is held twice a week. A similar outpatient clinic is held at the General Hospital, Toronto. In the Western University Medical School, London, Ont., the clinic work is done in general wards and the outpatient clinics of the Victoria Hospital, London.

Society News.—At the third annual meeting of the Canadian Neuro-Psychiatric Association in Kingston, October 17, the following officers were elected for the ensuing year: president, Dr. Nelson H. Beemer, Mimico; vice president, Dr. James M. Forster, Whitby, and secretary, Dr. F. S. Vrooman, Toronto. Hon. Forbes E. Godfrey, minister of health, delivered an address.——At the annual meeting of the Canadian Tuberculosis Association in Edmonton, Dr. Charles D. Parfitt, Gravenhurst, was elected president. The next meeting will be held in Ottawa. A resolution in favor of establishing laboratories for research was adopted. It is hoped that $5,000 a year will be available for this purpose.——At the first meeting of the Saskatoon Medical Society at Saskatoon, Sask., October 7, the reorganization of the local society was completed and a public health day planned. Meetings will be held every second month. Officers of the society are: president, Dr. George R. Morse, Saskatoon; vice presidents, Drs. James J. Finn, Dundurn, and Alexander K. Cameron, Delisle, and secretary-treasurer, Dr. Ernest R. Myers, Saskatoon.

Personal.—Dr. Michael Steele, managing director of the Ancrum Brae Sanatorium, Stratford, Ont., and former member of parliament for South Perth, 1911-1921, has been appointed judge of the juvenile court of the county of Perth.——Dr. John R. Currie has been appointed university medical officer, and Earl White, Ph.D., lecturer in chemistry, at Queens University Faculty of Medicine, Kingston, Ont.——Dr. William R. Reeds, who is working as a medical missionary in Honan Providence, China, has returned to that country after spending his furlough at his home in Toronto.——Drs. Frederick A. Aylesworth, Clarence E. Hill, Samuel M. Lyon and Walter W. Wright have been appointed senior demonstrators in ophthalmology at the University of Toronto Faculty of Medicine.——Dr. Andrew S. Moorhead, Toronto, has been appointed chief medical adviser of the Central Appeal Board, dealing with soldiers' pensions, with headquarters in Toronto. Dr. Frank C. McTavish has been appointed medical adviser for the western district with headquarters at Vancouver, B. C.——Dr. Anna St. Clair Creighton, Halifax, N. S., has been appointed to the roentgen-ray department of the Finley Hospital, Dubuque, Iowa.

GENERAL

Hospital Expenditures.—At the annual meeting of the American Hospital Association in Milwaukee, recently, it was stated that the total value of hospital buildings and grounds in the United States is nearly $2,000,000,000, and the total expenditure annually for maintenance of the 6,000 hospitals is approximately $525,000,000. A sum of $350,000,000 will be spent during the next year for new buildings and equipment, it was also stated.

New Child Health Film.—The U. S. Children's Bureau, Department of Labor, Washington, D. C., announces the production of a new motion picture on prenatal care, entitled "Well Born." This will be loaned to responsible persons and agencies with the understanding that the borrower defrays express charges back and forth, employs a competent motion picture operator, and guarantees safe keeping. Those who desire to purchase the film may apply to the bureau for information and prices.

Goiter Association to Hold Meeting.—The American Society for the Study of Goiter will hold a session in Bloomington, Ill., Jan. 24-26, 1924, under the presidency of Dr. E. P. Sloan, Bloomington. The first day of the session will be devoted to operative clinics, and the remaining two days to scientific sessions. The program includes discussions by Drs. F. H. Lahey, Boston; W. Babcock, Philadelphia; W. S. Bainbridge.

New York City, and W. Engelbach, St. Louis. Information concerning the session may be had from the secretary, Dr. J. D. Moschelle, Indianapolis.

Nobel Prize Again Divided.—Drs. J. J. R. McLeod, Toronto, Canada, and Frederick G. Banting, Toronto, between whom the Nobel prize for medicine of $40,000 for 1923 was divided, have each again divided the prize, so that James B. Collip, Ph.D., professor of biochemistry in the University of Alberta Faculty of Medicine, Edmonton, and Dr. C. H. Best, Toronto, collaborators in the work on insulin, will each receive $10,000, according to *Science*. Dr. Banting had already donated $10,000 of his share of the prize to the Banting Research Fund (The Journal, November 24, p. 1797).

Tri-State Changes Name.—The Tri-State District Medical Society (Iowa, Illinois, Wisconsin) added Minnesota, Indiana and Missouri to its territory and changed its name to the Interstate Assembly of Physicians and Surgeons at the annual meeting in Des Moines, Iowa, October 29-November 1 (The Journal, October 20, p. 1371, and November 17, p. 1702). The next annual meeting will be held at Rochester, Minn., under the presidency of Dr. Clifford U. Collins, Peoria, Ill. About thirty clinics were given during the four day session. A clinic journey to Canada and the British Isles in the near future was proposed.

The National Board Bulletin.—The Journal has received a copy of No. 1, Vol. 1, of the *National Board Bulletin* to be published bimonthly by the National Board of Medical Examiners. It is to be a medium through which candidates for the examination, those who have secured the board's certificate, medical teachers or others who act as subsidiary examiners, and others interested, may be kept informed in regard to the work and progress of the board. It will contain information in regard to forthcoming examinations and reports of passed examinations. This bulletin has a justifiable reason for its existence and contains interesting information in regard to the National Board of Medical Examiners.

Scientific Society Organized.—The Northwest Scientific Association was organized at a meeting in Spokane, recently, with 134 charter members. This association opens its doors to any one interested in the various lines of scientific endeavor in medicine, bacteriology, zoology, physics, chemistry, psychology, education and history. Members will be drawn largely from the states of Oregon, Idaho, Montana and Washington and the Canadian provinces of British Columbia, Alberta and Saskatchewan. One or more regular meetings will be held each year for the presentation and discussion of papers. Martin F. Angell, Ph.D., dean of the University of Idaho, Moscow, was elected president, and Frederick D. Heald, Ph.D., State College of Washington, Pullman, secretary.

Society News.—The State and Provincial Health Officers of North America announced recently that the next meeting will be in Lansing, Mich., in May, 1924. Dr. Clyde C. Slemons, health officer of Grand Rapids, Mich., has been elected head of the health administration section of the organization.—The annual meeting of the Association for Research in Nervous and Mental Diseases will be held at the Hotel Commodore, New York City, December 27-28, under the presidency of Dr. Walter Timme, New York City. The subject for discussion will be: "Hereditary Nervous and Mental Diseases."——The next annual meeting of the American Student Health Association will be held in Cincinnati, Jan. 1-2, 1924, under the presidency of Dr. Joseph E. Raycroft, Princeton, N. J. The program will be devoted to an informal consideration of clinical questions.——The annual mid-winter meeting of the Sioux Valley Medical Association will be held in Sioux City, Iowa, Jan. 22-24, 1924.

American Association for the Advancement of Science.—At a meeting of the executive committee of the association in Washington, D. C., October 14, the appointment of Charles A. Shull, Ph.D., of the University of Chicago, to be assistant secretary of the association in the place of Samuel F. Trelease, Ph.D., resigned, was approved. One hundred and twenty-six fellows were elected. On Sept. 30, 1923, the total enrolment was 11,704. It was voted that the association shall hold a summer meeting at Buffalo, preceding the Toronto, Canada, meeting of the British Association for the Advancement of Science, September, 1924. It was also voted that the annual meeting for 1927 shall be held in Philadelphia. Future annual meetings have been arranged as follows:

1924, Cincinnati, Dec. 27, 1923-Jan. 2, 1924.
1925, Washington, D. C., Dec. 29, 1924-Jan. 3, 1925.
1926, Kansas City, Mo., Dec. 28, 1925-Jan. 1, 1926.
1927, Philadelphia, Dec. 27, 1926-Jan. 1, 1927.
1928, ————————, Dec. 26-31, 1927.
1929, New York, Dec. 27, 1928-Jan. 3, 1929.

American Child Health Association Scholarships.—Resident and travel scholarships by the American Child Health Association have been awarded to fifteen American physicians, it was announced November 20. They are: Drs. Charles W. Armstrong, Salisbury, N. C.; William W. Bauer, Milwaukee; Romulus L. Carlton, Winston-Salem, N. C.; Eugene O. Chimene, Minneapolis, Kan.; William De Kleine, Saginaw, Mich.; Seymour Fiske, New York; Arthur M. Kimberly, Bristol, Conn.; George A. Lamont, Vancouver, B. C., Canada; George N. Leonard, Albany, N. Y.; Marie M. P. Long, Memphis, Tenn.; George C. Marlette, Bay Minette, Ala.; Walter R. Moore, St. Joseph, Mo.; Russell B. Sprague, Yarmouthport, Mass.; Thomas D. Walker, Macon, Ga., and Ruth Weissman, Dorchester, Mass. These scholarships were awarded on the basis of graduation from an accredited medical school, and on evidence of the candidate's interest in child health work. Dr. Richard Bolt, director of medical service of the association, is authorized by the committee on awards to act in an advisory capacity, to assist candidates in the selection of courses.

Abridged Life Tables.—The Bureau of the Census has just issued "United States Abridged Life Tables, 1919-1920." This is the third official publication of life tables by the bureau, and is intended as a supplement to the much larger volume of life tables published in 1921. These have been called "abridged" because of the process of construction and because life table values are given at every fifth year of age instead of at each year of age. They give four life table functions: rate of mortality per thousand, number of survivors to each age out of 100,000 born alive, number of deaths in each age interval out of 100,000 born alive, and the complete expectation of life in years. The abridged tables relate to 74 per cent. of the population of the United States, whereas the 1910 tables relate to about 28 per cent., of which not more than 2 per cent. are negroes. Under these circumstances life tables for total populations and for white populations do not differ much, but, in the groups of population for which the abridged tables were constructed, the percentage of colored people varies from 0.6 to as much as 51.4 per cent. of the group. These tables, except for Hawaii, are for white or negro populations, not for the aggregate population. To render comparison easy, the values of each life table function are grouped in tables by sex. By various means facts are indicated briefly, for example, bold-faced figures in any age group indicate that the rate of mortality among females is greater than among males, and figures in italics indicate values taken from the 1909-1911 life tables for whites and negroes in the original registration states. The second part of this work is a description of the process of computing the abridged tables, the third the original statistics on which they are based. There are in all ninety-two tables by sex; eighty are based on statistics of the white population, eight on those of the negro population, and four on the population of Hawaii.

Fraud Order Against Oriental University.—The Department of the Interior, according to a memorandum issued by the U. S. Bureau of Education, has been advised that a fraud order against Oriental University, a correspondence school located in Washington, D. C., preventing its future use of the mails, was issued by the Post Office Department on November 5. An investigation of the institution made by that department showed that it was engaged in conducting a scheme for obtaining money through the mails by false pretenses.

The Oriental University was incorporated under the laws of the State of Virginia on March 11, 1904, to conduct "a nonsectarian, coeducational, and orientalistic education by residence and correspondence instruction, to undergraduate and graduate students; to carry on instruction and institute courses to lead to any of the bachelor, master, or doctor degrees in theology, philosophy, arts, sciences, pedagogy, literature, music, law, medicine, and orientalistics."

The "principal" offices of the Oriental University were first located in Alexandria, Va., but in 1912 were removed to Dominion Heights, Cherrydale, Va.

On Jan. 5, 1915, a paper was filed with the recorder of deeds of the District of Columbia, certifying that the board of trustees of the Eastern University (located in Washington, D. C., and incorporated under the District laws, Nov. 11, 1904), had voted to change the name of the institution, to the "Oriental University." The filing of this paper constituted the institution's claim in incorporation under the laws of the District of Columbia.

The object of the incorporation of Eastern University, whose charter was thus taken over by Oriental University, was stated to be "for the purpose of providing instruction in the various departments of the university, either by correspondence or personal attendance," including, in addition to

the usual departments of arts and sciences, graduate school, engineering department, medical department, law, pharmacy, dentistry, and theology, "a school of osteopathy and osteotherapy, school of scientific medical massage, school of chiropractic, school of electro-therapeutics, school of chiropody, school of psychology." On the completion of the course in one of these departments or schools an appropriate degree was provided, listed in the articles of incorporation as follows: B.A., M.A., Ph.D., B.S., M.D., LL.B., LL.D., Ph G., LL.M., D.D.S., D.D., D.O., D.M., D.C., D.P., and D. Psychol.

Upon acquiring the charter of Eastern University the Oriental University moved its "principal" office to Washington, D. C., where it has been located in the home of its president and founder, H. P. Holler, at 1702 Oregon Avenue N.W., where most of its business is conducted.

The evidence on which the recommendation for the issuance of a fraud order was based showed that while Oriental University through its literature advertised resident courses, the institution operated exclusively through the mails; the numerous "resident" and "nonresident" professors listed in its catalogue performed no actual duties, except in a few instances to sign diplomas; that the faculty lists contained names of persons without their consent or knowledge; that the biennial registers of the institution have contained long lists of students "ex-matriculated" who were never in fact students of the university; that the Oriental University had no facilities for personally instructing resident students, and no facilities for instructing students in special lines such as medicine and engineering by correspondence, except that it had contracts with certain alleged "professors" who may or may not have had the qualifications to teach those subjects.

FOREIGN

Hospital News.—A wealthy Persian merchant, Haji Mohamed Hussan Namazi, has presented a maternity hospital to Shiraz, which will be operated by the Church Missionary Society. Dr. Emmerline Stuart of Dublin, Ireland, will direct the activities of the institution.

Personal.—Dr. W. Miguet, representative of the Belgium Child Health Association, at the American Child Health Association sessions, recently visited Fargo, N. D., to observe the work being done in the Fargo Child Health Demonstration under the auspices of the U. S. Public Health Service. ——The Naples Accademia Leonardo da Vinci has elected Dr. Sauerbruch of Munich an honorary member, in token of appreciation of his work in surgery of the thorax.

The Netherlands Council on Pharmacy and Chemistry.—The fifth publication issued by the Netherlands Council has been received. It contains the annual report for 1922, special articles on "Mistletoe in Treatment of High Blood Pressure"; "Comparison of Pituitary Preparations"; "Preferable Formula for Procain Solutions," and "Pregl's Iodin Solution," and thirty pages are devoted to analysis and comment on twenty-seven different proprietary preparations. The varying behavior of solutions of procain is ascribed to the reaction. In a slightly acid solution, it can be sterilized at 100 C. But when the reaction veers to alkaline, it cannot stand a temperature of 100.

A Plea for the Retention of the Famous Lister Ward in Glasgow.—James A. Morris, associate of the Royal Scottish Academy, fellow of the Royal Institute of British Architects, and a member of the Art Workers Guild, has issued a dignified and temperate protest against razing "the famous Lister Ward" by the managers of the Royal Infirmary in Glasgow. He suggests, instead, a plan for saving the Lister Ward through making it a museum, as was suggested originally by Lucas-Championnière, thus establishing it as a world shrine in memory of the greatest public benefactor the city of Glasgow has ever had. Even to contemplate the destruction of the Lister Ward at this time, when the centennial birthday of Lister is to be celebrated throughout the world so soon (April 5, 1927), he says, is evidence of vast ignorance of the attitude of the medical profession and their reverence for Lister, or of gross indifference to the sentiments and real feeling of mankind for this benevolent and kindly father of modern scientific surgery.

Medical News from Japan.—The *Japan Medical World* states that during the earthquake and fire, September 1, its publishing, editorial offices and library were completely destroyed by fire. Numbers 9 and 10, Vol. 3, are published as one issue under date of October 15 owing to these conditions. Temporary offices have been established at 531 Sendagayo, Tokyo, and regular publication will be resumed with the November number.——It has been ascertained that the fire, which destroyed the Tokyo Imperial University and the Japan College of Dentistry during the earthquake, September 1, originated in each case from the explosion of chemicals in their laboratories.——Professors on being retired because of the age limit will receive retirement allowances at the time of dismissal in addition to their pensions, it is announced by the officials of the Tokyo Imperial University.——To commemorate the Imperial wedding next spring the Tokyo Chamber of Commerce will establish a new hospital which will give medical aid to the populace at cost price.——Among recent welfare projects approved by the home office is the establishment of an orphanage for children at a cost of 950,000 yen ($475,000) and additions to the tuberculosis sanatorium at a cost of 200,000 yen ($100,000). The establishment of a national leprosarium and a national hospital for the insane was disapproved.

The Eugenics Conference in Sweden.—The Mendel Society of the University of Lund invited the International Eugenics Commission to a conference, and Herwerden gives an account of the successful meeting in the *Nederlandsch Tijdschrift*. The president of the Eugenic Education Society, Major Leonard Darwin, the second son of Charles Darwin, presided. He also presided at the first eugenics congress at London in 1911. The second congress was held in New York in 1921. America was represented at the conference in August by Dr. Allan J. McLaughlin, director of the Eugenics Record Office at Coldsprings Harbor, N. Y. He has been consulting with various governments in Europe in regard to selecting immigrants before they sail, instead of waiting until they arrive in America. The Mendel Society at Lund publishes the journal *Hereditas*. The president of the society is Nilsson Ehle, whose research on the crossing of grains has materially increased Sweden's harvests. The commission visited Upsala, where Lundborg presides over the State Institute for Research on Heredity, the only one of the kind in Europe. The anthropologic research of his field workers has already resulted in a card catalogue of all Swedish subjects. The genealogical trees of the Laplanders show that notwithstanding their nomadic life, their church records have been kept without a break for centuries. The Swedish legislature has been considering a bill for the sterilization of the unfit, but Lundborg advised against its adoption.

Government Services

Captain Gwynne Acquitted

Capt. Samuel C. Gwynne, M. C., U. S. Army, retired, was acquitted by a court martial at Washington, D. C., November 7, of charges growing out of the case of Pvt. Guy Pendleton (THE JOURNAL, August 25, p. 671). Captain Gwynne was the ward surgeon at Camp Eustis, Va., where Private Pendleton was first under treatment.

Hospitals Authorized

Pursuant to instructions of the Secretary of War the organization of General Hospital No. 121 (St. Francis Hospital Unit, Wichita, Kansas), organized reserves; General Hospital No. 42 (University of Maryland School of Medicine Unit, Baltimore), organized reserves; Evacuation Hospital No. 5 (Massachusetts Homeopathic Hospital Unit, Boston), and Evacuation Hospital No. 55 (St. Mary's Hospital Unit, Oshkosh, Wis.) have been authorized.

U. S. Public Health Service Personals

Asst. Surg.-Gen. Rupert Blue has been relieved from duty in charge of service operations in Europe, and directed to proceed to the United States. Dr. Blue, who has been abroad for the last three years, attended the recent opium conference of the League of Nations at Geneva, Switzerland, as a special delegate from the United States. He was recently made a Chevalier of the Legion of Honor by the French government. Surg. Walter W. King of the American consulate in London has been directed to proceed to Paris, France, to assume charge of the U. S. Public Health Service activities in Europe, succeeding Dr. Blue.——P. A. Surg. Richard B. Norment, Jr., head of the child hygiene department, Hagerstown, Md., has resigned from the service, effective on the expiration of four months' accrued leave of absence, Feb. 22, 1924.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 12, 1923.

The Panel Struggle

The amended offer by the minister of health is regarded by the panel physicians as a great victory, and by the representatives of the friendly societies as a surrender. Dr. Brackenbury, chairman of the Insurance Acts Committee of the British Medical Association, says: "We have won on all points on which we placed most importance, and gained an advance on the rest. On the whole, I think we have done very well. The main point, first, is that we have secured that the position of our remuneration and of medical benefit shall be in the form in which we wanted it. In the second place, we have secured that the remuneration of the physicians shall be determined on its merits, between the government and the profession and nobody else. The third point is in reference to the character of the inquiry by the royal commission into the panel system. This is to be a full inquiry, not merely into the medical side and the financial side, but also into the working of the approved (friendly) societies, and the commissioners will be an independent body of persons without vested interests." On the other hand, Sir Thomas Neill, chairman of the Consultative Committee of the Approved Societies, said: "The government, not wishing to take any more money from the taxpayers, and having raised the physicians' fee without considering the societies, is now going to rob the henroost of the insured members to satisfy the physicians. The only bulwark the insured persons have against the proposals of the government to rob their funds is now the House of Commons. We welcome the suggestion of a full inquiry. Many things can be raised there which have not been said." It has also been decided, in view of the general election now so near, to circularize the 15 million insured persons denouncing this as the first occasion in which any government has sought to appropriate their funds for other purposes than those for which they were contributed.

Child Assault and Venereal Disease

At a meeting of the National Council for Combating Venereal Diseases, a resolution was passed that the council views with concern the extent of the crime of child assault. Many of these assaults lead to the communication of venereal disease to young girls. Public opinion should be aroused to the evil, and the existing laws should be stringently administered. The council is of the opinion that financial penalties do not act as a sufficient deterrent, and that severe penalties should be imposed. At a joint meeting of the National Council and the Society for the Prevention of Venereal Diseases (whose differences have frequently been described in previous letters), it was resolved that the ultimate fusion of the two societies is desirable. It was also resolved that the law should be so altered as to permit qualified pharmacists to sell *ad hoc* disinfectants for the prevention of venereal disease in those who expose themselves to infection, provided such disinfectants are sold in a form approved and with instructions for use by some competent authority.

The Health of School Children

The report of Sir George Newman, chief medical officer of the board of education on "The Health of the School Child in 1922," has just been issued. He laments the need for financial restrictions, which have arrested almost at their birth many of the developments proposed in recent legislation. The "most serious and wasteful defect in our national health service" is, he considers, the lack of adequate supervision of the infant during preschool life. The most urgent questions awaiting solution in many educational areas are: (1) the further coordination of the school medical work with the public health service; (2) the physical condition of children under 5 years of age; (3) the effective education of the dull or backward child; (4) the importance of a comprehensive scheme for the treatment of dental defects, and (5) the systematic organization of the teaching of hygiene and physical training. During 1922, 1,751,122 children were subjected to routine medical inspection, and to this number must be added 635,628 children who were examined as "special" cases. Thus, of the 5,180,589 children in average attendance at the elementary school during 1922, no less than 2,386,750, or 46 per cent., were medically inspected. The cooperation of parents is being cultivated in every possible way; very few now object to school medical inspection, and in the great majority of cases it is welcomed. The school medical officers report increased attendance of parents with their children at the school clinics. On the need for supervision of the child before it reaches the school age, Sir George Newman is emphatic. From 80 to 90 per cent. of children are born healthy and with potentiality of leading healthy and normal lives. The work on behalf of the new-born child increases from year to year, yet, comprehensive as it has become, the close supervision of the infant extends but little beyond the first year. After the first year of life the young child has to bear a heavy burden of environmental neglect, associated with bad housing, poverty, and absence of hygienic supervision. As a result, the school medical service is faced with the fact that, out of an infant population born healthy, from 35 to 40 per cent. admitted to school at 5 years of age bear physical defects which might have been either prevented or cured. This is the most serious and wasteful defect in our national health service.

As regards sanitation, the report says, it travels from the school to the home, and the child of today is the householder of tomorrow. The effective teaching of hygiene in each school and to each class is of the first importance. If for eight or nine years the child is taught of what personal and public health really consist, immense good will result. The child and the young adolescent must be trained in the way of health and physical efficiency. In order to secure this, it is necessary that the teacher be properly equipped. A great responsibility rests on the training colleges to provide this preparation for the teacher. The health instruction in the school must be adequate. It should be not only information, but also a direction; it should be not only intermittent and theoretical, but also continuous and practical. Every week, some definite guidance should be given and repeated until habits are formed. Until hygiene is a habit and a way of life, it is of little avail.

DEFECTS AND DISEASES

Routine medical inspection shows that about 40 per cent. of the children have a greater or less degree of physical defect. Definite malnutrition, heart disease, anemia and deformities are each present in about 2 per cent.—broadly, 100,000 children suffering from each of the four conditions. A large burden of disease, 20 per cent., consists of defective vision; ear, nose and throat disease, 14 per cent.; and a severe degree of dental disease, 34 per cent. As to vision, 10 per cent. of the children suffer from serious defect. These are maladies found at the school; there are, in addition, the infectious diseases, which unfortunately often leave behind a good deal of disablement and the seeds of further disease. In nineteen of the largest representative areas in England and Wales there was a routine medical inspection of 707,346 children. Of this total, 241,052 suffered from dental disease, 145,521 from defective vision, and 90,832 from nose and throat disease. Enlarged tonsils and adenoids are "a serious mass of debilitating disease."

VIENNA

(From Our Regular Correspondent)

Oct. 31, 1923.

Wilful Infection with Syphilis—A Criminal Offense

For the first time in this country, a county court has passed sentence on a man who knowingly transmitted syphilis to another person; this new departure may prove of the utmost importance in the promotion of public health. When the girl who was infected became aware of her misfortune, she sued for damages, and for the expenses incurred by her for medical treatment and loss of work. At the hearing, it was stated by witnesses that the man had acquired the disease one year before he became friendly with the woman. He had been under treatment, but had discontinued it before the physician had declared him cured. The judge laid special stress on this point, saying that every man knew that he must be "cured" —as that term is applied—before entering into sexual relations. By knowingly neglecting this fundamental precaution, the defendant had committed a serious offense; he was ordered to pay twenty million kronen ($300) damages and another $300 for the costs of medical treatment. An appeal against this judgment was dismissed by the higher court. Both medical and daily papers commented favorably on the incident; one pointed out that this judgment will materially help the police to secure statutes making the treatment of venereal disease compulsory. In the new parliament, elected a few days ago, there will be many in favor of this movement.

The Dangers of Domestic Electricity

The ministry for education has issued an order requiring teachers in public schools to give special instruction to their pupils on the dangers involved by the use of electricity in the household. A series of lectures on this subject was delivered to the teachers by Prof. L. Jellinek. He pointed out that it is a mistake to regard only high voltage currents as dangerous. In handling electric lamps or switches, people often receive a slight shock and pay no attention to it. But under specially unfavorable conditions, such a shock may even prove fatal. If the person happens to be standing on a good electric conductor (a wet concrete floor, an iron grating, damp earth) a current of only 200 volts may cause serious harm. Simultaneous contact with an electric cable or lamp and a water pipe or gas pipe is most dangerous. Children should be warned especially against using tools or instruments on electric fixtures, and against touching any electric appliance with wet hands (bathroom). Lantern slides were used to illustrate the lectures, and these slides will also be used in the schools.

Hospital Statistics

The official report of the board of health gives the number of medical homes and hospitals in this country, in 1921, as 284, of which only eighty-six were public institutions; the rest were private, but not necessarily operated for profit. The number of beds available was 38,996, of which only 12,062 were in the private homes. The medical staff in the eighty-four public hospitals consisted of 1,159 physicians, and in the private institutions only 492: an average of twenty-three beds to each physician in the public and twenty-seven in the private hospitals. The number of nurses employed was 6,555 (4,677 public, and 1,878 private) or one for each six beds in the public hospitals, as compared with one to seven in the private hospitals. The number of patients in that year was 309,612, of whom only 82,608 were treated in the private institutes. Among other interesting notes there are a few words about anthrax in Austria. In 1919, only one case was reported and treated in hospital. The year 1920 was entirely free from this disease. In 1921, eight cases were seen, with three deaths; in 1922, eight cases with one death, and in the first half of 1923, one case was reported and verified, and one suspicious case was still under observation. Nearly all these cases were observed in one district in upper Austria among butchers who acquired the disease by handling infected animals.

Graduations in Vienna in 1922-1923

A report from the Vienna University gives some interesting figures on the number of graduates in medicine. In the year 1922-1923 (October to July), out of 868 graduations, 485 students obtained the diploma of M.D., 254 in the winter, and 231 in the summer term. Of these, forty-eight were women. Two hundred and eleven had signed a written obligation not to practice in the Austrian Republic, under the rules of the university, which allow foreign students to graduate only on this condition. Of the remaining 274 medical graduates, only 58 per cent. were of Austrian birth, the remainder having obtained Austrian citizenship before entering the medical course. This means that of the total graduates of one year, only 33 per cent. are Austrian born, and 67 per cent. are citizens of the necessary states or foreign born. These figures indicate the importance of the Vienna University to the eastern and southern part of Europe.

Discussion on Insulin

The recent meeting of the Vienna Medical Society was devoted to the discussion of insulin. Acting on an invitation by the insulin committee of Toronto, Drs. Pollak and Falta have taken up the study of and the experiments with this substance in Vienna. The remedy is manufactured in the laboratory of the Vienna Pharmacologic Institute, and is standardized according to the Toronto unit, that amount which depresses the blood glycogen level of a rabbit of 2 kg. to 0.45 mg. per thousand cubic centimeters. The clinical unit used in several other places is about one third of this unit, but is not much in favor with research workers. Dr. Pollak stated that the indications for the use of insulin may be summarized under the following points: coma, and the precomatose conditions which are little influenced by sodium bicarbonate; surgical complications, and refractory cases. A relative indication is offered in cases in which a protein-poor diet has good effect; but this diet cannot be continued for long. The idea is to keep the patient sugar free for a week, at least, so as to give the insulin-producing mechanism a chance to recover its function. Exact control of blood and urine is paramount at first; later the urine may be examined daily, the blood not so often. This makes treatment at home more feasible. Dr. Pollak has had under control a series of twenty severe cases, and Dr. Falta another series. The latter also reported his observations, which coincide, as to favorable effects, with those of all other workers. He too recommended its use in grave cases with acidosis, and septic and gangrenous symptoms, while dietetic measures often suffice in slighter cases. The high price of the remedy is a serious drawback. Public contributions for a large fund have been urged, to enable the public hospitals to obtain a sufficient quantity of the substance for the treatment of numerous patients. In the discussion that followed the two reports, all were unanimous that the importance of the new remedy cannot be overestimated.

An Outbreak of Typhoid

In illustration of the rarity of typhoid in this city since the regulation of the water supply, it is worthy of note that the board of health has found it necessary to inform the public of a small outbreak in October, which since has been subdued. All cases (twenty-five altogether) were traced to a foreign source, and not a single patient was a Vienna inhabitant; all had acquired the infection outside the city. While in previous years the morbidity and mortality from this source was appalling, and even fifty years ago more than

1,000 persons were infected each year, since 1890 there have been only about ten or twelve cases each year; even in war time Vienna was comparatively free from typhoid, as a result of the supply of absolutely unimpeachable water in abundant quantity throughout the city.

PARIS

(From Our Regular Correspondent)

Nov. 9, 1923.

Vital Statistics

The accompanying table gives the vital statistics for France during the first six months of the current year, together with the statistics for the corresponding six months of 1922.

Vital Statistics for January-June, 1923

	1923	1922
Births	395,863	396,726
Deaths	352,239	387,681
Excess of births over deaths	43,624	9,045
Marriages	176,114	193,454
Divorces	11,965	14,305

The population of France increased, during the first six months of 1923, by 43,624, a low figure, but sensibly higher than that of the corresponding period of 1922, which was only 9,045. This improvement is due solely to the decrease in the number of deaths; the births have actually decreased. The number of marriages shows a sharp decline; there were 17,340 fewer marriages in 1923 than in 1922. The divorces, however, decreased by 2,340. The record for Paris, during the first six months of 1923, was: 30,154 births, 25,778 deaths, 18,320 marriages and 2,275 divorces.

Responsibility for Operation Performed Without Consent of the Patient

A recent decision of the Court of Paris clears up some points with regard to the responsibility of a surgeon in case of an operation performed without the consent of the patient but which appeared necessary during the course of another intervention to which the patient had given consent.

As a general principle, it is true that consent of the patient must be secured before every operation; but a person who, after allowing himself to be examined by a surgeon, permits the surgeon to give him an anesthetic and thus voluntarily submits to an operation which is supposedly necessary to free him of the pain of which he complains, has no cause for action against the surgeon who, on account of cysts discovered during the course of the primary operation, decides on a secondary operation, which, in his judgment, is indispensable.

The court therefore dismissed the complaint of a woman who alleged, but furnished no proof, that a practitioner, after assuring her that only a slight operation was necessary, had, in opposition to her wishes and without apprising either her or her husband, performed an operation that deprived her of the hope of having children. The court held that it is not the duty of the courts to pass on the indications for or the effectiveness of a given surgical operation, and that it is sufficient to establish that the surgeon (whose good faith is not questioned) has conformed to the doctrines professed by the leaders in his profession, and that the technic employed was free from negligence.

Malaria in Syria

M. Pierre Even, member of the chamber of deputies, has requested the minister of war to inform him whether it is true that in Syria the army medical service administers to the troops of occupation prophylactic doses of quinin to ward off malarial attacks, and has called his attention to the enormous expense it has entailed to supply with quinin first 75,000, then 45,000, and finally 30,000 men. M. Even inquired whether or not prescriptions requiring the appropriation of such immense sums are justified by the existence of a wide incidence of malaria that is scientifically proved. The minister of war replied that the wide extent of sickness due to malaria, among the troops of the Army of the Levant, had necessitated the organization of a systematic campaign against malaria, since it had been found that very few regions of Cilicia in Syria are free from endemic foci. Preventive cinchonization, therefore, has been and still is employed, in principle, from April 1 to December 1, simultaneously with other procedures usually instituted in any campaign against malaria.

Higher Instruction in Cookery

Under the patronage of the undersecretary of state for technical instruction, the Société scientifique d'hygiène alimentaire has organized a course of higher instruction in cookery. The instruction will be given by Dr. Hemmerdinger, agrégé professor of the University of Paris; Dr. Henri Labbé, agrégé professor of the medical faculty of the university; M. Martel, doctor of sciences and director of the veterinary services of the prefecture of police, and others. Alimentary hygiene, rational cookery, purchase of foodstuffs, and dietetics are among the subjects to be taken up.

The Radio in Sanatoriums

Dr. Mourier, general director of the Assistance publique, desirous of providing some form of entertainment for the patients, has had a radio outfit installed in the antituberculosis sanatorium of Augicourt, at San Salvador and at Berck.

A Monument to Professor Monprofit

In the gardens of the School of Medicine and Pharmacy of Angers, a monument has been erected to Dr. Monprofit, who for many years was the head of the surgical clinic in that school. He had also been mayor of Angers, deputy from the department of Maine-et-Loire, and corresponding member of the Academy of Medicine. Professor Hartmann of Paris presided at the ceremonies.

Bestowal of Medallion on Dr. C. Walther

The pupils and friends of Dr. C. Walther, meeting recently in the Hôpital de la Pitié, presented him with a medallion in memory of his long period of activity, which has recently ended with his retirement. In attendance at the ceremonies were not only colleagues from Paris, Professors Pierre Marie, Chauffard, and de Lapersonne, but also surgeons from the provinces and from foreign countries: Professor Forgue of Montpellier, Dr. Témoin of Bourges, the Belgian surgeon Wilhems, and others.

A French Dispensary for Earthquake Sufferers

The medical mission of the government of French Indo-China has established at Tokyo a dispensary for earthquake sufferers. In his address at the dedicatory ceremonies, the French ambassador, M. Paul Claudel, stated that the French government had founded this dispensary in recognition of the services rendered, during the war, by the Japanese medical mission.

Necrology

From Rouen the death of Dr. Charles Bataille, hospital surgeon and professor at the school of medicine of that city, is announced.

Dr. Emile Tillot, since 1886 a corresponding member of the Academy of Medicine, has died at the age of 95.

Personal

Two new professors for the Faculté de médecine of Paris have been elected: Dr. Georges Guillain in place of Pierre Marie, who has retired, and Dr. J. A. Sicard, in place of Rénon, deceased.

MEXICO CITY

(From Our Regular Correspondent)

Oct. 27, 1923.

New Neuropsychiatric Society

The physicians of the National Insane Asylum, at a reeent meeting, organized the Mexican Soeiety of Neuropathology and Psychiatry. Dr. Nieholás Martinez, director of the institution, was appointed president of the soeiety and Dr. Norma, secretary.

New Hospital

Through the generosity of Lady Cowdry, who donated for this purpose £100,000 (approximately $450,000), there will soon be opened in one of the most seleet districts of Mexieo City a new hospital for indigent patients. In this institution, furnished with the latest equipment, poor people will reeeive medieal assistance free of charge. A moderate fee will be colleeted from those able to pay, whether British subjeets or of other nationalities. The hospital was opened, November 11, the fifth anniversary of the armistiee. The institution will be called "Lady Cowdry Sanatorium," after its benefactress, who is the wife of one of the pioneer oil men in Mexieo, Sir Wetman D. Pierson.

Personal

Dr. Jose Terres, a prominent Mexiean physician and a professor in the medieal school, has been seriously ill for several months.——Dr. Alfredo Caturegli, former Mexican minister to Germany, has been appointed chief of the publie assistance bureau.——After spending more than a year in the United States and several months in Europe, studying publie health seience, Dr. Salvador Bermudez has returned to this country. The International Health Board, of New York City, had granted him a fellowship at Johns Hopkins Sehool of Hygiene and Publie Health, at which institution he obtained a P.H.D.——As Dr. Jesus Arroyo deelined the position of editor of the *Gaceta Médica de Mexico,* the organ of the Mexiean Academy of Medieine, a new election was held, at whieh the former editor, Dr. A. Brioso Vasconcelos, was reeleeted for two years.

BERLIN

(From Our Regular Correspondent)

Nov. 3, 1923.

New Tariff Schedule for Berlin Physicians

The commission of the Berlin "Chamber of Physieians" (*Aerztekammer)* and the Physicians League of Greater Berlin (*Aerztebund)* has just published a new tariff schedule for the use of Berlin physieians, who, in the face of the rapid depreciation of the mark, are endeavoring to establish medieal fees on a firm basis. As the new sehedule applies also to foreigners, it would seem to be a matter of general interest:

1. Medical fees shall be based on the tariff schedule that was in force just before the outbreak of the war, as expressed in gold marks. For the conversion of gold marks into paper marks the current exchange rate shall be employed.
2. The prewar fees in vogue in Berlin shall be: for an ordinary consultation at regular office hours, from 2 to 5 marks; for an ordinary call, from 3 to 10 marks. The lower fees are charged persons in moderate circumstances.
3. The fees for other forms of medical service shall be on the same basis.
4. In the application of fees, due consideration should be given to the changed circumstances of various classes of the population.
5. Special consideration should be given to patients who are suffering from financial difficulties. Patients in especially good circumstances may be charged more than the usual fees.
6. As a rule, immediate payment should be demanded. In the case of house practice, weekly settlements may be made, if daily payment does not seem feasible. Accounts should be adjusted at least once a week, even though the treatment should continue longer. Physicians are urged not to accept checks in payment of accounts.
7. Foreigners should be charged the full prewar fees in gold marks.
8. Foreigners who have taken up their residence in Germany and whose income is in German money should be charged the same fees as Germans.

Award of the Nobel Prize in Medicine

Professor Meyerhof, who has been awarded half of the Nobel prize in medicine for 1923, is 35 years of age. For a number of years he has been a privatdozent in the University of Kiel and first assistant in the physiologic institute of whieh Professor Höber is the direetor. The prize was awarded for work on the physiology of museles. His investigations, carried out with frogs, coneerned the relation between the ehemieal and the mechanical proeesses in musele activity, the "laws" that govern the chemieal reaetions, the performanee of work and the heat produetion of the musele. Meyerhof was able to prove that only one third of the lactic aeid formed during the work performanee of musele cells is deeomposed and eonverted into heat; the other two thirds is changed baek into musele glycogen.

Death of Karewski

Professor Karewski, director of the surgical department of the Jewish Hospital in Berlin, died, October 31. He had been for many years director of the surgical polielinie of this hospital, but did not beeome direetor of the clinical department until a few years ago, his predecessor, Professor Israel, having retained this post until eonsiderably past his seventieth year. Karewski was 60 years of age when he finally reached the eoveted goal, but he was not destined to live many years to enjoy his honors. He spent his whole life in the serviee of the Jewish Hospital, having started work in the hospital as assistant in 1882. Karewski had begun to do research work while still a student. In 1882, he was awarded a prize for researeh on "The Influenee of Puerperal Seeretions on the Animal Organism from the Basis of Experimental Researeh." However, from 1883 on, his researeh work was entirely in the field of surgery. Sinee 1890, his publieations have been almost confined to the surgery of children's diseases. In 1894, he published (Enke, Stuttgart) a textbook on the surgical diseases of childhood. Sinee that date, he has written many articles that deal entirely with the clinical aspeets of surgery and open no new paths. Karewski was in much demand as a eonsultant. Many years ago, he eontraeted an ineipient tuberculosis of the larynx. For nearly a year, he took a rest eure, the so-ealled *Schweigekur* (being prohibited from even speaking), spending part of the enforeed vaeation in the South, and reeovered. His death was due to a malignant tumor.

Marriages

BENJAMIN LANDIS ELLIOTT, Kansas City, Mo., to Miss Helen D. Buell of Madison, Wis., Oetober 26.

MONSEY E. MEASE, Sandy Level, Va., to Miss Annie Edwards of Lynehburg, Oetober 13.

ALBERT S. PRIDDY, Madison Heights, Va., to Mrs. Mamie H. Mitehell of Alexandria, October 20.

ROBERT WILSON SELBY, Middleburg, Va., to Miss Mae Diller of Rehoboth Church, November 1.

CLIFFORD F. STUHLMUELLER, St. Louis, to Miss Marie Baum, of Hamilton, Ohio, November 27.

MARSHALL L. BOYLE, JR., Riehmond, Va., to Miss Elise Leckie of Lynchburg, October 20.

ROBERT MINOR BAKER to Mrs. Ruby Gornto Jones, both of Jaeksonville, Fla., October 18.

KENNETH BULKLEY to Mrs. Arthur Gosling, both of Minneapolis, in November.

WILFORD F. WIDEN, Minneapolis, to Miss Ruth Martin of St. Paul, September 8.

HARRIS R. SUTTON to Miss Clara Stoek, both of Hoffman, Minn., in Oetober.

Deaths

Warren A. Dennis ⊕ St. Paul; University of Minnesota Medical School, Minneapolis, 1896; associate professor of surgery at his alma mater; member and at one time secretary of the Western Surgical Association; veteran of the Spanish-American and World wars; formerly on the staffs of the State Hospital for Indigent, Crippled and Deformed Children; the City and County, St. Luke's and St. Joseph's hospitals, and the Miller Hospital, where he died, November 8, of pneumonia, aged 53.

Joseph Davis Craig ⊕ Albany, N. Y.; Albany Medical College, 1884; curator of the museum, and for thirty years professor of anatomy, at his alma mater; member of the American Association of Anatomists; formerly president of the Albany County Medical Society; on the staff of the Albany Hospital since 1894; city health officer 1900-1914; aged 67; died, November 5.

John Raymond Vincent Wolfe, Norristown, Pa.; Jefferson Medical College of Philadelphia, 1911; member of the Medical Society of the State of Pennsylvania; served in the M. C., U. S. Army, during the World War; on the staff of the Montgomery Hospital; aged 42; died, November 17, following an appendectomy.

Charles Franklin Smith ⊕ Muskegon, Mich.; Baltimore (Md.) Medical College, 1898; director of the department of health and welfare; formerly city health officer; served in the M. C., U. S. Army, with the rank of captain, during the World War; aged 50; was found dead in his home, November 9.

Antoine E. Bonneville, Alpena, Mich.; University of Paris, France, 1875; Medical Department of the University of the City of New York, 1891; member of the Michigan State Medical Society; aged 68; died, November 3, of injuries received in an automobile accident.

Harry Rabe Sharpe ⊕ Manchester, Conn.; University of Vermont College of Medicine, Burlington, 1900; member of the school board; aged 44; died, November 12, at the Manchester Memorial Hospital, South Manchester, of embolism following an appendectomy.

Charles Henry Esdorn, Walterboro, S. C.; Medical College of the State of South Carolina, Charleston, 1901; member of the South Carolina Medical Association; past president of the Colleton County Medical Society; aged 43; died, November 13, of heart disease.

Elgin Orange Bingham, Niagara Falls, N. Y.; Trinity Medical College, Toronto, Ont., Canada, 1892; acting assistant surgeon, U. S. Public Health Service, on duty at the U. S. Immigration Station; aged 56; died, October 20, of mitral regurgitation.

Henry Samuel Myers, Forks of Buffalo, Va.; Medical College of Virginia, Richmond, 1892; member of the Medical Society of Virginia; formerly state senator; aged 56; died, November 2, of a self-inflicted bullet wound while suffering from ill health.

Jacob Lang, Milwaukee; University of Leipzig, Germany, 1877; member of the State Medical Society of Wisconsin; formerly on the staff of the Passavant, now the Milwaukee, Hospital; aged 85; died, November 10, of senility.

Albert John Adams Hamilton ⊕ Boston; University of Pennsylvania School of Medicine, Philadelphia, 1906; formerly on the staff of the Carney Hospital; aged 44; was found dead, November 7, of cerebral hemorrhage.

Henry Edward Reece ⊕ Lawrence, Kan.; University Medical College of Kansas City, Mo., 1900; served in the M. C., U. S. Army, in France, during the World War; aged 46; died suddenly, November 9, of mitral regurgitation.

Norman Michael Grace, Arnprior, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1915; served during the World War with the Canadian Army Medical Corps; aged 30; died, October 21, of pneumonia.

John James Sullivan, Philadelphia; Jefferson Medical College of Philadelphia, 1923; served during the World War; on the staff of St. Agnes' Hospital, where he died, November 11, of pulmonary tuberculosis, aged 29.

James Wiley Knowlton, Birmingham, Ala.; Vanderbilt University Medical Department, Nashville, Tenn., 1883; member of the Medical Association of the State of Alabama; aged 66; died, November 4, of angina pectoris.

⊕ Indicates "Fellow" of the American Medical Association.

William Martin Reed ⊕ Kansas City, Mo.; Louisville (Ky.) Medical College, 1896; member of the American Academy of Ophthalmology and Oto-Laryngology; aged 57; died, November 2, of heart disease and influenza.

Percival Orison Hopkins ⊕ Bingham, Me.; Medical School of Maine, Portland, 1901; served in the M. C., U. S. Army, during the World War; aged 48; died, October 11, at the Somerset Hospital, Skowhegan.

James Dix Turner, Chapmanville, W. Va.; University of the South Medical Department, Sewanee, Tenn., 1900; aged 49; was killed, November 12, when the automobile in which he was driving overturned.

Frank Godfrey Hornung, Hamilton, Ohio; Medical College of Ohio, Cincinnati, 1891; member of the Ohio State Medical Society; aged 75; died, November 6, at the Mercy Hospital, following a long illness.

Carl Wood Hoopes, Marysville, Ohio; Starling Medical College, Columbus, 1905; member of the Ohio State Medical Association; for four years city health commissioner; aged 43; died, November 9.

William Perry Robinson, Haverhill, Mass.; University of Vermont College of Medicine, Burlington, 1874; member of the Massachusetts Medical Society; aged 73; died, October 30, at the Hale Hospital.

Stoughton R. Wheeler, East Bloomfield, N. Y.; University of Buffalo (N. Y.) Department of Medicine, 1886; member of the Medical Society of the State of New York; aged 62; died in October.

Guy Jenkins Mulvane ⊕ Topeka, Kan.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; on the staff of Christ's Hospital; aged 73; died, November 4, of mitral regurgitation.

Alpheus Wood Disosway, Columbia, N. C.; University of Maryland School of Medicine, Baltimore, 1905; aged 41; died at a hospital in Washington, as the result of bullet wounds, November 2.

Samuel Duff Hartman ⊕ Tippecanoe City, Ohio; University of Michigan Medical School, Ann Arbor, 1872; Civil War veteran; aged 77; died, November 4, following an operation.

Joseph M. Swope, Arenzville, Ill.; University of Louisville (Ky.) Medical Department, 1880; member of the Illinois State Medical Society; aged 69; died, November 11, of heart disease.

Emilie Louisa Gnekow, Stockton, Calif.; Northwestern University Woman's Medical School, Chicago, 1901; member of the California Medical Association; aged 51; died, October 4.

John Clarkson Jay, New York; Medical Department of Columbia College, New York, 1865; Civil War veteran; aged 79; died, November 7, of heart disease, following an operation.

Henry Richard Pearce, Battle Creek, Mich.; Trinity Medical College, Toronto, Ont., Canada, 1897; member of the Michigan State Medical Society; aged 57; died in October.

J. P. Moon, Cordova, Ala.; Chattanooga (Tenn.) Medical College, 1899; member of the Medical Association of the State of Alabama; aged 49; was shot and killed, November 5.

John Hewitt Dawley, Laona, Wis.; Western Reserve University School of Medicine, Cleveland, 1879; formerly county judge; aged 69; died, November 10, following a long illness.

William Elwood Powell, Philadelphia; Medico-Chirurgical College of Philadelphia, 1894; member of the Medical Society of the State of Pennsylvania; aged 67; died, November 5.

Joseph C. Hunter, Antelope, Mont.; University of Pennsylvania School of Medicine, Philadelphia, 1873; aged 75; died in October, following an operation for carcinoma.

Charles N. Howard, Sr., Cusseta, Ga.; University of Georgia Medical Department, Augusta, 1867; Civil War veteran; aged 79; died, November 5, of heart disease.

Joseph Graves Priestley, Lockeford, Calif.; Missouri Medical College, St. Louis, 1880; aged 66; was instantly killed, November 9, in an automobile accident at Livermore.

Samuel Latimer Phillips, Savannah, Ga.; University of Maryland School of Medicine, Baltimore, 1885; aged 69; was found dead, November 2, of heart disease.

Olin Joseph Lawry, Redding, Calif.; Rush Medical College, Chicago, 1875; Civil War veteran; at one time mayor of Redding; aged 79; died, November 6, of senility.

Walter A. Guidinger ⊕ Long Beach, Calif.; Chicago College of Medicine and Surgery, 1907; formerly a practitioner in Nebraska; aged 42; died, September 18.

Albert Ernest Finley, Elgin, Manitoba, Canada; University Manitoba Faculty of Medicine, Winnipeg, 1904; aged 53; died, October 4, of cerebral hemorrhage.

George G. Topping, Denver; Jefferson Medical College of Philadelphia, 1872; formerly a practitioner in Ohio; aged 79; died, recently, of cerebral hemorrhage.

Henry B. Erdhaus ⊕ St. Louis; Barnes Medical College, St. Louis, 1906; aged 59; died, October 29, following an operation for intestinal obstruction.

W. M. Brooks, Stanberry, Mo.; American Medical College, St. Louis, 1878; member of the Missouri State Medical Association; aged 75; died recently.

Charles W. Cornelius, Portland, Ore.; University of Oregon Medical School, Portland, 1889; formerly county coroner; died, November 1, of neuritis.

Joseph Frederick Berg, Plainfield, N. J.; Jefferson Medical College of Philadelphia, 1862; Civil War veteran; aged 83; died, November 3, of senility.

Claude A. Roberts ⊕ Solomon, Kan.; St. Louis (Mo.) College of Physicians and Surgeons, 1900; aged 52; died, November 13, of pernicious anemia.

Charles Clemenceau Fremont Nieschang ⊕ Fort Wayne, Ind.; Fort Wayne College of Medicine, 1882; aged 63; died, November 4, of pancreatitis.

Luther B. Bushong ⊕ Topeka, Kan.; University Medical College of Kansas City, Mo., 1897; aged 53; died, November 5, of cerebral hemorrhage.

Enoch Blackburn Ketcherside, Yuma, Ariz.; University of Tennessee College of Medicine, Memphis, 1884; aged 77; died, October 25, of senility.

Walter M. Ford, Mount Auburn, Ind.; University of Louisville (Ky.) Medical Department, 1877; aged 71; died, November 7, of heart disease.

John Z. Ferrell, Dallas, Texas; University of Georgia Medical Department, Augusta, 1881; aged 64; died, October 27, of pneumonia.

William M. Stewart, Terrell, Texas; University of Louisville (Ky.) Medical Department, 1881; aged 73; died, November 9, of pneumonia.

James Olland McCorrison, North Berwick, Maine; Medical School of Maine, Portland, 1878; aged 72; died, October 12, of diabetes mellitus.

Fred A. Hanson, Burnside, Ill.; Chicago College of Medicine and Surgery, 1909; aged 44; died, November 6, of pernicious anemia.

June Abbott, Batesville, Ind.; Eclectic Medical Institute, Cincinnati, 1872; Civil War veteran; aged 79; died, November 4, of senility.

W. H. H. Stewart, Atlanta, Ga.; University of Georgia Medical Department, Augusta, 1873; aged 83; died, November 11, of senility.

Hugh C. Jones, Searcy, Ark. (licensed, Arkansas, 1903); formerly member of the state legislature; aged 75; died, November 5.

Joseph Addison Trimble, Nashville, Tenn.; Vanderbilt University Medical Department, Nashville, 1881; aged 67; died, November 14.

Mary A. Baird, Albany, Ind.; Eclectic College of Physicians and Surgeons, Indianapolis, 1893; aged 66; died, November 3.

Joseph Edwards Midgley, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1886; aged 60; died recently, at Beaumaris.

John Sellman Edwards, Erin, Tenn.; Vanderbilt University Medical Department, 1876; aged 72; died, November 8, of senility.

Frank W. Johnson, Cincinnati; Columbus (Ohio) Medical College, 1892; aged 57; died, November 10, following a long illness.

William Eugene Putnam ⊕ Whiting, Ind.; Rush Medical College, Chicago, 1889; aged 62; died suddenly, November 19.

J. M. Graves, Dycusburg, Ky.; Kentucky School of Medicine, Louisville, 1877; aged 74; died, November 3, of senility.

George T. Gray, Lyons, Ga.; University of Georgia Medical Department, Augusta, 1888; aged 62; died, November 5.

John T. Dickey, Howard, Ga.; Louisville (Ky.) Medical College, 1872; aged 75; died, November 6, of senility.

E. A. Swepston, Myrtle Springs, Texas (years of practice); aged 71; died, November 2.

Correspondence

"PROTEIN AND PELLAGRA"

To the Editor:—I regret that only just now have I had the opportunity of making myself acquainted with Dr. Goldberger's reply to me (THE JOURNAL, June 23, 1923, p. 1866). Dr. Goldberger writes:

"In this table as Hindhede presents it, the consumption of the foods of his 'Group 1' in pellagrous households with two or more cases is given in the rate at 675 gm.; it should be 583 gm. per person, so that this represents not 2,800 but 2,100 calories, and therefore 64 per cent. and not (as Hindhede states) 90 per cent. 'of the nourishment' of the members of such households."

Yes, there is a typographical error—my own oversight; 675 should be 575 (351 + 9 + 5 + 6 + 144 + 32 + 22 + 6). But the calories are quite correct (*Pub. Health Rep.* **35**:675 and 679 [March 19] 1920). Under the vitamin free "Group 1" I class:

	Calories
Flour, bread, cakes, etc.	1,840
Sugar, syrup, etc.	217
Salt pork, lard, etc.	745
	2,802

These are Dr. Goldberger's own figures. How he arrives at 2,100 I cannot imagine.

Dr. Goldberger writes also: "In the light of these studies it seems to us possible that the protein of 'whole bread' and of 'fruits, vegetables and potatoes,' even though small in amount, may be adequate in itself or, more likely, may serve as an efficient supplement." I am much surprised. This is what I myself might write, word for word. But I am unable to understand that it is the same Dr. Goldberger who wrote: "Relation of pellagra incidence to variations in supply of 'animal protein' foods" (*Pub. Health Rep.* **35**:681 [March 19] 1920) and who concluded by saying (p. 707):

"The indications afforded by this study clearly point to an increase in the availability of milk, particularly by increasing cow ownership, and of fresh meat by all-year-round meat markets as important practical measures of prevention and control in communities of the character studied." Dr. Goldberger in this place did not recommend "whole bread, fruits, vegetables and potatoes."

If the colleges would take the trouble to read the report mentioned, they surely would find that Dr. Goldberger has changed his mind, which of course can only gratify me. I hope that McCollum and others have done the same.

M. HINDHEDE, M.S., Copenhagen, Denmark.

LONG LIFE IN THE SOUTHERN MOUNTAINS

To the Editor:—Are the southern mountains a healthful place in which to live? Much has been said and written about poverty, poor medical care, lack of proper attention to childhood, and various other matters classed as hardships which people who live in the remote parts of the mountains have to endure. But in contrast to these things one should dwell on the advantages which life in the mountains has to offer. There are hardships in places, but there are also rewards worth living for: pure air, excellent spring water, the simple life, absence of noises that infest our cities, neighbors with whom one can get acquainted, friends who will help in time of sickness and bring comfort in days of sorrow, gorgeous sunsets and glorious sunrises undimmed by smoke from flues and factory chimneys, scenery whose lights and shadows vary through each hour of the day, an opportunity to go to bed early and sleep through all the night, no fear of burglaries, freedom from the restraint of multivarious city street

regulations, and the feeling that one is free to go and come as one chooses.

During a recent inquiry among seventy-five students from the mountain country of Kentucky, West Virginia, Virginia, North Carolina and Tennessee concerning the number of persons personally known to them whose ages are or were at the time of their death above 90, forty-four people were reported with ages varying from 91 to 110 years, and five over that age, many of them living now and in excellent health.

Of twenty-two persons reported over 100 years old, sixteen were from the Kentucky mountains. Seven of these were negroes. When it is remembered that in most parts of the Kentucky mountains there are exceedingly few negroes, some counties having none at all, the proportion of negro centenarians appears unusually large. Negroes, as a rule, live the most simple kind of life, eat the simplest kinds of food, have the most unpretentious living quarters, receive the minimum medical attention, and are farthest behind in the struggle for large fortunes.

Is it not true that those who live thus and do the hardest kinds of manual labor are destined to reach the ripest old age?

John F. Smith, Berea, Ky.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INCREASING THE COAGULABILITY OF THE BLOOD

To the Editor:—Before every tonsil operation on an adult, I make a test to ascertain the coagulation time. If the blood coagulates in a time over eight minutes, I give a dose or two of some of the agents that are prepared for hypodermic use to increase the coagulability of the blood, such as thromboplastin or similar substances, and I think that I have seen this decrease the coagulation time. On the whole, however, these things have been disappointing; and after hemorrhage has begun, so far as my observation has gone, they are perfectly useless. Please let me know the best means known to increase the coagulability of the blood.

A. J. Kemp, M.D., Miami, Fla.

Answer.—There is no completely efficient method to increase the coagulability of the blood when low. This is because delayed clotting may be due to deficiency in any one of the several essential factors in clot formation; and the proper therapy consists in restoring the missing factor, or removing the inhibiting influence. Thus, in diseases in which there is a blood platelet deficiency, as in certain forms of purpura, introduction of blood platelets by means of blood transfusion is probably the most efficient restorative. When there is a calcium deficit, intravenous injection of calcium salts would be required. Brain lipoid and solution brain extract which are described in New and Nonofficial Remedies rank quite high as accelerators of clotting in experimental observations on animals. That it may fail under certain abnormal conditions is to be expected. In jaundice, for instance, in which condition the bile seems to interfere with the conversion of fibrinogen into fibrin even in the presence of an abundance of thrombin, it is probably useless.

LIQUID PETROLATUM AS A LAXATIVE

To the Editor:—Does liquid petrolatum, when used as a laxative, tend to protect the food against the action of the digestive fluids, or why do certain persons who use it daily lose weight? Please do not publish my name.

M.D., Ohio.

Answer.—Liquid petrolatum should not be put into a category with animal or vegetable fats, as they have nothing in common except certain physical properties and solubilities. Liquid petrolatum is bland, odorless, tasteless, colorless and indigestible, as well as insusceptible of decomposition by bacteria; hence it cannot become rancid. It is not absorbed; therefore it cannot produce poisoning in any dose. A pint of liquid petrolatum has been given in a few hours without untoward results (Fantus, Bernard: Useful Catharties, Chicago, American Medical Association, 1920, p. 31). The action of such a substance on digestion will obviously depend in part on the dose used. In ordinary quantities it does not seriously impair the alimentary efficiency. Like all laxatives used in very large quantities, liquid petrolatum may diminish the degree of utilization of food by promoting evacuation before the functions of digestion and absorption can be entirely completed. It is conceivable that in this way an occasional person might lose weight through failure to absorb an adequate diet. This presumably is at most an unusual outcome. Fantus has pointed out that as the liquid petrolatum, when taken after meals, is likely to lie heavy on the stomach and produce other gastric distress — in Bastedo's investigation 20 per cent. complained of nausea or tendency to repeat—it is best to take it in such a way that it will interfere least with gastric digestion. This is secured by giving a dose, from 15 to 60 c.c., at bedtime, or else administering 15 c.c. one hour before each meal.

In reporting on a proprietary brand of liquid petrolatum widely exploited to the public (Report Council Pharm. & Chem., 1918, p. 72), the Council on Pharmacy and Chemistry warned that constipation should be treated by dietary and hygienic means as evacuants are but temporary measures. It further cautioned that liquid petrolatum is medicinal: it modifies greatly the intestinal flora; it acts as a lubricant and emollient; it modifies the absorptive powers of the intestinal mucous membrane; it is capable of influencing the digestion of fats; and, in short, liquid petrolatum is a drug, the indiscriminate and excessive use of which should not be encouraged.

SPAHLINGER TREATMENT FOR TUBERCULOSIS

To the Editor:—Can you give me information on tuberculin treatment by Henry Spahlinger, Swiss bacteriologist?

Stephen V. Mountain, M.D., Olean, N. Y.

Answer.—A note appeared on the Spahlinger treatment in The Journal, Oct. 7, 1922, page 1263. Since this was published, the nature of the products has been made public, and reports on them have been published in medical journals. The treatment, however, is still deemed to be in the experimental stage.

Henry Spahlinger, a resident of Geneva, received medical training, but took his degree in law. Later he abandoned law for research work.

The Spahlinger treatment, as revealed at present, makes use of vaccine and serum therapy. The theory from which the treatment is evolved is that the tubercle bacillus emits different toxins under varying conditions of temperature, environment, etc. Many of these are claimed to be isolated as either exotoxins or endotoxins. The time required to make a vaccine is from nine to ten months, and the vaccines—of which there are said to be about twenty—are used for prophylaxis, for treatment of the milder cases of tuberculosis, and for the production of the various serums, which are in turn employed in the treatment of the more severe cases of tuberculosis. Each isolated toxin is injected into a separate horse until immunity results. The serums, varying in degree of virulence according to the toxins used for their production, are then mixed to form a complete serum—a process requiring about four years for completion. Owing to extreme financial difficulties, Spahlinger is said to have none of the complete serum at the present time.

Recently reports appeared in British medical journals stating that the British ministry of health is prepared actively to encourage the experimental trial of the Spahlinger preparations under scientific supervision as soon as a sufficient supply of the remedy is available. The British Red Cross has gone so far as to vote a sum of £30,000 to enable Spahlinger to work on a larger scale so that the treatment may be tried in England.

The reports in regard to the efficacy of the preparations which have appeared in the British medical journals are conflicting, and the Red Cross organization has made it clear that the products are in the experimental stage.

The Medical Expert Witness.—The physician as an expert witness in court should be as scrupulously careful, honest and scientific as he would be if he were expressing his opinion before a body of medical men. Very many expert opinions that have been given by physicians in court would be ridiculed and hooted as scientifically foolish at a medical meeting. Too many medical men as expert witnesses have the wrong idea that the examining counsel is a fool or that the jury and the court are simpletons. —Geo. W. Whiteside, *New York State J. M.* **23**:74 (Feb.) 1923.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, January 8. Chairman, Dr. Samuel W. Welch, Iontgomery.

COLORADO: Denver, January 8. Sec., Dr. David A. Strickler, 612 mpire Bldg., Denver.

DELAWARE: Wilmington, December 11-13. Sec., Reg. Bd., Dr. P. S. owns, Dover; Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington t., Wilmington.

INDIANA: Indianapolis, January 8. Sec., Dr. W. T. Gott, State House, ndianapolis.

KENTUCKY: Louisville, December 11. Sec., Dr. A. T. McCormack, tate Board of Health Bldg., Louisville.

LOUISIANA: New Orleans, December 13-15. Sec., Dr. Roy B. larrison, 1507 Hibernia Bank Bldg., New Orleans.

MARYLAND: Baltimore, December 11-14. Sec., Dr. J. McP. Scott, 41 W. Washington St., Hagerstown.

NORTH CAROLINA: Chapel Hill, December 4. Sec., Dr. Kemp P. B. onner, Raleigh.

NORTH DAKOTA: Grand Forks, January 1-4. Sec., Dr. G. M. Villiamson, 860 Belmont Ave., Grand Forks.

OHIO: Columbus, December 5-7. Sec., Dr. H. M. Platter, Hartman Iotel Bldg., Columbus.

OREGON: Portland, January 2-4. Sec., Dr. Urling C. Coe, Stevens ldg., Portland.

VIRGINIA: Richmond, December 11-14. Sec., Dr. J. W. Preston, IcBain Bldg., Roanoke.

WASHINGTON: Olympia, January 8. Sec., Mr. William Melville, lympia.

WISCONSIN: Madison, January 8-10. Sec., Dr. J. M. Dodd, 220 E. econd St., Ashland.

PUBLIC HEALTH COURSES IN MEDICAL SCHOOLS

IRA V. HISCOCK
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NEW HAVEN, CONN.

The Council on Medical Education and Hospitals of the merican Medical Association publishes each year valuable ata regarding medical education in the United States. These eports describe the graduate courses in public health in the ew medical schools in which such courses are given (eleven n 1922), but do not aim to furnish information regarding he extent of public health teaching in the regular medical urriculums. The present report, which has been prepared t the request of Prof. C.-E. A. Winslow, chairman of the Committee of the American Public Health Association on tandardization of Public Health Training, is based on a tudy of the public health courses given to medical under- raduates in fifty-seven Class A medical schools of the Jnited States, as described in the 1922-1923 bulletins of these nstitutions and supplemented by correspondence. Medical chools that give only the first two years of the course have een omitted. I gratefully acknowledge the cooperation of he officers of the college, who have made this study possible.

It may be stated, at the outset, that the curriculum prescribed y the Association of American Medical Colleges, according o the schedule furnished me by the secretary, calls for from ,600 to 4,400 hours in four calendar years, distributed as rom 900 to 1,100 hours a year and grouped in nine main ivisions. The division of hygiene and sanitation is allotted rom 3 to 4 per cent. of the total hours, or from 108 to 176 ours for the entire course. This is the smallest allotment of he nine, comparing most closely with the 3.5 to 4.5 per cent. uggested for biochemistry, and the 4 to 5 per cent. each for he two divisions of pharmacology, and obstetrics and gyne- ology, while general medicine rightly receives the highest llotment of 20 to 26.5 per cent. This amount of time is con- iderably greater than that specified in the earlier schedule,[1] ublished in 1922, in which the subject of preventive medicine nd public health appeared as a subdivision of pathology and bacteriology and was alloted a minimum of 1.5 per cent. of the total time.

A study of the required public health courses given in the different medical schools of the United States suggests the need for better organization and standardization of these courses, based on sound principles of pedagogy and public health. While a few medical schools give really comprehensive courses in preventive medicine to their medical students, several others apparently fall short even of the minimum standards suggested by the Association of American Medical Colleges. Some of the schools emphasize "the practicing physicians' duties and opportunities in the field of preventive medicine" (Stanford), "in regard to personal and community hygiene and the causes, general nature and control of preventable diseases" (Louisville), and "to stimulate within the mind of the student the public health consciousness, together with practical and scientific methods of applying the same" (Howard). The whole matter of more public health work for medical students has recently been the subject of inquiry in a few institutions, and special committees on curriculum have been appointed to consider the situation.

NUMBER OF COURSES

Most of the medical schools give only one prescribed course in public health to medical students, although eight of the schools have two courses, five have three courses, and two have four courses. Whenever more than one course is given, however, the subject matter and total hours usually correspond to subdivisions of the single courses which are more common. Fourteen institutions offer elective courses in public health, chiefly to fourth year men and often involving practical field work or research. One medical school (Ohio) reports an optional course to sophomore students in personal hygiene, which is taken by about five sixths of the class each year. This institution, among others, also offers special courses in public health to medical students and nurses with advanced standing, and a number of them are taken by the prospective medical students during the preliminary college years. At Columbia, electives are given in practical field work in prenatal, infant, preschool and school groups, and psychiatric work for children; and about one third of the fourth year class availed themselves last year of these elective courses. A large part of the public health aspects of maternity and infancy is carried by the department of obstetrics and pediatrics. Undoubtedly, the interest of the medical student in public health fields will grow as increased opportunity for elective work is given.

SCOPE OF COURSES

The prescribed public health courses given to medical students consist, for the most part, of lectures and demonstrations, although twenty institutions report only lectures, varying in total number from eight in Boston University to 110 in Long Island College Hospital, with a median of thirty-four in Tufts Medical School and the University of Nebraska. One exception should be made to this statement in the case of an institution whose bulletin reports a department of pathology, bacteriology and preventive medicine, but fails to indicate any separate course in preventive medicine. Considering the entire group of medical schools, it is found that the total number of hours given to public health courses ranges from no special course in one school, and eight hours in Boston University as previously indicated, twenty-two hours in Johns Hopkins and twenty-four hours in Ohio, to 149 hours in the University of Georgia, over 150 hours in the University of Buffalo, 156 hours in Syracuse, 160 hours in Western Reserve, and 210 hours in Tulane, with a median of sixty-one hours in the University of Minnesota. Table 1 indicates the type of courses given and the amount of time required for the work.

1. Medical Education in the United States, J. A. M. A. **79**: 629 Aug. 19) 1922.

As shown in the table, most of the courses are given in the third or fourth years. Public health courses are given in the second year in eighteen schools, but in ten of them such courses are only preliminary hygiene courses leading to more advanced work in preventive medicine in succeeding years. In the fourteen schools in which more than one public health course is given, the first is usually limited to general hygiene, while later courses deal more particularly with public health and administration. In the Woman's Medical College of Pennsylvania, instruction in hygiene and disease prevention consists in one lecture a week through one semester for each

TABLE 1.—*Public Health Courses Given in Medical Schools Classified by Year Given, Type of Course, and Total Hours, 1922-1923*

Year Given	Total Schools	Type of Courses						Total Hours		
		Lectures Only	Lectures and Field Work	Lectures and Laboratory	Lectures and Conferences or Quizzes	Lectures, Laboratory and Field Work	Lectures, Conferences, Laboratory and Field Work	Less than 54	54 to 80	Over 80
2	8	2	1	1	1	2	1	2	4	2
3	20	8	3	3	0	2	4	6	5	9
4	14	4*	5*	1	3	0	1	9	2	3
1, 2, 3 and 4	1	1	0	0	0	0	0	0	0	1
2 and 3	4	2	1	0	0	1	0	0	3	1
2 and 4	2	1	1	0	0	0	0	2	0	0
3 and 4	4	2	2	0	0	0	0	0	3	1
2, 3 and 4	3	0	0	0	0	2	1	0	1	2
No regular course	1	0	0	1	0	0	0	1	0	0
Total	57	20	13	6	4	7	7	20	18	19

* Given in the sixth year in the universities of Nebraska and Oregon.

of the four classes. In three universities, Arkansas, Buffalo and Western Reserve, instruction in hygiene and sanitation begins in the sophomore year and extends through the junior and senior years. In the first case, approximately sixteen hours are given to laboratory work, and thirty-two hours to hygiene lectures, while a sanitary survey occupies as much time as is necessary in the senior year. The courses in Buffalo consist of lectures, quizzes, laboratory work and field work, amounting to sixty hours in both the second and third years and thirty hours in the fourth year. In Western Reserve, didactic and field work total forty-eight hours, laboratory, sixty-four hours, and clinical hygiene or observation trips, forty-eight hours. The University of Michigan gives a required hygiene course of three lectures a week to sophomore students in the second semester, and a lecture course in preventive medicine amounting to two hours a week during the first semester of the junior year. One lecture course of twenty-two hours in hygiene and epidemiology is required in the third year at Johns Hopkins, while a thirty-eight hour course, consisting of lectures, conferences, laboratory and field work in preventive medicine and hygiene, is required at Harvard. A course in public health administration, consisting of thirty-two hours of lectures and conferences, is required of fourth year students at Columbia. Students are assigned, in groups of two or three, major topics in the field of preventive medicine, which they work up through study and reading, and report on in detail to the class, sustaining their statements in open discussion with the rest of the class. The course in preventive medicine at Syracuse involves three classroom hours a week during the second semester (forty-eight), and 108 hours of field work given mornings during the last six weeks of the fourth year. Information available for eight medical schools in which the public health courses comprise laboratory and field work as well as lectures indicates that about half of the time is usually spent in lectures.

BEST YEAR FOR COURSE

Obviously, each school has its own individual problems to solve, and every one realizes many obstacles which must be confronted in the development of a well rounded program. It is clear that there is at present little uniformity in selection of the year for giving public health courses in different medical schools. This is apparently due to two causes: first, a difference of opinion as to the proper place for such courses, and second, lack of choice, due to the fact that the medical curriculum has been overcrowded and special courses in public health are comparatively new and in some cases have not yet become well established. Time and careful selection of teaching personnel will eventually bring about some adjustment of these problems as the principles of modern medicine become more generally realized. It seems essential at the outset that the first half of the course be designed to equip the physician as a hygienic adviser to the family, competent to deal particularly with the environmental factors that affect health. The second half should deal with the organized community health program and the relation of the physician to the work of official health agencies, infant hygiene, antituberculosis movements, medical supervision of school children and problems of industrial hygiene.

In order that the medical student may approach a comprehensive course in public health with the proper attitude, and consider broadly the complex problems involved, it is most important that he have a solid background with pathology, physiology and medicine as bases. In other words, he should be well equipped. Furthermore, in most of the medical schools at present, the medical student is just entering the wards in his third year. He finds this work more fascinating than attending public health lectures or taking field trips, which he is inclined to look on as outside his realm and so much time taken from what he is likely at this time to consider his real medical activities. It is most important, then, that the utmost care be exercised in arranging the year in which public health courses are given, as well as the particular hours in the day, in order that class and field work may interfere as little as possible with the students' clinical work. The fourth year in the average medical school seems to meet best these conditions, and offers the most satisfactory opportunity for demonstrating the important place of public health in modern medicine.

SANITARY SURVEYS

Practical field work and demonstrations to illustrate the underlying principles of public health are recognized as essential features of the instruction of medical students. Field work includes sanitary surveys in at least six medical schools,[2] in addition to elective work along the same line in a few other cases. These surveys are usually made in the senior year, through cooperation with state and city health departments. Of course, the value of sanitary surveys depends largely on the care given to the collection and analysis of data. If properly supervised and supported, they may benefit communities and students alike; but if performed in a haphazard or perfunctory manner, they are both time-consuming and worthless from an educational standpoint.

NAMES OF COURSES

The names of public health courses in different institutions vary considerably, as shown by Table 2, which includes the forty-two schools in which only one course is required.

This table indicates that in those institutions which require only one public health course of medical students, nearly half of these courses are given in the third year, and that

2. Arkansas, Buffalo, California, Creighton, Harvard and Syracuse.

ygiene and preventive medicine" is the most common title, ygiene" ranking second.

TABLE 2.—*Public Health Courses Given in Medical Schools Classified by Name, Number of Schools and Year Given, 1922-1923*

Name of Course	Total	Number of Schools and Year Given 2d	3d	4th	?
ygiene	9	2	5	2	..
ygiene and preventive medicine	13	3	8	2*	..
ygiene and sanitation	1	0	0	1	..
ygiene and dieteties	1	0	1	0	..
ygiene and epidemiology	1	0	1	0	..
reventive medicine	4	1	1	2	..
reventive medicine, hygiene and sanitation	1	0	0	1	..
ublic health	5	1	1	3†	..
rinciples of public health	3	0	1	2†	..
ublic health and hygiene	1	0	0	1	..
ublic health administration	1	0	0	1	..
ublic health and preventive medicine	1	0	1	0	..
o special course	1	0	0	0	1
Total	42	7	19	15	1

* Course given last part of third year and first part of fourth ear in the University of California.
† Given in sixth year in the universities of Nebraska and Oregon.

GRADUATE COURSES IN PUBLIC HEALTH

Medical schools have extended considerably their elective nd graduate work in public health during the past year or vo. Graduate courses in public health are now offered in ree or more institutions in addition to those mentioned in e report on medical education previously cited. In the niversity of Louisville, "The medical department, in cooperation with the school of public health of the university, is ow giving medical students the option of elective senior ourses with junior vacation field work in an organized health epartment. These courses, if sucessfully completed, will ntitle them to a C.P.H. when they receive their diplomas in edicine. This qualifies the graduate for a position as health fficer, and more completely fits him for the practice of edicine. On the completion of a fifth year, corresponding a hospital internship, under the school of public health, ese students may receive the degree of D.P.H."

Under the new elective system at Yale, it has been possible arrange a special option in public health for students esiring to fit themselves for positions in the United States ublic Health Service, in the administrative health service f states, counties and cities, and in the various voluntary rganizations, local, national and international, which are evoted to the promotion of the public health. Students who lect public health courses as early as their second year and evote two months during the summer succeeding their third ear to fourth year dispensary service and a large part of eir fourth year to electives in public health may take the egree of Doctor of Public Health after one year of graduate tudy instead of the two years normally required. A somehat similar plan is also offered at Johns Hopkins, among ther places.

Several medical schools are extending their courses in ublic health, especially their graduate courses, frequently hrough the cooperation of city, county or state health officials, s in Georgia, where an intensive plan of community field ork has recently been planned for public health students. By recent action of the board of regents, a new Minnesota epartment of preventive medicine and public health has been rganized in the medical school which will be closely assoiated with the state board of health, the students' health ervice and the nonofficial health organizations of Minnesota.

While modern medical education has, for the most part, dvanced hand in hand with modern medicine, and schools f medicine stand among the highest of the educational institutions, the important field of public health has, until very recently, been sadly neglected. Preventive medicine has been made possible through the advances in medicine as a science, but the call for medical leaders in this field was never more urgent than today. Dodson,[3] in his helpful discussion of the important part which the idea of prevention should play in the work of the individual practitioner, states that larger emphasis should be placed on prevention by every department in the school. According to information furnished by Dr. Haven Emerson, professor of public health administration at Columbia, it was ascertained by the administrative board of the faculty of that institution last year that 33 per cent. of the instruction given to medical students was directly contributory to the preventive aspects of medicine.

In an address delivered at the centennial celebration of the Medical College of the University of Cincinnati in November, 1920, the late Professor Sedgwick said:[4]

"The medical school which fails today to provide also liberal instruction in preventive medicine, in vital statistics, in sanitary science, in public health laboratory methods, in epidemiology; in preventive sanitation, such as the sanitation of water supplies and other branches of municipal sanitation; in preventive hygiene, such as mental, social, personal and dental hygiene; and in public health education and public health administration—that medical school is sending out its graduates unprepared for some of the most serious problems they will have to face in the immediate future."

"Obviously all these subjects cannot be injected into a curriculum already overcrowded. . . . That medical school which first begins this reformation will seize a golden opportunity."

Haythorn,[5] likewise, in considering the problem of preventive medicine in medical education, calls attention to the need for reviewing thoroughly the teaching courses in all departments, and urges that the teaching be carried out with a view to informing the student of the best preventive measure available, and directed toward preparing him for leadership in progressive health movements.

In a recent paper, Winslow[6] said:

"The first and most fundamental need in facilitating the recruitment of the public health service is the need for a better comprehension on the part of the medical undergraduate, the need for a radical change of atmosphere in the medical school itself. . . . The most important factor upon which we rely at Yale is a fundamental change in the atmosphere of the teaching in every branch of study throughout the four years. Dean Winternitz and the members of the medical faculty have outlined a policy which involves the centering of our whole university hospital around the dispensary and the centering of the dispensary around the health clinic; and each course, from pathology to pediatrics and medicine, is imbued throughout with a new idea, that the function of the physician is to promote health, and not merely to alleviate architecturally completed disease."

These efforts have already stimulated the students as well as instructors at Yale to investigate with a view to instituting preventive measures the sources of at least four different types of communicable diseases which have occurred in patients under their observation during the present school year.

Preventive medicine has come to stay, but it needs the active support of medical men who have been equipped in their medical schools for community leadership.

3. Dodson, J. M.: Preventive Medicine and the General Practitioner, J. A. M. A. **80**: 1 (Jan. 6) 1923.
4. Sedgwick, W. T.: Modern Medicine and the Public Health, Pub. Heealth Rep. **36**: 109 (Jan. 28) 1921.
5. Haythorn, S. R.: The Problem of Preventive Medicine in Practice and in Medical Education, J. A. M. A. **80**: 885 (March 31) 1923.
6. Winslow, C.-E. A.: The Recruiting of Sanitarians for the Future Service of the State, Am. J. Pub. Health, May, 1923.

New Jersey June Examination

Dr. Alexander MacAlister, secretary, New Jersey Board of Medical Examiners, reports the written examination held at Trenton, June 19-20, 1923. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 57 candidates examined, 45 passed, including 17 osteopaths, and 12 candidates failed, including one osteopath. Eighty-eight candidates were licensed by endorsement of credentials, including 7 osteopaths. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Yale University School of Medicine	(1920)		80.7
Georgetown University School of Medicine	(1922, 3)	80.7,	81.9, 85.9
Johns Hopkins University Medical Department	(1922)		86.6
University of Maryland	(1917)		84.1
Harvard University	(1912)		81.2
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1921, 2)	81.5,	84.5
	(1922, 2)	78.9,	79.9
Jefferson Medical College	(1921) 78.8, (1922, 3)	82.9,	84.6, 84.7
Univ. of Pennsylvania	(1920) 83.6, (1921) 82.3, (1922, 3)	81,	85.6, 89.3
University of Vermont	(1922)		85
University of Freiburg, Germany	(1919)*	75.3,	(1922)* 83.2
National University of Athens, Greece	(1906)*		78.9
Faculty of Medicine, Guatemala	(1921)*		75
University of Naples, Italy	(1903)*	76.5,	(1916)* 75
University of Odessa, Russia	(1910)*		80.2
Osteopaths	75, 78.1, 78.8, 78.9, 79.3, 80.1, 80.1, 80.3, 81.7, 82.9, 84.2, 84.3, 84.4, 85.6, 86.2, 87.1, 88		

College	FAILED	Year Grad.	Per Cent.
Hahnemann Medical College and Hospital, Chicago	(1885)		36.9
University of Naples, Italy	(1911)* 70.6, (1914, 3)* 53,	61.8,	71.6,
	(1915)* 72.7, (1916, 2)* 64.2,† (1919)* 72.7, (1921)* 72		
University of Moscow, Russia	(1896)*		66.2
Osteopath			69.4

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement with
Denver College of Physicians and Surgeons	(1908)		Colorado
Central University of Kentucky	(1906)		Kentucky
Tulane University	(1916) New York, (1921)		Louisiana
Johns Hopkins University Medical Department	(1920)		Maryland
University of Maryland	(1921) New York, (1922)		Maryland
Harvard Univ.	(1916) Illinois, (1919) New York, (1922)		Maine
University of Michigan Homeo. Med. College	(1914)		New York
Hamline University	(1897)		N. Dakota
University of Minnesota	(1922)		Minnesota
St. Louis University School of Medicine	(1921)		New York
Nebraska School of Medicine	(1896)		Mass.
University of Nebraska	(1922)		Nebraska
Albany Medical College	(1910), (1920, 2), (1922)		New York
Bellevue Hospital Medical College	(1895)		New York
Columbia University	(1900), (1917), (1920), (1921, 4)		New York
Cornell University Medical College	(1921)		New York
Fordham Univ. Sch. of Med.	(1913), (1919), (1920), (1921)		New York
Long Island College Hospital	(1914), (1917), (1921, 2)		New York
University and Bellevue Hosp. Med. College	(1906), (1920), (1921), (1922, 10)		New York
Eclectic Medical College of Cincinnati	(1921, 2)		Ohio
Ohio Medical University	(1903)		Oklahoma
Hahnemann Medical Coll. and Hosp. of Philadelphia	(1898), (1904), (1920)		Penna.
Jefferson Med. Coll.	(1909), (1910), (1921) Penna., (1920)		N. Carolina
Medico-Chirurgical College of Philadelphia	(1898), (1899), (1901), (1903), (1907), (1910), (1916)		Penna.
University of Pennsylvania	(1902) Penna., (1918)		N. B. M. Ex.
Woman's Medical College of Pennsylvania	(1914), (1915)		Penna.
Vanderbilt University Medical Department	(1917)		Maine
Baylor University College of Medicine	(1921)		New York
University of Vermont	(1921) Vermont, (1921)		New York
Medical College of Virginia	(1909) New York, (1912)		S. Carolina
University of Virginia	(1921)		New York
Queen's University Faculty of Medicine	(1918)		New York
University of Budapest, Hungary	(1917)*		New York
University of Rome, Italy	(1907)		Penna.
Osteopaths	Missouri, 4; Pennsylvania, 3		

* Graduation not verified.
† No grade given.

Maryland June Examination

Dr. J. McP. Scott, secretary, Maryland Board of Medical Examiners, reports the written examination held at Baltimore, June 19-22, 1923. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 76 candidates examined, 74 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University School of Medicine	(1923)		84
Johns Hopkins University	(1919) 85, (1921) 85, (1922, 2)		80, 85,
	(1923, 38) 76, 76, 78, 80, 81, 82, 82, 82, 83, 83, 83, 84, 84, 84, 84, 85, 85, 85, 85, 86, 86, 86, 86, 87, 88, 88, 88, 88, 88, 89, 89, 89, 90, 90, 90, 90, 92		
University of Maryland	(1921) 84, (1922, 2) 79, 87, (1923, 20)		78, 78,
	78, 78, 79, 80, 81, 81, 81, 82, 82, 84, 85, 85, 86, 86, 86, 89, 90, 92		
Temple University Dept. of Medicine	(1922) 87, (1923)		81
University of Pennsylvania	(1921) 87, (1923)		80
McGill University Faculty of Medicine	(1921)		85
University of Toronto Faculty of Medicine	(1918)		82
University of Vienna, Austria	(1910)†		81
University of Zurich, Switzerland	(1914)		82

College	FAILED	Year Grad.	Per Cent.
Howard University School of Medicine	(1919)*	(1920)*	

† Graduation not verified.
* No grade given.

Book Notices

GUY DE CHAULIAC (A. D. 1363) ON WOUNDS AND FRACTURES. Translated by W. A. Brennan, A.B. Cloth. Price, $5. Pp. 153. Chicago: Published by the Translator, 1923.

Guy de Chauliac, generally known as the "Father of Surgery," was born in France in the last years of the thirteenth century. Like most of the surgeons of his time, he practiced under the patronage of a feudal lord. He studied in Montpellier, Bologna and Paris, and was physician to several of the popes, who conferred special dignities on him. When he compiled his great surgical textbook, copies were promptly made in various languages. The English edition was first published in 1541. The great work consists of seven parts, including anatomy, apostems, wounds, ulcers, fractures and dislocations, special diseases, and antidotes.

Mr. Brennan's text opens with the famous description of the qualities of a surgeon:

> The conditions necessary for the surgeon are four: first, he should be learned; second, he should be expert; third, he must be ingenious, and fourth, he should be able to adapt himself. It is required for the first that the surgeon should know not only the principles of surgery, but also those of medicine in theory and practice; for the second, that he should have seen others operate; for the third, that he should be ingenious, of good judgment and memory to recognize conditions; and for the fourth, that he be adaptable and able to accommodate himself to circumstances. Let the surgeon be bold in all sure things, and fearful in dangerous things; let him avoid all faulty treatments and practices. He ought to be gracious to the sick, considerate to his associates, cautious in his prognostications. Let him be modest, dignified, gentle, pitiful, and merciful; not covetous nor an extortionist of money; but rather let his reward be according to his work, to the means of the patient, to the quality of the issue, and to his own dignity.

In selecting from the complete text, Mr. Brennan has chosen wisely, giving a view of not only the surgical work such as ligature and suturing, but also bandaging and the application of drugs. The translation is simple and very well done.

THE MECHANICS OF THE DIGESTIVE TRACT. By Walter C. Alvarez, M.D., Assistant Professor of Research Medicine, George Williams Hooper Foundation for Medical Research, University of California Medical School. Cloth. Price, $3.50 net. Pp. 192, with 22 illustrations. New York: Paul B. Hoeber, 1922.

Written in a lucid and interesting style by a happy combination of laboratory worker and clinician, this splendid volume ought to appeal to both types of medical men. The text has three major subdivisions. In the earlier chapters, the author is concerned chiefly in minimizing the part played by the nervous elements of the bowel wall (Meissner's and Auerbach's plexus) in normal gastro-intestinal activity. In defense of his myogenic theory, he presents direct and indirect experimental evidence. He handles the affirmative side of the debate admirably. In the second division of the book, he proposes and supports, chiefly through his own laboratory work, the theory of gastro-intestinal gradients, according to which the tonus, irritability and rhythmicity of the smooth musculature of the gastro-intestinal tract decrease progressively from above downward. The gradient theory accounts for the orderly progress of material down the intestinal tract. Although Tashiro showed that nervous tissue produces carbon dioxid at a very high rate, and the author admits that the nerve net in the bowel wall becomes less voluminous from above downward, Alvarez concludes that the increased carbon dioxid output of the upper segments is due to the inherently higher rate of metabolic activity of muscle cells themselves. The higher catalase content of sections of the upper bowel (if such measurements mean anything at all) might be due likewise to the greater amount of nervous tissue in the walls

of the intestine as one proceeds from below upward toward the stomach. No one denies the possibility that under certain conditions smooth muscle or even striated muscle shows independent rhythmicity. Early in its development, the heart beat of *Limulus* has a myogenic origin; later in life, its rhythmic action is absolutely dependent on nervous tissue. The fact that the denervated *Limulus* heart muscle *will* beat rhythmically when "put in N/2 NaCl" is a phenomenon which has no bearing on the normal mechanism of the heart beat in the intact animal. In the third division of the book (Chapters IX and X) the author becomes highly speculative, and candidly admits it in the preface. These chapters deal with practical applications of the gradient idea and reserve peristalsis and its symptoms. In Chapter X, Alvarez discusses the factors which alter the normal gradient and which can then account for vomiting, regurgitation, heartburn, belching, nausea, coated tongue, and foul breath, globus, hiccup and biliousness—signs and symptoms resulting presumably from reverse peristalsis. The book has a chapter on objections and difficulties to the conception, and ends with a chapter on technical methods and apparatus found useful in his research. This chapter, with the bibliography (as well as the author and subject index) is particularly valuable to the laboratory worker in this field. The book is worthy of careful perusal and study by every internist and surgeon, and should certainly be on the shelf of every gastro-enterologist for ready reference.

WALTER REED AND YELLOW FEVER. By Howard A. Kelly, M.D. Third edition. Cloth. Price, $2.50. Pp. 355, with 15 illustrations. Baltimore: Norman, Remington Company, 1923.

The first edition of this book appeared in 1906. The present edition includes a life of General George M. Sternberg and of General Gorgas, as well as more recent experimental work on yellow fever, such as that of Noguchi and the attempts of the Rockefeller Foundation to eradicate yellow fever from the world. The early life of Dr. Reed is accumulated from personal documents, including letters and the reports of organizations, so that it is quite authentic. Moreover, Dr. Kelly has selected with rare judgment, so that the account is consecutive and interesting. The brief life of General Sternberg is based largely on the recent biography published by the American Medical Association. Dr. Kelly has apparently accepted wholly the work of Noguchi and *Leptospira icteroides,* which Noguchi isolated, although some parasitologists do not consider the causal relationship of this organism to yellow fever to have been absolutely established. The story of the conquest of yellow fever by medical science is one of the great epics of modern medicine. It is a story with which every medical student should be familiar, because it traced a path for the control of the many other infectious diseases. The account by Dr. Kelly is undoubtedly one of the best available.

THE CHEMISTRY OF LEATHER MANUFACTURE. By John Arthur Wilson, Chief Chemist, A. F. Gallun & Sons Company, Milwaukee. American Chemical Society Monograph Series. Cloth. Price, $5. Pp. 343, with 150 illustrations. New York: Chemical Catalog Company, Inc., 1923.

This should interest the layman who has had any scientific training, because of the history of leather manufacture and developments as a result of scientific investigative work. It contains much of value to the dermatologist because of its careful study of the histology of the skins of various animals used in the preparation of leather. There is a chapter on the chemical constituents of skin and the various stains used in micrographic studies.

ATLAS DER HAUTKRANKHEITEN. Von Hofrat Prof. G. Riehl und Prof. Leo v. Zumbusch. I. Teil: Infektiöse Hautkrankheiten. Paper. Price, 8 Swiss francs. Pp. 60, with 68 illustrations. Leipsic: F. C. W. Vogel, 1923.

The friendly reception given the appearance of the authors' syphilis atlas led them to begin the preparation of an atlas of skin diseases. The plates are beautifully printed from Uvachrom photographs but, as usual in color photography, the definition is not quite so sharp as in the black and white photographs. The atlas should be of considerable diagnostic aid to one not having access to a large amount of clinical material.

Miscellany

PEDIATRIC CLINICS IN CENTRAL EUROPE*

J. H. MASON KNOX, JR., M.D.
BALTIMORE
AND
JOHN B. MANNING, M.D.
SEATTLE

During a year spent in American Red Cross work on behalf of the children of several of the countries of eastern Europe, we had the opportunity to visit a number of universities and medical schools and to learn something of the courses offered and of the instruction given in pediatrics. An outline of the places in which the future pediatricians of the less familiar centers are trained should be of interest, for after all only a small proportion of the medical students in Latvia and Poland, for example, are able to go to Germany, France or England, and must depend on the instruction obtained in their own countries at the nearest schools and hospitals.

Our travels extended from the Baltic to the Adriatic, and included particularly the newly formed democracies of Esthonia, Latvia, Lithuania, Poland and Czechoslovakia, and the reduced and altered nations—Austria and Hungary.

ESTHONIA

Esthonia is in many respects the most enterprising of the three Baltic states. The native race comes from a sturdy stock related to the Finns, and its governing officials are a forward-looking group, familiar with the educational, health and philanthropic programs of other countries. The university center of the country is Dorpat, founded in 1632 by Gustavus Adolphus. As one walks about the beautiful rolling campus dotted with imposing buildings, it is easy to imagine oneself back in a university town in America. One meets at every turn groups of young students wearing the insignia of corps or class, and hears at night college songs much like those at home.

The pride of Dorpat is the university library, one of the most valuable in Europe, containing more than 500,000 volumes and many valuable manuscripts. These were all taken by the Bolsheviki to Russia, but returned a little worse for their travels after the peace of Riga. The university before the war was under Russian domination, but now the transfer to the Esthonian language as the vehicle of instruction is nearly completed, and there is a strong faculty in all departments. There are about 4,000 students, including over 700 in the courses in medicine.

Instruction in diseases of children is given in two semesters three times weekly. It is obligatory for all students in their fourth year. The lectures are in the form of clinics at which patients are examined by students and demonstrated to the class. Teaching material is obtained from a large outpatient department, a small children's hospital of twenty-five beds and an associated mothers' and infants' home. The department is conducted by Professor Lüüs, a man of ability who had made his special preparation in pediatrics in several of the best German clinics. Professor Lüüs cooperated with the American Red Cross in the most cordial manner in its child health program. He provided us quarters in his dispensary for our health center, and assigned his first assistant and several nurses to the work. This center, in connection with the nearby obstetric clinic, has become an important project, through which it is sought to reach all the expectant mothers and new-born children needing care in the city.

* Read at the meeting of the American Pediatric Society, French Lick Springs, Ind., May 31, 1923.

Visiting by the nurses in the homes of the children is now being carried on.

Through the work of the center, the students of this important medical clinic will become familiar with the standardized methods of maternity and child health activities, and will be equipped to start similar activities when they begin their practice throughout the country.

LATVIA

In Latvia, the government has taken over and reorganized the high school in its beautiful capital city of Riga into a university. Already there are 3,000 students, including about 600 in medicine. The courses in pediatrics are given by Professor Gärtje, a scholarly man trained in Petrograd. They consist of two courses of lectures and clinics—each occupying two semesters, and cover rather thoroughly the whole subject. Clinical material is obtained in an outpatient department and in the wards of a large memorial children's hospital. The students have opportunity to examine patients under the direction of instructors.

In Riga, in addition to a number of small children's clinics, in connection with the American relief kitchens, a large area of the city near an important city hospital was selected for an intensive demonstration in maternity and child health. To the center the names and addresses of new-born infants are reported daily, and the infants promptly visited in their homes. When the American Red Cross withdrew last July, there had been more than 500 expectant mothers registered and given prenatal care. In this prophylactic work we had the support and cooperation of both the obstetric and the pediatric department of the university medical school.

LITHUANIA

In Kovno, the present capital of Lithuania, which was accepted as such under protest when Poland seized Vilna, a university was started recently. There is no dearth of medical students, but the courses in pediatrics have not been formally opened, and as yet no pediatrician of special training has been engaged. There are several excellent hospitals in the city, including a large military hospital, which furnish clinical material.

POLAND

The first university visited in Poland was in Vilna—an old university center that had been suppressed for more than a hundred years by Russia; but now, under the patriotic leadership of a group of young professors, including several Polish Americans, conspicuous among whom is Dr. Retinger, a physiologic chemist from Chicago, old barrack buildings are being transformed into splendid lecture rooms and laboratories. A children's clinic with about fifty beds and a large outpatient department was about to be opened at the time of our last visit. As yet, a professor of pediatrics had not been chosen, nor was the outline of instruction in diseases of children completed. There are two admirable health centers for children, one Jewish and one Polish, in active operation in Vilna. Students throng all the classes; many of them are submitting to great physical hardships in their effort to secure an education.

At the University of Warsaw, there are said to be more than 8,000 students. Of these, 2,000 are in the medical department. The pediatric clinic is under the direction of Prof. M. Michaloniez. A full didactic and practical course is offered. There is a well equipped laboratory available for research workers. More than 200 students are taking major pediatrics.

The policlinic for children includes six examining rooms, a dental clinic, a roentgen-ray room, a large lecture hall and a ward containing fifty infants' beds. Instruction to students is also given at the Carl and Mary Children's Hospital in another part of the city. This hospital, which is an endowed institution completed just before the war, consists of an imposing group of buildings containing 100 medical and sixty surgical beds. The provision for isolation and care of contagious cases, both in the outpatient department and wards, is unusually elaborate. There are large laboratories for routine work and for investigation. Altogether, this hospital would compare favorably in equipment and facilities for the care of patients with any children's hospital in this country or elsewhere.

KRAKOW

One cannot enter the historic capital of Poland without a thrill. Here are the remains of the country's great men. The grass covered mound formed by handfuls of earth brought by patriotic devotees from all parts of Poland in memory of Kosciusko, the tomb of the hero soldier and that of Stanislaus, the patron saint of Poland, in the cathedral or the citadel, and the classic university quadrangle with the statue of Copernicus in the center, give the visitor the feeling that he is treading on sacred soil.

The University of Krakow is the second oldest in Europe, dating back to 1364. Here, too, students are pouring in. There are now about 5,000 men and women in all departments, including 600 enrolled in the medical school. The chair of pediatrics is occupied by Professor Lewkowicz. The usual courses of lectures and clinics are given. A large children's hospital furnishes the clinical material. At Krakow, assisted by members of the medical faculty, the American Red Cross organized a six months' course for nurses' aids to furnish assistants in the various health centers, because of the great dearth of nurses in Poland. These young women are proving invaluable in operating our program until the graduates of the splendid training schools in Posen and Warsaw are available.

At Lwow, the much fought over Lemberg of the war dispatches and the second city in size in the country, we found a splendid pediatric clinic under the direction of Professor Gröer, a friend and a fellow student of Pirquet.

The children's wards are small, but all cases are used for instruction and study. Especial attention is given to the method of forced feeding suggested first by Pirquet. It was difficult for us to believe the charts shown us of patients with severe ileocolitis, with many bloody stools daily, who had been carried through their illness to recovery without loss of weight. The nurses are all given especial instruction in the preparation of foods containing definite proportionate amounts of protein, fats and carbohydrates, and do the actual cooking for the patients themselves. Full courses in pediatrics are given during the third and fourth years. An active outpatient department is maintained.

Professor Gröer enthusiastically assisted in the establishment of intensive child health work in the portion of the city surrounding the clinic. An American nurse was the only addition to the personnel required.

CZECHOSLOVAKIA

As might have been anticipated under the administration of President Masaryk, himself a university professor, the government of Czechoslovakia is laying great emphasis on the value of education. Masaryk has publicly asserted that the policy he is most proud of in Slovakia is the establishment of 2,000 secondary schools. There are four universities with complete faculties, including that of medicine, in the country. The great difficulty is to provide adequately for the large numbers of students who are applying for admission.

In Prague, as is well known, there are two completely separate universities and medical schools, one under German and one under Czech direction. In the former, pediatrics is taught by Professor Longer and Professor Fischl, with a

number of assistants. Each professor gives five lectures or clinics a week. Bedside instruction is given at the German Children's Hospital and at a section of the large Foundlings' Home—made famous by Professor Epstein. A large policlinic is maintained, at which additional instruction is given. A correspondingly complete course in diseases of children is given in the Charles University Medical School by Professor Pesina and Professor Svehla.

The large Czech Children's Hospital and another section of the Foundlings' Home are used for clinical teaching. A course in the psychopathology of children is offered by Dr. Herford in the institute for feebleminded children.

The American Red Cross established several model child health centers in Prague, and secured the cooperation of both these faculties. Through these centers and others started elsewhere, twenty-one in all, 40,000 school children were given their first physical examination, and much corrective work was accomplished.

One of the great needs in the country is for a better standard of nursing. To help supply this deficiency, a training school has been started under American nurses, and two wards of the old general hospital have been turned over to the schools for the practical work of its students. The nursing care that the patients in these two wards receive has evoked great admiration from the visiting physicians. It was a well merited honor for the school that during a serious illness of President Masaryk some months ago, he sent for and was nursed by two American nurses.

Universities since the war have been started in Bruno, Moravia, and in Bratislava. In each of these a similar course in pediatrics is offered. The one in Bruno is under Dr. Teyschl, and that in Bratislava, under Professor Bedlik. Clinical instruction is given in Bruno in the children's department of the general hospital, and in Bratislava at the large children's clinic.

New university buildings are being erected at each of these newer schools, and some of the strongest members of the faculty at Prague are being sent temporarily to Bruno and Bratislava until the courses have become well established.

AUSTRIA

The pediatric clinics in Austria are so well known in this country that no extended description is necessary. There still remain in the country three important centers—Vienna with 4,000 medical students, Graz with 1,000 and Innsbruck with 700. All of these students are expected, but not required, to attend pediatric lectures half a year for their five years of study, which is equivalent to four and a half hours a week for a year. There seemed to be comparatively little opportunity for practical work. Women are admitted on the same terms as men.

The children's clinic at the university in Vienna was a busy place at the time of our visit. Especial attention was given to graduate instruction and to research under the direction of Pirquet and Schick. Miss Chick of England was just completing her important studies in rickets. An interesting feature of the clinic was the large class of children with incipient tuberculosis who were kept for long periods in a roof ward, in the fresh air and sunshine. The results of this treatment were said to be very striking. The preparation of the infant dietaries by the nem system was, of course, in vogue, but as we traveled away from Austria, this method of feeding seemed to have a diminishing number of adherents.

In the outpatient department is maintained one of the many child health centers conducted in Vienna with the assistance of the American Red Cross. At these stations and at the mothers and infants' home under the charge of Dr. Moll, there is opportunity for those students interested to become familiar with the best methods of infant and child care.

At Gratz it was a pleasure to renew our acquaintance with Prof. Franz Hamburger. His clinic of 200 beds is of older construction and is greatly in need of additional support. Important work is going on, however. We were shown, among other things, an interesting series of rachitic bone lesions being treated by violet rays.

The organization of the American Red Cross child health program in the province of Styrea is under Professor Hamburger's leadership.

HUNGARY

Pediatrics is taught in four universities of Hungary—in Budapest, Szeged, Debreczen and Pécs. In Budapest there are 5,000 medical students; in each of the others, about 700. In each of these schools all the students are required to take pediatrics—five one-hour lectures a week for one semester. It is proposed to increase the lectures to cover two semesters. There is little opportunity for the students to have practical work with patients. Women are admitted to all schools, but the number is restricted, and the entrance requirements are higher than for men. We were able to visit only the university clinic at Budapest. It was founded over eighty years ago by John Bokay, and is said to be the fourth oldest children's hospital in the world. The first Bokay was succeeded in the hospital and chair of pediatrics by his son, Janos Bokay, a genial and courteous physician, who also exerts a fatherly oversight over all the activities of the clinic.

Professor Bokay is much interested in the history of pediatrics, and zealously guards in his library the first book on pediatrics by Mercurialis, published in Latin in 1601. From this clinic appeared the first report on 1,000 cases of diphtheria in which intubation was practiced with the O'Dwyer tubes. In the pathologic museum are many exquisite specimens showing unusual varieties of involvement with diphtheric membrane. The war has not embittered the spirit of Professor Bokay. He still directs his visitors to his gallery where are displayed the pictures of his colleagues of many lands engaged on both sides of the recent conflict.

The present child health program in Hungary is in some respects the most complete in the world. Much of its success is due to the unfailing and whole-hearted support of this kindly wise teacher, who has the confidence and affection of all classes in the country.

JUGOSLAVIA

Inquiry was made at Belgrade concerning the teaching of pediatrics. The medical school there was opened only three years ago. There will be no course in pediatrics for another year. As yet there is no professor appointed.

The impression made on us from our hurried inspection of the more important pediatric clinics in eastern Europe was that, in the main, excellent didactic instruction is given—instruction that would compare favorably with that elsewhere in the countries of western Europe. One can be confident that each of these new republics in old lands, in the future, will have excellent pediatricians who will make valuable contributions to our field of work and who will have an intelligent interest in infant and child hygiene.

A large part of the practical experience of these future children's men in the actual handling of patients will have to be obtained after graduation.

Need for Local Health Officer.—Compliance with the law is a duty which is imposed upon us all, no matter what profession we follow, whether we be preachers of the gospel, lawyers or physicians. Because of the importance of health, there are a great many laws pertaining to it, and the physician is at times put to it pretty hard to comply to the letter. There should be a local health officer to aid him in every way possible.—Chichester, P. M.: *Virginia M. Monthly* **50**: 466 (Oct.) 1923.

Medicolegal

Valid Arrangement for Care of Tuberculous Patients

(City and County of San Francisco et al. v. Boyle, Auditor (Calif.) 215 Pac. R. 549)

The Supreme Court of California says that this was an application for a writ of mandate to compel the auditor of the city and county of San Francisco to audit and approve a demand in favor of the county of Alameda for $5,000 on account of expenses incurred by the latter county for architect's fees, plans and specifications for proposed units to be added to the hospital maintained by the latter county, near Livermore, for patients with tuberculosis, such units being intended for the benefit of the city and county of San Francisco in the care and treatment of patients thereof affected with tuberculosis. The auditor contended that the arrangement made was invalid; and this proceeding was designed to test its validity.

To make provision for the care of indigent sick and dependent poor is a duty of state and society. A duty equally great rests on the state to protect and guard the health of the public from infectious or other communicable forms of diseases, one of the most widely prevalent of which is tuberculosis. The board of supervisors of the city and county of San Francisco, in dealing with the question, found as a fact that the zone in which it proposed to maintain and care for its patients affected with tuberculosis possesses a more favorable climatic condition and superior surroundings for the successful treatment of the disease than is possessed by that city and county. Without such a finding of fact, which is conclusive on this court, the court would be permitted to take judicial notice of the geographic position of the two localities with reference to proximity to the sea and the influence of ocean winds on the climate of each, and also the density of the population of each considered relatively in respect to areas. In the treatment of pulmonary forms of tuberculosis, the main reliance for improvement or cure rests largely on the accessibility of the patient to pure, fresh air such as altitude and open areas afford. Rest and quiet are other essentials. From recitals found in the agreement, the board of supervisors was unquestionably induced or influenced to enter into the contract by a proper consideration for the comfort and welfare of the affected patients, as well as the discharge of a duty which was cast on it to protect the health of the public.

The authority under which the city and county justified its right to make the contract was the statute effective July 29, 1921, an act providing for the joint exercise of powers by counties, by municipalities, or by municipalities and counties; and this court knows of no reason why the city and county should be prevented from bringing itself within the provisions of that statute. The statute and the one effective Aug. 2, 1921, each authorizes the adoption of a plan and procedure independent of the other, and neither one was intended to be exclusive. Whether the plan adopted could be improved on was not a question for this court's determination. Any method or system devised would be subject to criticism. But, however that might be, the court is unable to see any legal objection to the plan proposed.

Nor was it made clear that the proposed plan should be declared invalid for the reason that the county of Alameda was to retain supervisory control of the hospital. Any institution designed for the treatment of persons affected with tuberculosis must from necessity be under the direction and management of skilled, efficient persons. There doubtless exist good reasons for protecting persons who are suffering in the incipient stage from those who are suffering in the more advanced stages, thus requiring rules of classification according to the stages of the disease. There may also be good reasons for the rejection or removal of patients whose reception or retention would endanger the welfare of others. Reasonable rules and regulations are highly essential to the successful management of a sanatorium. It could not be presumed that unreasonable rules would be adopted, or that arbitrary authority would be exercised in any respect. The agreement in this case provided that all rules to govern the institution should operate uniformly on the patients of both parties to the contract. It was to be expected that a sanatorium or hospital maintained for the care and treatment of persons affected with tuberculosis would require a different kind of skill in administering treatment, in superintendence and in management, than would be required by a county institution for the care of persons suffering from ordinary ailments.

The writ of mandate sought is granted.

Detention of Woman Refusing to Be Examined for Venereal Disease

(Ex parte Clemente (Calif.), 215 Pac. R. 698)

The District Court of Appeal of California, Second District, Division 1, says that the petitioner was before the court on a writ of habeas corpus. The petition therefor set forth that she was illegally detained and restrained of her liberty by the chief of police of the city of Los Angeles, acting under instructions from the health department of that city not to release her until she submitted to an examination ordered to be made by the health department for the purpose of determining whether she was affected with a contagious or infectious disease. On the hearing the testimony showed that the petitioner had been arrested and charged with conducting a house of ill fame. Two police officers of the city testified that they visited the house of the petitioner on the day of her arrest, and of the acts and conduct of the petitioner on that occasion. There was also testimony to the effect that the reputation of the petitioner's house was that of a house of ill fame. This information had all been furnished to the health department, and on it the department made its order for the examination of the petitioner and for her detention until she should submit to such an examination. Repeated demands had been made of the petitioner by the health department that she submit to the required examination, all of which had been refused by her. The court is satisfied that the testimony produced at the hearing warranted the conclusion that the house conducted by the petitioner was a house of ill fame, that she was an inmate thereof, and personally participated in the unlawful acts carried on therein. The health department having this information was, in the court's opinion, justified in its detention of the petitioner. This information furnished reasonable ground to believe that the petitioner was affected with the kind of disease referred to, and this was all that was necessary to authorize the health department to enforce quarantine measures against her. Wherefore she was remanded to the custody of the chief of police.

Society Proceedings

COMING MEETINGS

American Pathological Society, St. Louis, Dec. 27-29. Dr. Wade H. Brown, Rockefeller Institute for Medical Research, New York, Sec'y.

American Physiological Society, St. Louis, Dec. 27-29. Dr. Charles W. Greene, University of Missouri, Columbia, Mo., Secretary.

American Society of Biological Chemistry, St. Louis, Dec. 27-29. Dr. Victor C. Myers, New York Post-Graduate Medical School, New York, Secretary.

Association for Research in Nervous and Mental Diseases, New York, Dec. 27-28. Dr. Sanger Brown, 2d, 173 E. 70th St., New York, Sec'y.

District of Columbia, Medical Society of, Washington, Jan. 2. Dr. C. B. Conklin, Medical Science Bldg., Washington, Secretary.

Isthmian Canal Zone, Medical Association of, Ancon, Dec. 21. Dr. J. J. Moore, Ancon Hospital, Ancon, Secretary.

Porto Rico, Medical Association of, San Juan, Dec. 14-16. Dr. Augustin R. Laugier, Box 1117, San Juan, Secretary.

Radiological Society of North America, Rochester, Minn., Dec. 3-7. Dr. M. J. Sandborn, Appleton, Wis., Secretary.

Society of American Bacteriologists, New Haven, Conn., Dec. 27-29. Dr. J. M. Sherman, Box 184, Washington, D. C., Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., Dec. 11-13. Dr. H. A. Royster, 423 Fayetteville Street, Raleigh, N. C., Secretary.

Western Surgical Association, Colorado Springs, Colo., Dec. 6-8. Dr. Warren A. Dennis, Hamm Bldg., St. Paul, Minn., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

66: 1-213 (Sept.) 1923

*Influence of Diet on Alkaline Reserve and Insulin in Hypoglycemia in Rabbits. I. H. Page, Indianapolis.—p. 1.
*Chemical Regulation of Respiration. I. Metabolism of Respiratory Center and Coordination of Dual Function of Hemoglobin. R. Gesell, St. Louis.—p. 5.
Sensitization to Heat Due to Exposure of Short Wave Lengths. Influence of Ozone. H. S. Forbes and G. A. Daland, Boston.—p. 50.
Sensitization of Protoplasm to Heat by Exposure to Light of Short Wave Length. W. T. Bovie and G. A. Daland, Boston.—p. 55.
*Physiology of Sleep. I. Effects of Prolonged Sleeplessness on Man. N. Kleitman, Chicago.—p. 67.
*Calorigenic Action of Epinephrin Chlorid. W. M. Boothby and I. Sandiford, Rochester, Minn.—p. 93.
Phase Reversal in Emulsions and Protoplasm. W. Seifriz, New Haven, Conn.—p. 124.
Effect of Gastrin and Histamin on Movements of Stomach and Intestine During Hunger. A. C. Ivy and D. A. Vloedman, Chicago.—p. 140.
Seasonal Changes in Gases and Sugar of Blood and Nitrogen Distribution in Blood and Urine of Alligator. A. Hopping, New York.—p. 145.
Physiology of Vitamins. II. Parenteral Administration of Vitamin B. Mammalian Experiments. G. R. Cowgill, New Haven, Conn.—p. 164.
Effect of Fatigued Muscle on Perfused Epinephrin. R. G. Hoskins and E. P. Durrant, Columbus, Ohio.—p. 176.
*Locomotion of Leukocytes. I. Normal Rate of Locomotion of Human Neutrophilic Leukocytes in Vitro. M. McCutcheon, Philadelphia.—p. 180.
*Id. II. Effect of Temperature on Rate of Locomotion of Human Neutrophilic Leukocytes in Vitro. M. McCutcheon, Philadelphia.—p. 185.
Some Effects of Various Environmental Temperatures on Blood of Dogs. F. B. Flinn and E. L. Scott, New York.—p. 191.
Absorption from Cloaca in Birds. N. C. Sharpe, Toronto.—p. 209.

Influence of Diet on Alkaline Reserve and Insulin Hyperglycemia.—Page's work shows that acid ash forming diets produce a condition of mild acidosis in rabbits whereas basic ash diets tend toward the production of alkalosis. Acid diets render rabbits more resistant to the hypoglycemic effects of insulin than basic diets by tending to produce a condition of acidosis, thus increasing glycogenolysis and in this way antagonizing the insulin action. Diet in the rabbit is an important factor in the regulation of the blood sugar level.

Chemical Regulation of Respiration.—The following points are emphasized by Gesell. Changes in acidity of the respiratory center constitute the primary chemical control of respiration. Changes in oxidation constitute a less direct control. But as oxidation determines the kind and amount of acid formed and the efficiency of transport and elimination, it is, in the end, the normal regulator of respiration. In accordance with this view two kinds of acid make up the normal respiratory stimulus, (1) a poorly diffusible and fixed acid, such as lactic acid, and (2) the weak, volatile and readily diffusible carbon dioxid, the respiratory stimulus being the sum of the effects of both. During anoxemia reduced oxidation in the center leads to an increased formation of acid and to an accumulation of the relatively poorly diffusible acid in a relatively poorly buffered cytoplasm no longer fully protected by the potential alkalinity of the blood or by its own buffer salts. By virtue of its own acid metabolism and its extreme sensitivity to minute changes in its own p_H, the center is sensitive to minute changes in the oxygen tension of the arterial blood and is in a position to act as vanguard to internal respiration. The capacity of the center to act as rearguard, however, must not be overlooked. Since fluctuations in the general level of carbon dioxid and oxygen in the blood is a function of the fluctuations in the general metabolism as well as of pulmonary ventilation, the respiratory center must of necessity continually function both as vanguard and rearguard to internal respiration.

Effects of Experimental Insomnia.—Kleitman studied the effects of experimental insomnia in man, the duration of complete sleeplessness being from forty to 115 hours. Subjectively, the persons employed could easily keep awake while engaged in some sort of activity, but felt very drowsy when sitting, and fell asleep immediately on lying down. Muscular relaxation induces sleep under normal conditions (confirming Coriat), but practically precipitates sleep under conditions of experimental insomnia. Blood sugar, alkaline reserve of the blood and plasma, percentage of hemoglobin, percentage of corpuscles, red and white blood cell count, body weight, basal metabolic rate, appetite, temperature, ability to name letters and to do mental arithmetic, all of these showed no variations from normal during the period of sleeplessness. Respiration, heart rate, blood pressure, showed a marked decrease in insomnia, but this decrease was due mainly to greater muscular relaxation of the sleepy subject. Numerous reflexes were found to be present in sleep following insomnia, but the response was somewhat sluggish. Sleep seemed to be deeper six hours after its onset than at the end of two hours. A positive Babinski reflex could be elicited in every subject tested during the sleep that followed insomnia. It is interpreted as indicating a functional block of the pyramidal system of fibers. This reflex could be reversed by rapidly repeated stimulation of the sole. The depth of the sleep decreased at the same time. This indicates that a number of subminimal stimuli overcome the synaptic resistance and produce a flexion of the great toe. The onset of sleep is probably due to complete muscular relaxation, voluntary or involuntary. A provisional theory is proposed, based on the conception of "levels" in the central nervous system, as first elaborated by Hughlings Jackson. Sleep may be due to fatigue of the highest centers of consciousness, and dreaming to the persistence of the activity of the lower centers.

Calorigenic Action of Epinephrin Chlorid.—Evidence is presented by Boothby and Sandiford that epinephrin when injected intravenously into dogs in doses that seem probably within the power of the suprarenals to secrete, does actually increase the rate of heat production, probably producing this increase by a general and quite parallel increase in the heat production of all or nearly all types of cells. The increased metabolism is accompanied by an elevation of the respiratory quotient, and by a slight increase in the blood sugar concentration, as well as certain other secondary manifestations.

Velocity of Locomotion of Leukocytes.—A method is given by McCutcheon for determining the velocity of normal human neutrophilic leukocytes examined in whole blood in vitro. In the case of the individual chosen the average rate of locomotion, under the conditions described, was 170.6 ± 2.2. microns in five minutes, or 34.1 microns per minute, at 37 C.

Effect of Temperature on Locomotion of Leukocytes.—McCutcheon found the velocity of locomotion shown by neutrophilic polymorphonuclear leukocytes of one person to be doubled by a rise in temperature of 10 C. within certain limits of temperature variation. This constitutes another instance in which van't Hoff's law is found to hold for biologic phenomena.

American Journal of Tropical Medicine, Baltimore

3: 369-460 (Sept.) 1923

Culion Leper Colony. H. W. Wade and J. A. Basa, Culion, Palawan, P. I.—p. 395.
*Bacteriology of Leprosy. II. Chromogenic Acid-Fast Bacillus of Clegg. E. L. Walker.—p. 417.
Acute Form of American Trypanosomiasis: Pathology, Necropsy, Trypanosomiasis Cruzi in Animals. B. C. Crowell, Philadelphia.—p. 425.

Growing Clegg Leprosy Bacillus.—The cultivation of a chromogenic acid-fast bacillus from leprous lesions on Musgrave and Clegg's medium is confirmed by Walker. Neither the symbiotic amebas of Clegg nor the protein split products of Duval are necessary for the growth of this organism. The essential factor for the development of Clegg's bacillus appears to be the lean medium containing only traces of nutrient substances. Clegg's acid-fast bacillus develops in transplants from colonies of Bordoni-Uffreduzzi's partially acid-fast diphtheroid on Musgrave and Clegg's medium. A chromogenic acid-fast bacillus, similar to Clegg's bacillus, develops in transplants from colonies of the pleomorphic diphtheroid from preputial smegma on Musgrave and Clegg's medium. A nonchromogenic acid-fast bacillus, with morphologic differences from Clegg's bacillus, develops in cultures from nonleprous nasal secretions and from Hoffmann's diph-

theroid isolated from such secretions on Musgrave and Clegg's medium. Clegg's bacillus appears to be a developmental stage of Bordoni-Uffreduzzi's diphtheroid, but the possibility that it may be a contamination cannot as yet be excluded absolutely. Both Clegg and Bordoni-Uffreduzzi and their successors may have cultivated different forms of one and the same pleomorphic bacterium from leprosy. This organism appears to be identical with or closely related to the pleomorphic and facultative acid-fast *Bacillus smegmatis*.

Annals of Clinical Medicine, Baltimore

2: 75-135 (Sept.) 1923

Newer Conception of Asthma and Hay-Fever. R. A. Kern, Philadelphia.—p. 75.
Modern Treatment for Asthma. J. A. Clarke, Philadelphia.—p. 83.
Treatment of Acute Pneumococcus Pneumonias. S. S. Cohen, Philadelphia.—p. 90.
*Results with Kidney Function Tests. L. M. Breed and J. Rendall, Pasadena, Calif.—p. 105.
*Present Status of Quinidin Therapy. C. C. Wolferth, Philadelphia.—p. 123.
*Basal Metabolic Rate Determination. W. H. Stoner, Philadelphia.—p. 131.

Results with Kidney Function Tests.—The results of a series of tests of the functional power of the kidney in 250 suspected cases of nephritis are presented by Breed and Rendall. They assert that for a proper estimation of the efficiency of the kidney, none of the so-called renal function tests is reliable. The most reliable results are secured from the blood chemistry and the two hourly and day and night variations in specific gravity at the end of three days of high protein, salt and liquid intake. The authors' experience has shown that high values for uric acid and sugar in the blood under such conditions are suggestive of cholecystitis. Twenty such cases were subjected to operation and all showed varying degrees of cholecystitis or cholelithiasis. Forty other such cases gave clinical evidence of cholecystitis. The operated cases all showed a lowering of uric acid and sugar in the blood after operation. A diet is outlined which has been found beneficial in cases of cholecystitis, either postoperative or without operation.

Status of Quinidin Therapy.—The results of quinidin therapy, in Wolferth's opinion, are excellent in cases of auricular fibrillation of short duration and good compensation. It is of little value in fibrillation of long standing and is contraindicated in the presence of advanced heart failure. Digitalis, rather than quinidin, should be the first remedy employed in auricular flutter. Quinidin has shown promise of being valuable in the treatment of suitable cases of paroxysmal rapid heart action. It has no value in the treatment of simple tachycardia and a very limited field of usefulness in extrasystolic arrhythmia. Quinidin in appropriate dosage has been shown experimentally to depress the principal functions of heart muscle, including contractility, conductivity, stimulus production and excitability. It also prolongs the refractory period of heart muscle and causes weakness of vagus nerve action.

Basal Metabolic Rate Determination.—Basal metabolic rate is defined by Stoner. The various standards and methods of determinations are outlined. The necessity for rigid standardization of the preparation of the subject is emphasized. A simple formula for calculating the basal metabolic rate from the four minute oxygen consumption is given. Brief general reference is made to the important literature.

Annals of Surgery, Philadelphia

78: 305-432 (Sept.) 1923

*End Results of Arterial Transplants. O. Klotz, Sao Paulo, Brazil. H. H. Permar and C. C. Guthrie, Pittsburgh.—p. 305.
Relation of Surgery to Vascular Sympathetic System. W. A. Sherwood, Brooklyn.—p. 321.
Anthrax and Its Treatment. H. E. Santee, New York.—p. 326.
*Operative Curability of Carcinoma of Stomach. D. Cheever, Boston.—p. 332.
Ten Cases of Acute Perforation of Duodenal Ulcer. H. K. Shawan and C. F. Vale, Detroit.—p. 342.
Acute Intussusception in Infants. Fifty-One Cases. R. W. Bolling, New York.—p. 349.
*Experimental Study on Use of Intra-Abdominal Injections of Hypertonic Glucose Solution in Treatment of Peritonitis. J. K. Narat, Chicago.—p. 357.
Influence of Hemorrhage on Mortality in Gunshot Wounds and Other Injuries of Abdomen. J. M. Mason, Birmingham, Ala.—p. 364.
*End Results in Malignant Disease of Testis. W. B. Coley, New York.—p. 370.
*Empyema of Ureteral Stump Following Incomplete Ureterectomy. A. Hyman, New York.—p. 387.
Rupture of Tendon of Extensor Longus Pollicis Following a Colles Fracture. A. P. C. Ashhurst, Philadelphia.—p. 398.

Arterial Transplantation.—An analysis of the end results in two cases of transplantation of vascular segments is given by Klotz, Permar and Guthrie. They illustrate the similarity of the functional results regardless of whether living heterologous tissue is used in transplantation of whether devitalized vascular segments are used. In one case a rabbit aorta was transplanted on the carotid artery of a dog. In the second case the devitalized (liquor formaldehydi fixed) segment of dog vena cava was transplanted on the common carotid artery of a dog. It served to preserve the circulation of the common carotid artery for a period of eleven years when death resulted from a tumor of bone. The implanted segment, which at the time of the original experiment had been devitalized, persisted in parts of its structure, there still being remnants of collagen and elastic fibers of the original implant. The original dead elements of the segment were not entirely removed. The introduced segment and its secondary walls were uniformly dilated to give rise to a fusiform dilatation. The segment was also lengthened. The authors call attention to the fact that in all instances in which a dead segment serves its purpose for more than a month or six weeks an aneurysmal dilatation occupies its length. This fusiform sacculation persists not only during the existence of the segment, but permanently with the reestablishment of the new tube. The presence of such a fusiform dilatation may predispose to the development of a thrombus at a time long after the effects of the operative intervention have disappeared, as is the case with true aneurysms. The development of saccular dilatation in these living heterologous or dead segments further substantiates the evidence that the most important lesion which leads to dilatation is a loss of the strength of the media.

Operative Curability of Carcinoma of Stomach.—The records of 250 cases of carcinoma of the stomach were reviewed by Cheever. Two thirds of the number occurred in men. Weakness and debility, general abdominal pain, loss of weight, constipation, pallor and backache together constituted the initial symptoms in 20.8 per cent. of the cases. In 30 per cent., the earlier symptoms would not be likely to suggest to the patient that the stomach was the source. Vomiting before admission occurred in 68 per cent. Blood or coffee grounds were noted in forty-eight cases. Tarry stools were noted in twenty-six cases. In the great majority of these 236 patients the disease was too advanced to permit radical operation. Fifty per cent. had had symptoms for only six months, and 80 per cent. for less than one year. An ulcer history was positive in 7.6 per cent.; plausible in 5.9 per cent.; possible in 8.4 per cent.; and absent in 77.9 per cent. Radical operation was performed in twenty-three cases. Of patients not operated on 20.6 per cent. lived four months or more, while 73.3 per cent. of the patients afforded palliative operations lived a similar period. Thirteen per cent. of the patients radically operated on were living at the end of five years without evidence of recurrence. Another patient was living at the end of four years and eleven months. Another lived seven years, but developed an apparently independent cancer of the breast and died of spinal metastases without known local recurrence of the carcinoma of the stomach.

Intra-Abdominal Injection of Hypertonic Glucose Solution in Peritonitis.—In order to make the treatment of free peritonitis as physiologic as possible, that is to stimulate the natural function of the peritoneum, Narat experimented successfully in rabbits with intra-abdominal injections of hypertonic glucose (20 per cent.) solution. Since this method is absolutely harmless and gives encouraging results, Narat feels justified in suggesting that this treatment be used in human beings in suitable cases. About 500 c.c. of 20 per cent. glucose solution would be the proper initial dose. The injections could be repeated through the drainage tube every six or twelve hours. Certain fundamental principles laid down for

the treatment of peritoneal inflammation must be observed strictly, namely, gastric lavage, Fowler's posture, absolutely nothing to be put into the stomach, rectal feeding, introduction of liquids into the system by proctoclysis, hypodermoclysis or intravenous infusions, avoidance of purgation, etc. In addition, at the end of the operation, if such is indicated, the glucose solution may be poured into the abdominal cavity and the injection repeated through the drainage tube periodically.

Permanent Cure Following Removal of Malignant Tumor of Testis.—The number of permanent cures following surgical removal of the testis for malignant disease, Coley says, is comparatively small, the proportion being not over 5 or 10 per cent. This number, in his opinion, is not sufficiently increased by the radical removal of the retroperitoneal glands by the abdominal route to warrant the risk of such an operation. Long continued systemic treatment with the mixed toxins of erysipelas and *Bacillus prodigiosus*, combined with thorough irradiation of the abdomen and supraclavicular glands by radium or roentgen rays, he assures, offers a far better hope of permanent cure than any form of operative treatment alone.

Empyema of Ureteral Stump.—The three cases reported by Hyman demonstrate that the ureteral stump left behind after an incomplete ureterectomy may be the cause of a persistent pyuria. Two of the cases operated on also revealed how difficult a surgical procedure it is to excise this stump, and emphasizes the necessity, when doing a primary ureterectomy for pyoureter, for excising the entire ureter down to its entrance into the bladder.

Archives of Occupational Therapy, Baltimore

2: 335-414 (Oct.) 1923

*Health and Industrial Problems of Heart Disease in Middle Life. F. Brush, White Plains, N. Y.—p. 335.
Psychology of Occupational Therapy. E. L. Canton, Washington, D. C.—p. 347.
Occupational Therapy and Vocational Training in Tuberculosis Sanatorium. A. T. Laird, Nopeming, Minn.—p. 359.
Therapeutic Value of Toy Making. C. B. Davis, Washington, D. C.—p. 369.
Working Program for Section on Occupational Therapy and Employment of Tuberculosus Patients of the Masaryk League Against Tuberculosis. H. J. Pelc, Prague, Czechoslovakia.—p. 377.
Occupational Therapy in Canada. J. H. Stewart, Winnipeg.—p. 381.
Occupational Therapy in Virginia. V. G. Cole, Marion, Va.—p. 385.
Occupational Therapy in Vermont. C. Williams, Woodstock, Vt.—p. 389.
Occupational Therapy in Mississippi. E. G. Morse, Jackson, Miss.—p. 397.
Occupational Therapy at North Dakota State Hospital. A. W. Guest, Jamestown, N. D.—p. 399.

Industrial Problems of Heart Disease.—The prevention of overstress in patients of working age with cardiac disease, Brush says, is really a form of heart disease prevention, for each recurrence is a new disease complex. A nationalized heart association is needed to exert influence on many of the broader and social questions involved.

Arkansas Medical Society Journal, Little Rock

20: 85-98 (Oct.) 1923

Chronic Hyperchlorhydria; Bedside Diagnosis and Treatment. E. L. Miller, Crossett.—p. 85.
Auto Camping Trip as Vacation for the Doctor and His Family. T. Cothern, Jonesboro.—p. 88.

Atlantic Medical Journal, Harrisburg, Pa.

27: 1-54 (Oct.) 1923

Medical Care of Rural Population. H. C. Frontz, Huntingdon, Pa.—p. 1.
Experience with Insulin in Treatment of Diabetes Mellitus. J. A. Liehty, Pittsburg.—p. 5.
Cancer Problem. H. L. Foss, Danville, Pa.—p. 11.
*Carcinoma of Breast. J. S. Rodman, Philadelphia.—p. 13.
Mental Medicine of Yesterday, Today and Tomorrow. H. Victor, Danville, Pa.—p. 16.
Cavernous Sinus Thrombosis. W. S. Reese, Philadelphia.—p. 19.
Aids in Diagnosis of Skin Diseases. S. S. Greenbaum, Philadelphia.—p. 21.
Simplification of Serologic Diagnosis of Syphilis. R. A. Kilduffe, Los Angeles.—p. 23.
Treatment of Appendiceal Peritonitis. E. P. Buchanan, Pittsburgh.—p. 25.
Diagnosis and Treatment of Diseases of Rectum. F. G. Runyeon, Reading, Pa.—p. 27.
Prenatal Care in Philadelphia. P. F. Williams, Philadelphia.—p. 29.

Carcinoma of Breast.—Rodman emphasizes points that every one should keep in mind: cancer of the breast is a curable disease if radical treatment can be instituted sufficiently early. There are definite "precancerous" conditions of the breast of which chronic mastitis and papillary cystadenoma are the most important. Fifty per cent. of the cases of definite carcinoma can be cured by proper radical treatment, but not over 30 per cent. can be cured when the clinical diagnosis can be made with certainty.

Boston Medical and Surgical Journal

189: 485-530 (Oct. 11) 1923

Case of Marked Hypertension in Boy of Fourteen Associated with Congenital Hydronephrosis and Nephritis. W. C. Quinby, Boston.—p. 485.
Case of Cancer of Prostate Relieved by Radium. R. Graves, Boston.—p. 486.
Urologic Aspects of Hemophilia. J. D. Barney, Boston.—p. 486.
Early Hydronephrosis Associated with Aberrant Arteries. E. G. Crabtree, Boston.—p. 505.
Four Cases of Favus in One Family. J. H. Swartz, Boston.—p. 507.
Work of School Physician. D. S. Luce, Canton, Mass.—p. 510.
Milk and Public Health. J. Garland, Boston.—p. 513.

189: 531-580 (Oct. 18) 1923

*Infectious (Catarrhal) Jaundice. C. M. Jones and G. R. Minot, Boston.—p. 531.
*Alcohol Check Experiments with Portable Respiration Apparatus. T. M. Carpenter and E. L. Fox, Boston.—p. 551.
Fallacy of Using Alcohol for Sterilization of Surgical Instruments. R. N. Nye and T. R. Mallory, Boston.—p. 561.
Milk and Public Health. J. Garland, Boston.—p. 563.

Infectious Jaundice.—Twenty-six cases of infectious jaundice have been studied critically by Jones and Minot. Additional observations have been made on a number of other cases. The studies indicate that the jaundice may be separated into two rather distinct phases. Early in the disease there is usually an obstructive phase in which the duodenal contents contain little or no bile. The second phase is marked by an abnormally large output of bile pigment into the intestine. Rapid clinical improvement, with decrease of the jaundice, approximately coincides with the period of greatest elimination of bile pigments into the duodenum. Jaundice of the skin and sclerae may last for months, but disappears days or weeks before the bile pigments reach their normal level in the blood and duodenal contents.

Alcohol Check Experiments with Portable Respiration Apparatus.—Carpenter and Fox recommend that with the Benedict and Collins portable respiration apparatus the correction for change in temperature of the bell be made on the whole contraction as a rise of 1.8 mm. per degree centigrade; and that Wilson soda lime be employed as the absorbent for carbon dioxid and the assumption be made, in calculating the results, that the air in the spirometer bell is completely saturated. Users of the Roth modification of the Benedict and Collins portable apparatus should calculate their results on the basis that the air is dry when the ordinary soda lime is used and employ Roth's correction of minus 2 per cent. when Wilson soda lime is the reagent for absorbing the carbon dioxid; and that the correction for temperature be made on the whole contraction as directed by Roth, namely, 0.5 mm. per degree centigrade. Whether the ordinary soda lime or the Wilson soda lime is used with the student apparatus of Benedict and Benedict, the calculations should be made on the basis that the gas is in a dry condition.

California State Journal of Medicine, San Francisco

21: 409-454 (Oct.) 1923

Otitis Media in Infants and Children. C. D. Sweet, Oakland.—p. 409.
Local Anesthesia in Major Surgery. L. Eloesser, San Francisco.—p. 412.
Therapeutic Aspect of Short Wave Roentgen Rays. A. Soiland, Los Angeles.—p. 415.
Heart Failure. W. J. Kerr, San Francisco.—p. 417.
Essential Points in Treatment of Diabetes with Insulin. W. D. Sansum and N. R. Blatherwick, Santa Barbara.—p. 420.
Etiology of Gastric and Duodenal Ulcers. G. E. Ebright, San Francisco.—p. 423.
Analysis of Four Thousand Cases of Gonorrhea Treated in Public Clinic. A. R. Rogers, Los Angeles.—p. 425.
*Roentgen-Ray Treatment of Whooping Cough. J. J. Kingston and H. K. Faber, San Francisco.—p. 429.
Fatal Air Embolism After Puncture of Maxillary Antrum. J. A. Bacher, Stanford.—p. 433.

Roentgenotherapy of Whooping Cough.—Of twenty-four pertussis patients subjected to roentgen-ray treatment by

Kingston and Faber, four showed remarkable improvement after the initial treatment, while two were not relieved even after three exposures. Ten of the remainder were markedly better after two treatments, the vomiting and, in most instances, the typical paroxysms stopping. The other eight showed a more gradual improvement but were not considered cured after the last treatment. The most constant effect of the roentgen ray was the prompt cessation of vomiting, which occurred even in those cases in which the whoop did not abate.

Canadian Medical Association Journal, Montreal

13: 703-780 (Oct.) 1923

What of Future Surgery? D. Checver, Boston.—p. 703.
Vertigo and Its Significance in General Medicine. R. S. Pentecost, Toronto.—p. 708.
Effect of Ether Anesthesia on Afferent Paths in Decerebrate Animals. A. Forbes and R. H. Miller, Boston.—p. 715.
Anesthesia and Analgesia in Labor. R. Mitchell, Winnipeg.—p. 718.
Diagnosis of Diseases of Stomach and Duodenum. H. A. Bruce, England.—p. 724.
Serous Meningitis of Otitic Origin. E. H. White, Montreal.—p. 730.
School Health Supervision in Rural and Urban Centers. J. T. Phair, Toronto.—p. 733.
Chronic Myocardial Disease. J. A. Macgregor, London.—p. 738.
*Origin of Ammonia in Urine. I. M. Rabinowitch, Montreal.—p. 742.
Idiopathic Menorrhagia and Roentgen-Ray Therapy. E. L. Stewart and H. M. Tovell, Toronto.—p. 745.
Diagnosis of Pulmonary Tuberculosis. A. H. W. Caulfield, Toronto.—p. 749.

Origin of Ammonia in Urine.—Data have been obtained clinically by Rabinowitch which support the view recently put forward that one function of the kidney is to form ammonia.

Colorado Medicine, Denver

20: 255-302 (Oct.) 1923

London Meeting of International Surgical Association. L. Freeman, Denver.—p. 260.
Treatment of Syphilis of Central Nervous System. A. L. Skoog, Kansas City.—p. 266.
Diagnosis in Right Sided Abdominal Pain. J. M. Mayhew and A. L. Smith, Lincoln, Neb.—p. 275.

Indiana State Medical Association Journal, Ft. Wayne

16: 325-358 (Oct.) 1923

Our Medical Profession and Its Achievements. C. H. Good, Huntington.—p. 325.
Surgery and Surgery Technic. F. T. Romberger, Lafayette.—p. 329.
Radical Cure of Cystocele. C. M. Mix, Muncie.—p. 333.
Physiotherapy. W. W. Carey, Ft. Wayne.—p. 335.

Journal of Industrial Hygiene, Boston

5: 189-244 (Oct.) 1923

Placing Cardiac Patients in Regular Industries. J. S. Sheppard.—p. 189.
Weber's Law, Tolerance and Visual Judgment of Size in Bottle Making Industry. J. P. Baumberger and E. E. Perry, Stanford University, Calif.—p. 205.
Medical Features of Factory Inspection. Review of Literature on Industrial Hygiene and Industrial Disease in Germany in 1922. L. Teleky, Düsseldorf.—p. 210.
*Dusted Lung. Inhalation of Silica Dust; Relation to Pulmonary Tuberculosis. B. S. Nicholson.—p. 220.

Effect on Lung of Inhalation of Dust.—Nicholson's review brings out these facts: All dusts are not equally harmful—e. g., coal is especially beneficial, lime is neutral, but silica is particularly injurious. Silica, owing to the formation of pulmonary fibrosis, causes a train of symptoms which can be distinguished clinically from those of pulmonary tuberculosis. For this purpose radiography is of great use. The evidence of the injurious character of silica dust is drawn chiefly from industrial mortality statistics in which all forms of phthisis are taken together. Statistical evidence from all parts of the world agrees on this point; and there is no evidence that any other factor beyond the inhalation of silica is the responsible agent. Careful consideration of the disease entity, pulmonary silicosis, of its slow development and clinical manifestations, and of its noninfective character, point to the conclusion that more persons than is generally thought die without becoming tuberculous. The low infectivity of cases of pulmonary fibrosis is probably due (*a*) to the fact that many cases are never tuberculous at all, and (*b*) to the rapid termination of open infective cases, leaving but a short period for infecting contacts. Nicholson feels that the terminology appearing today on death certificates is faulty; the cases should be described as (*a*) pulmonary fibrosis, and (*b*) tuberculosis (if present). The term "phthisis" is unsatisfactory and should be expunged.

Kansas Medical Society Journal, Topeka

23: 269-302 (Oct.) 1923

Arterial Hypertension. L. S. Milne, Kansas City.—p. 269.
Anemias. J. L. Lattimore, Topeka.—p. 272.
Symptomatology and Diagnosis of Acute Poliomyelitis. C. F. Menninger, Topeka.—p. 274.
Treatment of Poliomyelitis. K. A. Menninger, Topeka.—p. 278.

New Jersey Medical Society Journal, Orange

20: 325-376 (Oct.) 1923

Diagnosis of Pulmonary Tuberculosis. M. W. Newcomb, Brown's Mills, N. J.—p. 325.

New Orleans Medical and Surgical Journal

76: 169-214 (Oct.) 1923

Diagnosis and Treatment of Tumors of Spinal Cord, Involving Conus and Cauda Equina. W. O. Ott and A. W. Adson, Rochester, Minn.—p. 169.
*Renal Lesions Due to Ureteral Obstructions Other Than Calculus. H. W. E. Walther, New Orleans.—p. 172.
Preeclamptic Toxemia. E. L. King and A. H. Gladden, Jr., New Orleans.—p. 175.
*Duodenal Dilatation. Report of Cases. A. Levin, New Orleans.—p. 178.
Observations from Service of Newly-Born at Touro Infirmary. L. R. DeBuys, New Orleans.—p. 184.
Charity Hospital of Louisiana. A. E. Fossier.—p. 188.
Digitalis in Heart Failure. J. B. Guthrie, New Orleans.—p. 196.

Kidney Lesions Due to Noncalculous Obstruction.—On the basis that too many kidneys are being sacrificed needlessly, Walther suggests that, unless expediency demands it, nephrotomy be done reserving nephrectomy for the second stage operation when simple drainage fails.

Duodenal Dilatation.—In Levin's opinion, duodenal dilatation is often responsible for the symptoms of so-called vicious circle after gastro-enterostomy and other conditions, such as reversed peristalsis. In his opinion, reversed duodenal peristalsis is the primary cause of so-called "heartburn."

New York State Journal of Medicine

23: 397-434 (Oct.) 1923

Studies in Use of Insulin. J. J. R. Macleod, Toronto.—p. 397.
Treatment of Diabetes With and Without Insulin. E. P. Joslin, Boston.—p. 399.
Insulin Treatment of Diabetes Mellitus. J. R. Williams, Rochester, N. Y.—p. 402.
*Relative Immunity of Infants Under Five Months of Age to Infection with Measles. C. Herrman, New York.—p. 404.
*Congenital Diaphragmatic Hernia of Right Side; Its Diagnosis in Life. P. M. Stimson, New York.—p. 408.
Common Drug Eruptions. J. J. Eller, New York.—p. 415.
Periodic Examination of Well Children. R. M. Smith, Boston.—p. 419.
Occurrence of Gonococcic Vaginitis in New-Born. E. J. Wynkoop, Syracuse.—p. 421.

Immunity of Infants to Measles.—Herrman says that infants under 2 months of age, whose mothers have had measles, are immune; the immunity becomes less marked as they grow older, but that even at 4 or 5 months of age only 25 per cent. are infected. From that time the relative immunity quickly diminishes, so that infants over 9 months of age are as susceptible as older children. Artificially fed as well as breast-fed infants enjoy this immunity, with a slight difference in favor of the breast-fed infants. This relative immunity during the first months of life also manifests itself in other ways. When young infants are infected with measles, the incubation period may be longer, the fever and constitutional symptoms may be less marked, and the eruption, the catarrhal symptoms and buccal manifestations may be less distinct. The immune substances are probably chiefly conveyed to the fetus through the placental circulation. There is no substantial evidence that any important part of the immunity is due to the ingestion of breast milk.

Congenital Diaphragmatic Hernia.—Stimson reports a case of this sort occurring in a 11 months old baby. The heart and liver were found apparently in normal positions, and so were the pyloric and cardiac ends of the stomach. But the

reater curvature of the stomach had been pulled over to the ight and some of the wall had been sucked up into the right hest cavity. A fluoroscopic examination showed the entire tomach in the chest, but there was apparently no obstruction o its emptying.

Ohio State Medical Journal, Columbus

19: 705-768 (Oct.) 1923

Exophthalmic Goiter. H. M. Korns, Cleveland.—p. 709.
Roentgen-Ray Therapy in Toxic Hyperthyroidism. H. K. Dunham, Cincinnati.—p. 713.
Surgery of Thyroid. E. R. Arn, L. G. Bowers and H. R. Huston, Dayton.—p. 717.
Treatment of Fracture of Lower End of Radius (Colles). B. G. Chollett, Toledo.—p. 728.
Nephrotomy. J. A. H. Magoun, Toledo.—p. 730.
Conservative Treatment of Maxillary Sinus Disease. J. D. Fouts, Dayton.—p. 732.

Philippine Journal of Science, Manila

23: 309-405 (Oct.) 1923

Some Philippine Species of Genus Musca Linnaeus. W. S. Patton.—p. 309.
Composition of Cashew Nut Oil. A. P. West and C. C. Cruz.—p. 337.
Jassoidea Related to Stenocotide. Malayan Species. C. F. Baker.—p. 345.

Rhode Island Medical Journal, Providence

6: 147-162 (Oct.) 1923

Diathermy in Pneumonia. H. E. Stewart, New Haven, Conn.—p. 151.

Surgery, Gynecology and Obstetrics, Chicago

37: 429-578 (Oct.) 1923

*Radical Operation for Teratoma Testis. F. Hinman, T. E. Gibson and A. A. Kutzmann, San Francisco.—p. 429.
Fractures of Elbow Joint and of Lower End of Humerus. E. L. Gilcreest, San Francisco.—p. 452.
Acute (Puerperal) Inversion of Uterus. E. Evans, La Crosse, Wis..—p. 461.
*Chemical Changes in Blood of Man After Acute Intestinal Obstruction. R. L. Haden and T. G. Orr, Kansas City, Kan.—p. 465.
*Retroperitoneal Lipoma. L. A. Greensfelder and R. B. Bettman, Chicago.—p. 468.
Sarco-Carcinoma of Uterus. R. H. Jaffe, Chicago.—p. 472.
Case of Bilateral Congenital Total Absence of Fibulae. J. J. Nutt, New York.—p. 475.
*Surgery of Seminal Vesicles. Report of 135 Cases. J. H. Morrissey and F. W. Smith, New York.—p. 480.
Metastatic Hypernephroma. Bone Metastasis. A. Gibson, Winnipeg, Man., and J. C. Bloodgood, Baltimore.—p. 490.
Intra-Abdominal Adhesions. J. B. Deaver, Philadelphia.—p. 506.
Collateral Circulation in Chronic Obstructon of Pulmonary Veins. Relation to Air Embolism Following Various Diagnostic and Therapeutic Procedures (Pneumolysis). K. Schlaepfer, Baltimore.—p. 510.
Reduction of Fractures with Fluoroscope. E. L. Eliason, Philadelphia.—p. 521.
Congenital Facial Clefts. V. P. Blair, St. Louis.—p. 530.
Rupture of Urethra. J. H. Garlock, New York.—p. 533.
New Gastro-Enterostomy Clamp. C. A. Roeder, Omaha.—p. 538.

Radical Operation for Teratoma Testis.—Seventy-nine cases of the radical operation for teratoma testis have been collected by Hinman and his associates. Ten of these were personal cases. Comparison of results of simple castration and radical operation shows, even at this early date for the latter, an improvement in the prognosis of at least 100 per cent. since about 15 per cent. of cases are cured by simple castration, and at least 30 per cent. of the seventy-nine cases analyzed are found to have been cured by the radical operation.

Chemical Blood Changes in Acute Intestinal Obstruction.—Haden and Orr state that definite blood chemical changes are found in acute intestinal obstruction, manifested by a fall in the blood chlorids, often a rise in the carbon dioxid combining power of the plasma and a rise in the nonprotein nitrogen. The fall in chlorids is considered the chief factor of this change and indicates that the chlorids may be utilized by the body as a protection against the toxic agent. The administration of sodium chlorid in larger doses than that supplied by physiologic solution of sodium chlorid is indicated in acute intestinal obstruction as a means of directly combating the toxemia. Since alkalosis is frequently present in intestinal obstruction, alkalies should be administered with caution. The authors have estimated that in the presence of the toxemia of intestinal obstruction sodium chlorid in an initial dosage of 1 gm. per kilogram of body weight should be administered. The blood and urine chlorids should be closely followed to estimate the subsequent quantity of sodium chlorid needed to keep the blood chlorids at a normal level.

Retroperitoneal Lipoma.—Retroperitoneal lipomas are most apt to occur in elderly persons and usually in women. The symptoms are vague and varied, swelling of the abdomen being the most constant. The prognosis is poor. The operative mortality is about 15 per cent. as a result of the likelihood of injury to the large abdominal blood vessels. Recurrences are frequent. The tumor may be pure lipoma but is apt to be a mixed tumor; sarcomatous degeneration is likely to occur. The tumor may arise from almost any retroperitoneal location but most frequently has its origin in the pararenal fat. Clinical diagnosis is difficult.

Surgery of Seminal Vesicles.—Morrissey and Smith assert that in their large series of cases with bacteriologic findings, the improvements noted in a large proportion of the cases justify the establishment of the operation and its more frequent use in selected cases.

U. S. Naval Medical Bulletin, Washington, D. C.

19: 393-650 (Oct.) 1923

Roentgenologic Study of Infectious Arthritis. F. W. Muller.—p. 393.
*Antimalarial Campaign in Haiti. A. H. Allen.—p. 402.
Malaria Parasite in Haiti. R. B. Storch.—p. 407.
*Samoan Conjunctivitis. D. Hunt.—p. 410.
Blackwater Fever. G. E. Robertson and W. Moore.—p. 413.
Experiences with Malaria Among Natives of Haiti. R. B. Storch.—p. 415.
Amebic and Bacillary Dysentery. J. G. Smith.—p. 423.

Antimalaria Campaign in Haiti.—The results of an eight months' campaign against malaria in Haiti, although limited in scope, Allen says, has demonstrated that it is possible to reduce malaria in a highly malarial country by the administration of quinin as described by Bass, even though restricted to relatively small areas.

Samoan Conjunctivitis.—Hunt's study of cases has furnished evidence that Samoan conjunctivitis is due to a gram-negative diplococcus, in all probability an attenuated form of the gonococcus.

West Virginia Medical Journal, Huntington

18: 169-224 (Oct.) 1923

Surgery of Gallbladder. Analysis of 100 Consecutive Operations. W. H. St. Clair and R. O. Rogers, Bluefield.—p. 169.
Diagnosis of Surgical Conditions of Kidney and Ureter. B. S. Brake, Clarksburg.—p. 176.
Diagnosis and Treatment of Renal Calculus. J. E. Rader, Huntington.—p. 182.
Fourth or Physiologic Era in Surgery. R. T. Morris, New York.—p. 189.
Mental Healing and Other Cults. H. M. Hall, Wheeling.—p. 197.

Wisconsin Medical Journal, Milwaukee

12: 193-244 (Oct.) 1923

Aids to Diagnosis in Medicine. H. E. Tuley, Louisville.—p. 193.
*Present Status of Management of Diabetes Mellitus. H. M. Coon, R. L. Gilman, W. M. Middleton, O. V. Overton and E. L. Sevringhaus, Madison.—p. 202.
Surgical Judgment. J. H. Gibbons, Philadelphia.—p. 208.
Malign Cellular Malfunction. J. L. Yates, Milwaukee.—p. 211.
*Some Difficulties in Diagnosis of Chronic Gallbladder Disease. D. Fisher and M. W. Snell, Milwaukee.—p. 215.
Insulin Treatment in Postoperative (Nondiabetic) Acidosis. D. Fisher and M. W. Snell, Milwaukee.—p. 220.

Diet Essential in Treatment of Diabetes.—That the introduction of insulin has in no way reduced the dietetic limitations of the diabetic is emphasized by Coon and his associates. While the range and variety of food may be greatly enhanced by the exhibition of insulin, the tendency of physicians to treat the newer biologic product as a short cut in management of diabetes is unjustified.

Insulin Causes Disappearance of Acidosis.—Fisher and Snell report an instance in which hypodermic administration of insulin, together with intravenous injection of glucose, caused the disappearance of severe acidosis in twelve hours in a nondiabetic patient operated on for gangrenous appendicitis.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:739-790 (Oct. 27) 1923

Relations of Surgery and Physiology. E. S. Schafer.—p. 739.
Chronic Intestinal Stasis and Cancer. W. A. Lane.—p. 745.
Present Position of Vitamin Problem. F. G. Hopkins.—p. 748.
*Regulating and Reflex Process. IV. Nerve Centers. P. T. Herring.—p. 751.
*Report of Three Necropsies Following Carbon Tetrachlorid Treatment. J. F. Docherty and L. Nicholls.—p. 753.
Factors Contributing to Recent Decrease in Infantile Mortality. J. Wheatley.—p. 754.
*Value of Watercress as Food. H. Scurfield.—p. 759.
Effect on Health of Sewer Air and Drain Air. F. E. Wynne.—p. 760.
Carbon Monoxid Predisposing Cause of Pulmonary Tuberculosis. E. B. Hazleton.—p. 763.

Sensation and Reflex Action.—Herring points out that sensation and reflex action are closely bound up together. Even visceral reflexes may be productive of sensation. Alterations in the heart beat, palpitation, respiratory disturbances, vasoconstriction and vasodilatation give rise to subjective phenomena. Irritability, exhaustion and depression are of common occurrence in ill health. The fatigue of a synapse renders that synapse more resistant to the passage of a nerve impulse, and fatigue of the afferent pathways should be a negation. But fatigue and the sensations met with in ill health are positive sensations and not mere negations. They are, as a rule, general and not localized to any particular part. Their cause is unknown, but must be sought in some alteration in the afferent nerve impulses affecting the conscious state.

Carbon Tetrachlorid Causes Fatty Liver.—With the object of confirming the report that carbon tetrachlorid may produce pathologic lesions of the liver, a number of condemned prisoners were treated with small doses of the drug. Postmortem examinations were made by Docherty and Nicholls on three of the prisoners. Each prisoner received 4 c.c. of carbon tetrachlorid, followed in two hours by 2 ounces of saturated magnesium sulphate solution. In two cases the liver showed fatty degeneration. In the third case there were no changes in the liver or kidney.

Watercress a Valuable Food.—Scurfield urges the greater use of watercress, which contains all three vitamins, as a food. Watercress is a cheap green vegetable which, like lettuce, is eaten unspoiled by cooking, but which, unlike lettuce, is available all the year round. Its more extended use may, therefore, be an appreciable help in remedying dietary errors caused by urbanization.

Journal of Pathology and Bacteriology, Edinburgh

26:433-556 (Oct.) 1923

Organisms of Fowl Typhoid Group. R. S. J. Brooks and M. Rhodes.—p. 433.
*Vitamins and Bacteria Growth. G. W. Wyon.—p. 441.
*Diphtheria Toxin Production on Douglas Medium. A. F. Watson and U. Wallace.—p. 447.
*Structure of Thyroid in Man. G. S. Williamson and I. H. Pearse.—p. 459.
Healing of Uterine Wound: Mitosis in Unstriped Muscle. D. M'Intyre.—p. 471.
Primary Liver Cell Adenoma (Hepatoma). A. F. B. Shaw.—p. 475.
Relation of Deprivation of Vitamin B to Body Temperature and Bacterial Infection. G. M. Findlay.—p. 487.
Composition of Bacillus Welchii Toxin. H. Henry.—p. 497.
*Pathogenesis of Primary Pneumococcal Peritonitis. J. E. M'Cartney.—p. 507.
Presence of Heterophile Antigen in Bacteria; Shiga's Dysentery Bacillus; Forssman Antigen and Antibody. T. Iijima.—p. 519.
*Cutaneous Hypersensitiveness in Enteric Infections; Enteric Carriers. W. M'Kendrick.—p. 535.
Neuroblastoma of Thoracic Cavity. J. S. Anderson and T. Shennan.—p. 545.
Leukocytosis in Myeloid Leukemia. A. Piney.—p. 546.

Vitamin B and Bacterial Growth.—Evidence is given by Wyon that vitamin B does not favor the growth of bacteria. Attention is drawn to certain factors in complex organic materials which are or may be responsible for their value for bacteria.

Diphtheria Toxin Production on Douglas Medium.—The value of the medium prepared by Hartley's modification of Douglas' method for preparing high grade diphtheria toxin over long periods of time is demonstrated by Watson and Wallace. Two methods which have given satisfaction over a period of a year for the large scale preparation of this medium are given. This medium is of value for ordinary routine purposes and would appear to afford an efficient, inexpensive and readily prepared substitute for ordinary peptone medium.

Structure of Thyroid in Man.—The thyroid organ has been shown by Williamson and Pearse to contain a definite functional unit, of which the vesicle of the literature forms no fundamental part. The functional unit is a lymphatic sinusoid, in which the epithelium floats enmeshed in a specific plexus of capillaries. The secretion of the thyroid organ is produced and stored in a specific fashion. It is not the same as colloid. Colloid matter is stored after another manner; it is possibly a vehicle for the carriage of some metabolite.

Pathogenesis of Primary Pneumococcal Peritonitis.—M'Cartney asserts that primary pneumococcal peritonitis affects only females and the infection reaches the peritoneum from the vagina.

Cutaneous Hypersensitiveness in Enteric Infections.—A method of testing for hypersensitiveness of the skin to organisms of the typhoid group is described by M'Kendrick and the criterion of a positive reaction is defined. According to the procedure employed, positive reactions were constantly obtained in patients suffering from enteric fever and in chronic carriers. The test appears to be highly specific. There is no correspondence between the result of the skin test and the presence of pyrexia in acute cases, or between the skin test and the Widal reaction in carriers. The results indicate that early in convalescence from enteric fever the skin test becomes negative. It is suggested that patients who are convalescing from enteric fever should be examined for the skin reaction. A positive skin reaction in persons apparently in good health suggests that they are enteric carriers.

Lancet, London

2:865-914 (Oct. 20) 1923

Wisdom of the Body. E. H. Starling.—p. 865.
Early Treatment of Mental Disorder. J. G. P. Phillips.—p. 871.
*Acute Bacillus Coli Infection of Gastro-Intestinal Tract. R. Chalmers.—p. 874.
*Treatment of Sprue. H. H. Scott.—p. 876.
Congenital Dislocation of Hip: A New Apparatus. J. Gilmour.—p. 879.
High Blood Pressure. E. M. Brockbank.—p. 880.
Village Settlements for Consumptive. Economies of Training. C. Varrier-Jones and C. Allbutt.—p. 912.

Colon Bacillus Infection of Gastro-Intestinal Tract in Infants.—Chalmers believes that many of the gastro-intestinal disturbances of early infancy are the result of toxemia in the mother acting on the fetus in utero. Early jaundice, flatulence, vomiting and difficulty in finding a suitable diet are always more in evidence in children of mothers who were in a toxic state during pregnancy than in others. Whether the infection is antenatal, natal, or postnatal it is often difficult to say; all three seem to be possibilities. A streptococcus infection is often combined with a *Bacillus coli* infection in the mother in these cases—the streptococcal infection being primary and the *B. coli* infection secondary. That the uterine discharge contains streptococci and colon bacilli shows the possibility of the child becoming infected with mucus in its sojourn in the maternal passages.

Calcium Lactate and Parathyroid Extract for Sprue.—An excessive protein diet (in India, Ceylon, and other parts of the East), or a diet containing an excess of fat, largely contributed to by the method of cooking the food, Scott regards as factors in the production of sprue. The treatment he uses consists of calcium lactate, 10 grains three times daily, and 1/10 grain parathyroid extract twice daily.

Tubercle, London

5:1-56 (Oct.) 1923

Progress of Surgery of Lungs and Pleural Cavity. H. M. Davies.—p. 1.
Anesthesia in Thoracic Surgery. L. W. Shelley.—p. 13.
Thoracic Suppuration and New Growths.—p. 22.

Bulletin Médical, Paris

37: 1001-1012 (Sept. 1) 1923

*Examination of the Diaphragm. C. Achard and L. Binet.—p. 1003.
Raynaud's Disease. Laignel-Lavastine.—p. 1004.
Treatment of Cardiac Insufficiency. J. Walser.—p. 1006.

Examination of the Diaphragm.—Achard and Binet discuss the methods of examining the movements of the diaphragm. The abdominal (diaphragmatic) type of respiration in men and the thoracal in girls are secondary sexual characters which develop very early; they can be easily observed in crying nurslings. The normal protrusion of the abdomen during inspiration and the rocking aspect of the expanding thorax and contracting abdomen in paralysis of the diaphragm are familiar. Another type of this alternating or rocking movement occurs sometimes in ascending paralysis, when the muscles of the chest are already affected, while the diaphragm is working normally. In such cases the thorax is depressed during inspiration, while the abdomen expands. In doubtful cases, Paillard's test may be of value. The hand is applied on the navel, the fingers under it, and the physician presses the viscera against the diaphragm. If there is no organic or functional (juxtadiaphragmatic inflammations) paralysis of the diaphragm, the hand feels its inspiratory pressure after five to fifteen seconds. Hess' reflex consists in the retraction of the xiphoid process by the retrosternal fibers of the diaphragm when the nipple or its region is tickled. Radioscopy gives, of course, the best information about the diaphragm.

Lyon Médical

132: 725-768 (Aug. 25) 1923

*Masked Lesions of Semilunar Cartilages. L. Tavernier.—p. 725.
Streptococcal Thyroiditis. J. Rebattu and R. Gaillard.—p. 729.

Masked Lesions of Semilunar Cartilages.—Tavernier discusses lesions of the semilunar cartilages of the knee, which are not extensive enough to cause the characteristic impossibility of full extension. These forms present sometimes as recurring hydrarthrosis; sometimes they are diagnosed as sprains, though there is no reason for their recurrence. A "rheumatic" pain localized always at the same spot, in one joint, is not rheumatic. Walking increases it, rest and sedatives abolish it. Ablation of the diseased cartilage cures the condition.

Progrès Médical, Paris

433-444 (Sept. 1) 1923

*Infected Gastric Ulcers. F. Ramond.—p. 433.
Sympathetic Syndromes. Laignel-Lavastine.—p. 434.
Calculus in Common Bile Duct. Delbet.—p. 437.
Treatment of Encephalitis with Blue Colloidal Gold. Weinberg.—p. 440.

Infected Gastric Ulcers.—Ramond exposes the danger of operations in cases of infected gastric ulcers. Infection is the cause of recurrences of ulcers, and it may be most marked in hypacidity of the stomach, because the acid juice acts as an antiseptic. Severe infections cause violent pains with dorsal irradiations and vomiting, and they end frequently with hematemesis, which brings relief. Bicarbonates do not attenuate the pains in many such cases. The treatment consists in absolute rest and external application of ice.

Schweizerische medizinische Wochenschrift, Basel

53: 833-856 (Sept. 6) 1923

Radiotherapy of Dermatoses. Du Bois.—p. 833.
Radium in Dermatology. A. Lassueur.—p. 836.
*Bacteriology of Lochia. C. Meili.—p. 842.
*Heredity of Anomalies of Eye Refraction. W. Jablonski.—p. 846.

Bacteriology of Lochia.—Meili examined in infected abortions the uterine secretion (not the vaginal) for the presence of aerobic and anaerobic streptococci and liquefying staphylococci. If they are absent, there is no danger in immediate evacuation of the uterine cavity. If they are present, he treats conservatively as long as the fever lasts.

Heredity of Anomalies of Eye Refraction.—Jablonski considers—in spite of his small material—myopia as a hereditary recessive character.

Annali di Nevrologia, Naples

40: 65-193 (Aug. 31) 1923

*Instincts and Neuroses. F. Baldi.—p. 65.
*Postencephalitic Parkinsonism. L. R. Sanguineti.—p. 87.
Lesions of Conus Medullaris and Cauda Equina. A. M. Coen.—p. 146.

Instincts and Neuroses.—Baldi considers the traumatic war neurosis a clear example of the working of a "defense instinct." Mental health depends on an equilibrium between the instinctive tendencies and the forces which control them. The neurosis is an expression of predominance of the biologically older instinctive forces over the more recent higher psychic qualities.

Postencephalitic Parkinsonism.—Sanguineti found that the mental functions of the patients with postencephalitic parkinsonism, whom he examined, were not injured qualitatively, but only quantitatively. The psychic processes are sluggish and easily fatigued.

Pediatria, Naples

31: 857-912 (Aug. 15) 1923

*Micro-Organism of Scarlet Fever. M. B. Sindoni.—p. 857.
*Wassermann Reaction in Human Milk. M. Cotellessa.—p. 860.
Action of Roentgen Rays on Respiratory Metabolism in Tubercuious Children. A. Corica.—p. 868.
Grancher's Splenopneumonia. A. de Capite.—p. 881.
Intradermal Reaction in Pertussis. G. Garzia.—p. 890.
Sarcoma of Superior Epiphysis of Tibia. N. Caprioli.—p. 893.

Micro-Organism of Scarlet Fever in the Eruption and in the Scales.—Sindoni placed scales from scarlet-fever patients in salt solution, and incubated them for twelve to twenty-four hours. She found then the micro-organisms described by Di Cristina, Caronia and herself in scarlet fever. The diplococcic forms were gram-positive. Inoculation of Tarrozzi-Noguchi media with filtrates induced the same turbidity, with few visible micro-organisms, as the inoculation of blood in their former experiments (mentioned in these columns Sept. 8, 1923, p. 864).

Wassermann Reaction in Human Milk.—Cotellessa examined the milk from eighty-nine syphilitic and twenty-one nonsyphilitic mothers. The Wassermann reaction with 0.5 and 1 c.c. of milk gave parallel results with the serum. He followed Rusca's technic (removing fat by centrifugation, avoiding inactivation).

31: 913-968 (Sept. 1) 1923

Amebic Dysentery in Young Children. S. Maggiore.—p. 913.
*Splenic Anemia in Infants. L. Auricchio.—p. 922.
*Luetin Tests in Inherited Syphilis. S. de Villa and A. Ronchi.—p. 938.
Postdiphtheric Paralysis. C. Benedetti.—p. 950.

Splenic Anemias of Infants.—Auricchio studied in infants the leukocytosis following injections of epinephrin and sodium nucleinate. He injected intramuscularly 20 cg. of nucleinate or 1 c.c. of a 0.1 per cent. solution of epinephrin in children under 2 years, and 30 cg. or 1.5 c.c. in older children. Four healthy children had an average increase of 3,000 leukocytes (mostly neutrophils, with a few younger cells) in three hours after the injection. In five cases of leishmaniasis, there were no changes; two tuberculous children had less of a reaction than the healthy ones, while in seven syphilitics the increase was very pronounced and prolonged, and numerous immature leukocytes and erythrocytes appeared.

Luetin Tests in Inherited Syphilis.—De Villa and Ronchi performed the intradermal luetin test and the Wassermann test in seventy-nine children with inherited syphilis, and in fifty controls. The luetin reaction was negative in some syphilitic children with a positive Wassermann reaction, but it was positive in other cases of certain syphilis with a negative Wassermann reaction.

Policlinico, Rome

30: 1153-1183 (Sept. 3) 1923

*Thermoprecipitation in Renal Tuberculosis. V. Jura.—p. 1153.
Typhoid Infection without Intestinal Focus. G. Belloni.—p. 1163.

Thermoprecipitation in Renal Tuberculosis.—Jura performed thermoprecipitation tests for tuberculosis in the urine of ninety-four patients. He followed Wiget's technic (boiling the sediment with an equal part of urine for two to three minutes, and filtering). Later he added a double or triple amount of salt solution instead of the urine, thus avoiding mistakes from phosphates. The test was positive in cases of tuberculosis of the kidneys, and negative in other conditions, including tuberculosis of other organs.

30: 425-484 (Sept. 1) 1923. Medical Section.

*Reflex Epilepsy. T. Pontano.—p. 425.
*Cerebrospinal Fluid in Multiple Sclerosis. Pisani.—p. 437.
Acute Paralysis in Leg in Tabes. G. Santangelo.—p. 445.
Mechanism of Colloidal Reactions in Cerebrospinal Fluid. D. Pisani. —p. 452.

Reflex Epilepsy.—Pontano's experiments on a patient suffering from a glioma of the sensorimotor zone convinced him that reflex epilepsy can be provoked only from zones in the skin corresponding to the affected parts of the cerebral cortex.

Cerebrospinal Fluid in Multiple Sclerosis.—Pisani confirms the fact that a positive colloidal (mastic) reaction may be the only biologic reaction present in the cerebrospinal fluid in epidemic encephalitis, multiple sclerosis, or syphilis and metasyphilis of the central nervous system. The protein content of such fluid is small, when compared with the intensity of the colloidal reaction. The opposite is true in all other affections of this system.

Riforma Medica, Naples

39: 841-864 (Sept. 3) 1923

The Meinicke Reaction. A. Oro.—p. 841.
*Fuchsinophil Corpuscles in Sputum. A. Zuppa.—p. 850.
Hysteria. A. Ferrannini.—p. 851.

Fuchsinophil Corpuscles in Sputum.—Zuppa confirms the presence of acid-fast corpuscles in the sputum of tuberculous patients. The corpuscles are of different sizes. Decoloration with a 20 per cent. alcoholic solution of lactic acid for two minutes differentiates them from similar corpuscles in nocardiosis, which are not so resistant.

Archivos Españoles de Pediatría, Madrid

7: 385-448 (July) 1923

*Sarcoma of the Fibula. J. Riesalido.—p. 385.
*Variations in Weight in Children. C. Sainz de los Terreros.—p. 392.
*Presclerosis of the Tympanum. A. Martín Calderín.—p. 398.

Sarcoma of the Fibula.—The leg of the girl, aged 8, had been enlarging for a year; roentgen rays revealed a large central myelogenous sarcoma with the periosteum intact, although stretched to the utmost. The soft parts were intact, and the gap in the bone after resection was bridged with a strip taken from the tibia of the other leg. Bony union at each end was apparent when the plaster cast was removed after three months, and normal use of the limb was soon regained.

Abrupt Fluctuations in Weight of Children.—Normal children never present sudden and striking changes in weight. When sudden changes occur, some morbid cause must be sought. Acute intestinal disorders are usually responsible in infants. Rapid recuperation of weight does not always signify cure; it may be due to retention of water. In health, two thirds of the fluid ingested is excreted through the kidneys, and one third by the lungs, skin and intestine. In disease, this proportion is altered, and the balance of water metabolism is upset. Even if water is supplied freely to a dehydrated infant, it may not be taken up by the tissues unless it contains a little salt or carbohydrate. Retention of water realized by using a saline solution may mask the child's true condition, and may even derange kidney functioning.

Presclerosis of the Tympanum.—Martín Calderín urges the importance of early recognition of progressive deafness in children, as prompt measures may arrest the tendency to otosclerosis. The stage of curable presclerosis is brief; it is usually associated with adenoids and an inherited tendency to otosclerosis. He describes a typical case in detail in a boy, aged 8. Air conduction of sound was reduced, and high sounds were heard better than low sounds. The chain of ossicles seemed normally movable, the tympanum almost normal, and the tubes permeable. The slow and progressive nature of the deafness and the predominance of the functional over the anatomic changes justified the assumption of presclerosis. He was treated with iodin, peptone and calcium; marked improvement was evident in two months, and clinical cure was complete in four. The boy seems to have been rescued from progressive deafness, thanks to the early diagnosis and treatment. The father was totally deaf from progressive sclerosis, and the parents had been on the watch for deafness in the child.

Revista Española de Medicina y Cirugía, Barcelona

6: 365-428 (July) 1923

*Primary Tuberculous Epididymitis. Rafael Molla.—p. 365.
*Protein Therapy in Ophthalmology. P. Bufill.—p. 371.
Syphilitic Disease of Arteries. H. Rosin.—p. 381.
Chlorin Treatment of Infectious Diseases. A. Salvat y Navarro.—p. 389.

Operative Treatment of Tuberculous Epididymitis.—Molla calculates that the testis is spared in fully 80 per cent. of the cases of primary epididymitis. Radical treatment does not require more than removal of the epididymis and vas deferens, leaving intact the testis and all the vessels and nerves in the spermatic cord. The circulation of both blood and lymph is quite distinct in testis and epididymis. "With primary tuberculosis of the latter, partial operations intending to be conservative, conserve nothing but the tuberculosis. The function of the epididymis is lost by the infectious process and the partial operation as effectually as after radical epididymectomy, but the latter answers its purpose only when the vas deferens is removed in addition." Even when the seminal vesicles and the prostate are involved, these may heal after removal of the epididymis, just as the bladder heals after removal of the tuberculous kidney. In one case even the testis was invaded, but this was cauterized, and the man recovered completely under heliotherapy after removal of the epididymis and vas deferens. In 3 of his cases, erection and ejaculation proceed apparently normally although the epididymis and vas deferens on both sides were removed. In Marion's 70 cases the testis was involved in only 20 per cent., and in 6 of Molla's 11 cases. In one case there has been no recurrence of genital tuberculosis after the bilateral epididymectomy, but the right kidney has had to be removed. This organ was probably tuberculous at the time of the genital operation two years ago, but had caused no symptoms at the time.

Parenteral Protein Therapy in Disease of the Eyes.—Bufill published twenty cases in 1921, and he says that he has been growing more enthusiastic on the subject ever since. He usually injects 2 gm. of the milk, repeating this daily. The injection is made in the gluteal muscle, and suppuration has never occurred in his experience. He gives thirty case histories, and extols the prompt benefit in syphilitic papillitis, traumatic iridocyclitis, etc. In two of the cases described, enucleation would have been inevitable otherwise, but he succeeded in saving the eye in one case and in saving partial vision in the other. These patients were children; the eye had been hit with a stick.

Semana Médica, Buenos Aires

2: 41-80 (July 12) 1923

*Acute Pericarditis. A. Casaubon.—p. 41.
*Argentine Gynecology. A. Chueco.—p. 46.
Simple Apparatus for Blood Transfusion. E. L. Sabate.—p. 49.
*Secondary Hydrocephalus in Infant. J. M. Macera.—p. 52.
*Sclerocystic Ovaritis. M. Vásquez Amenábar.—p. 55.
The Infant. J. C. Navarro and F. Bazán.—p. 56. Cont'n.
Model for an Infants' Hospital. F. Schweizer.—p. 62.
Tribute to Pasteur. M. E. Pignetto.—p. 64.

Acute Pericarditis.—Casaubon remarks that few diseases have so many symptoms as pericarditis with effusion, and yet the differential diagnosis is often masked by the preceding pneumonia in infants. In older children, the pericarditis is generally of rheumatic origin, and the subsidence under treatment does not guarantee against adhesion later. In rheumatic cases, puncture is seldom necessary, but otherwise it is almost indispensable.

Progress in Operative Gynecology in Argentina.—Chueco declares that the use of clamps at abdominal operations shows that the operator is behind the times. Only very rarely and then only a single clamp should be used; the same applies to ligatures. The Argentine school, he explains, has progressed beyond this. They terminate the operation with the complete correction of conditions: Hemostasis is realized by fitting peritoneum over both layers of the broad ligament and ligating its large vessels at the same time. This leaves the ligaments and the posterior vagina in their natural position but outside of the peritoneum. The Argentine school has further perfected the technic of vaginal operations. Chueco removed harmlessly by this route the largest ovarian

dermoid cyst on record, with the largest bone content. Calcagno and others correct retroversion of the uterus and prolapse by the vaginal route. Reexamination ten years ago of 200 women after colpotomy for these reasons in preceding years failed to reveal any interference with pregnancy or delivery for which the intervention by the vaginal route could be incriminated. The number of cases has much increased since then. The vesico-uterine tissue is separated through the anterior colpotomy, and the peritoneum is opened. The uterus and adnexa are then pivoted forward and outside of the vulva, and then the broad ligaments are slit to allow the round ligaments to be drawn through and sutured, shortened, to the posterior wall of the uterus. Chueco adds that the South American nations are the only ones that possess a group of operators who study the indications and the contraindications for the special mode of access in each individual case, equally skilled in abdominal and vaginal technics.

Secondary Hydrocephalus in Infant.—Necropsy cleared up the case in the infant, aged 6 months, revealing a glioma in the fourth ventricle, blocking the circulation of fluid.

Treatment of Sclerocystic Ovaritis.—After failure of other measures, Vásquez Amenábar drew the ovary out, and with the tip of the actual cautery punctured every cyst that could be palpated. In the following year 20 of the 25 patients thus treated complained of recurrence of symptoms. Since then partial resection has been tried, but recurrence soon followed in 20 of the 41 cases thus treated, but only in 20 per cent. of the 10 cases in which ligamentopexy had been done in addition. This suggested that checking the circulation might tend to prevent recurrence, and there has been nothing to suggest further disturbances in 25 of 37 thus treated, many of them more than three years ago. He ligated half of the arteries entering the hilum of the ovary, and the results confirm the assumption that congestion of the organ is the main factor in this class of lesions.

Deutsche medizinische Wochenschrift, Berlin

49: 839-870 (June 29) 1923

Tender Points in Diagnosis. Goldscheider.—p. 839. Idem. Tellgmann.—p. 843.
*Action of Drugs on Bile. A. Bickel and T. Watanabe.—p. 844.
Pathology of Jaundice. K. Retzlaff.—p. 844.
Pyuria in Children. E. Faerber and D. Latzky.—p. 847.
Osteochondritis Coxae: Coxa Plana. A. Nussbaum.—p. 849.
Colloidal Mercury in Syphilis. L. Zweig.—p. 851.
Stain for Tubercle Bacilli. F. Konrich.—p. 852.
Action of Scilla. Engelen.—p. 854.
Protein Treatment in Sinus Affection. R. Terbruggen.—p. 854.
Blood Calcium Determination. O. Strauss.—p. 855.
Radiotherapy of Tuberculosis. R. Weiss.—p. 855.
Tuberculosis in the Netherlands. Prinzing.—p. 858.
American Journals in Germany. Jürgens.—p. 860.

Action of Drugs on Secretion of Bile.—Bickel and Watanabe find that the drugs which act on the sympathetic and parasympathetic systems have little influence on bile secretion. They have a pronounced influence on the musculature of the ducts.

49: 1107-1140 (Aug. 24) 1923

*Insulin Treatment in Diabetes. O. Minkowski.—p. 1107.
Complement Fixation in Echinococcal Infection. J. van der Hoeden.—p. 1108.
*Acidity with Gastric Ulcers. D. D. Pletnew.—p. 1109.
*Gastric Ulcer. R. F. Weiss.—p. 1110.
Caseation of Glands in Axilla After Tuberculin. P. Schürmann.—p. 1110.
Sedimentation Speed in Tuberculosis. Tegtmeier.—p. 1113.
*Mechanism of Torsion of Organs. B. Tenckhoff.—p. 1115.
*"Speaking Phenomena" in Diagnosis. E. Weisz.—p. 1118.
*Pituitary Treatment. R. Klotz.—p. 1119.
Chronic Benzol Poisoning. Brücken.—p. 1120.
Electric Treatment of Neuralgia. Schurig.—p. 1121.
Treatment of Spring Conjunctivitis. Arpasi.—p. 1122.
Forceps for Transverse Position of Head. Pust.—p. 1122.
Recent Literature on Infectious Diseases. O. Moog.—p. 1123.
*Children of Minor Mothers. A. Wilsing.—p. 1125.

Insulin Treatment in Diabetes.—Minkowski, who, with Mering, discovered the diabetes that follows extirpation of the pancreas, reports his experiences with insulin. The Toronto authors have stated that in his early publications he avoided any mention of the mode of action of the pancreas. To correct this misapprehension, he quotes from his article in 1892 a sentence that refers to a "something produced by the pancreas which cooperates in the destruction of sugar."

Acidity with Gastric Ulcers.—Pletnew's material of 157 cases of gastric and duodenal ulcers demonstrates the possibility that an ulcer may develop with low acidity of the secretion. Hunger may lower the acidity, especially in cases of duodenal ulcers.

Gastric Ulcer.—Weiss finds that parenteral injections of foreign proteins are followed by a focal reaction in gastric and duodenal ulcers. Neurasthenics have only a general reaction.

Mechanism of Torsion of Organs.—Tenckhoff emphasizes the normal slight rotating movements in walking. These movements are responsible for the torsion of pedunculated cysts and organs. They explain also Küstner's law which postulates an opposite twist for tumors originating in the opposite sides of the body.

"Speaking Phenomena" in Diagnosis.—Weisz' observations on the visible changes of the outline of the thorax and abdomen during speaking, allow determination of the borders of the lungs and of exudates. He gives here a physiologic explanation.

Pituitary Treatment.—Klotz reports good results of pituitary preparations in states of collapse and intestinal paralysis.

Children of Minor Mothers.—Wilsing reviews the results of childbearing of twenty-five girls between 13 and 16 years old. Labor was easy, but two had convulsions afterwards. The infants were of normal size, and developed well physically. The frequent occurrence of mental diseases among such children is probably due to hereditary predisposition, which was already manifest in the early sexual instinct of the mother.

Deutsche Zeitschrift für Chirurgie, Leipzig

181: 145-288 (Aug.) 1923

Results of Gallbladder Surgery at Leyden. W. F. Suermondt.—p. 145.
Fibrous Osteitis; Two Cases. Warsow.—p. 178.
Roentgen Diagnosis of Peptic Ulcer. J. Palugyay.—p. 203.
Injury of Skull from Live Wire. H. Luther.—p. 220.
Operative Treatment of Fractures. H. Schäfer.—p. 238.
Surgical Treatment of Sciatica. Schüssler.—p. 256.
Perforation of Gastric Cancer. W. Horn.—p. 264.
Differential Diagnosis Between Ulcer and Cancer. Idem.—p. 264.
Varix in Jugular Vein. L. Sussig.—p. 281.

181: 289-426 (Aug.) 1923

*Fracture of Neck of Femur. H. Eggers.—p. 289.
*The Neurinoma Question. K. H. Erb.—p. 350.
*Two Unusual Cases of Ileus. A. Roseno.—p. 375.
*Embolism of Mesenteric Artery. Bruns.—p. 390.
*Extensive Resection of Small Intestine. A. Sohn.—p. 403.
*Injury of Small Joints. F. Kazda.—p. 413.
Hernia of Spigelius' Line. Thoret.—p. 420.

The Present Status and the Prospects of Treatment of Fracture of the Neck of the Femur.—Eggers' article is based on eighty-nine cases between 1905 and 1913, supplemented by a review of the literature. He compares the outcome of operative and conservative measures in thirty-nine and fifty cases, respectively. In a young patient, mechanical support with a peg, screw or suture should be tried with a mixed or intertrochanteric fracture, but with a fracture close to the head Lexer's nearthrosis operation is preferable. For the aged, decapitation and freshening of the acetabulum to induce healing by ankylosis is the method of choice; no peg or screw should be used. For the middle-aged, the location of the fracture determines the technic to be applied, with consideration whether there is a tendency to diabetes, arteriosclerosis or arthritis deformans; also whether cooperation on the part of the patient can be secured. If all conditions are favorable for recovery with a movable joint, Lexer's nearthrosis operation is most promising for subcapital fractures. If conditions are not favorable, he advocates Lorenz' bifurcation method, designed originally for irreducible luxation of the hip joint. (It was described in these columns, Sept. 22, 1923, page 1061.) Conservative treatment should be the rule for separation of the epiphysis; only when this fails should operative measures be considered. He urges others to compare the outcome of conservative and decapitation treatment of subcapital fracture. After removal of the head, is there often danger of atrophy of the neck? This occurred in one of his cases, nullifying the benefit from the operation. Even with pseudarthrosis there may be secondary resorption of neck tissue unless care is used not to impair the nourishment of the neck. It is impor-

tant to learn the functional outcome of the bifurcation technic and of Lexer's method. It might be possible to apply a walking plaster cast with the latter; this would raise the age limit suitable for the Lexer procedure.

The Neurinoma Question.—Three personal and forty-seven collected cases of neurinoma are compared by Erb. They are usually accompanied by other anomalies, from pigmented nevi to gliomas in the brain. In diagnosis of internal tumors, more heed should be paid to tumor growths in the skin. He classes neurinomas with neurofibromatosis. Malignant degeneration of a typical neurinoma has never been observed, but association with sarcoma is not uncommon.

Unusual Cases of Ileus.—In the first of Roseno's two cases there was axial torsion of a loop of the ileum, and this loop 12 to 15 cm. long sloughed off spontaneously. Necropsy showed a gap in the ileum of about 4 cm., but the twisting of the stumps had closed the lumen completely. The gap was bridged by omentum, while the cast-off loop was floating freely in malodorous fluid. The lumen must have been closed before the gangrenous loop sloughed off, as the peritonitis was comparatively restricted and mild, and the whole process occurred in the lower abdomen. Intercurrent bilateral parotitis was mainly responsible for the fatal outcome, four weeks after the ileostomy had apparently started the woman on the road to recovery. No attempt was made at the laparotomy to investigate the cause of the puzzling conditions encountered. Necropsy confirmed the wisdom of this, as otherwise the peritonitis would have been diffused. In another case of acute ileus, the woman, aged 37, recovered spontaneously after nine days of persistent vomiting, fecaloid for the first six days. The ileus followed evacuation of an effusion in the pouch of Douglas which developed after curettement on account of right adnexitis.

Embolism of Superior Mesenteric Artery.—Burns adds a third to the two cases he has found on record in which the segment of intestine affected by embolic obstruction of the superior mesenteric artery was successfully resected. The sudden agonizing pain, collapse, vomiting, tenderness in the right side, and a history of pains in the right side three weeks before suggested recurring appendicitis. No stools or flatus had been passed since the first symptoms twelve hours before. The patient was a boy, aged 11; the purplish segment of bowel resected measured 16 cm. The embolism involved the right colonic artery, but its source was not ascertained. Recovery was uneventful.

Extensive Resection of Small Intestine.—Sohn has collected eleven cases in which more than 2 meters of small intestine were resected since Flechtenmacher's compilation. This with a personal case described, brings the total to sixty-eight. In his own case nearly the entire jejunum and part of the ileum, 2.75 m., was resected. The stomach seems to retain the chyme longer and secretion is more profuse than in normal conditions; he regards this as a compensatory process. It confirms Stassoff's experimental experience. The young woman seems healthy now, a year later, and weighs a pound more than before.

Treatment of Wounds of Small Joints.—Kazda reports the outcome of treatment of ninety-five patients with cuts or crushing injuries involving joints in fingers or toes. When the suppurating joint was opened wide, it could be left to heal by granulation. But when the opening into it was small, a phlegmon developed in the capsule and total suppuration followed unless resection was done. If the ability to flex the joint has to be sacrificed, then resection hastens healing. The final outcome depends in large measure on the intelligence and perseverance of the patient. Children give the best results not only as to healing but as regards function later. Fragments of bone or cartilage must be removed. In one case the third, fourth and fifth fingers had been torn from the metacarpus with all the dorsal and volar soft parts, but they were replaced on their metacarpal heads with all the soft parts in place and only the skin was sutured. After primary healing the fourth and fifth fingers have regained good function; the third finger is still stiff. In another case the injury of the joint had been from an indelible pencil and serious disturbances followed in both soft parts and bones. Complete recovery followed excision of all the stained tissues and excochleation of the joint head into sound tissue, with immediate suture.

Medizinische Klinik, Berlin

19: 1181-1214 (Sept. 2) 1923

*Roentgen Ulcers. P. Leusden.—p. 1181.
*Procain in Diagnosis. M. Kappis and F. Gerlach.—p. 1184.
Pulmonary Changes in Children with Extrapulmonary Tuberculosis. K. Dietl.—p. 1192.
*Human and Bovine Tuberculin Tests. H. Koopmann.—p. 1193.
Ponndorf's Tuberculin Vaccination. Windrath.—p. 1196.
Injury by Hypnosis. M. Scrog.—p. 1197.
Arsphenamin-Resistant Syphilis. W. Löwenfeld.—p. 1197.
Treatment of Angioneurotic Edema. F. Gerlach.—p. 1198.
Treatment of Gastric and Duodenal Ulcers. R. Fuchs.—p. 1199.
Theory of Seroreactions in Syphilis. H. Sachs.—p. 1200.
Survey on Goiters. K. Singer.—p. 1201.
Capillaries of Skin. E. Edens.—p. 1202.

Roentgen Ulcers.—Leusden finds that he has at times about as many patients to treat with roentgen rays as he has patients requiring treatment on account of sequelae of irradiations. The question of the roentgenologist's responsibility is very difficult. He believes in an individual oversensitiveness, and quotes his own intolerance of reflected light on the coast or at high altitudes. Yet he was able to work without precautions for four years with the roentgen rays. The operating surgeon knows at least what he is cutting. The roentgen rays act on the whole conglomerate of tissues. The terrific pains of roentgen ulcerations are due to the survival of nerve terminals over the rest of the tissue. The conservative treatment of such ulcers has no good results. A recent publication of a treatment which achieved almost the healing over of the ulcer in six months, demonstrates our modesty in estimating success. He treats such ulcers like malignant tumors, resecting if possible into healthy tissue, and supplements this with a plastic operation.

Paravertebral Injection of Procain in Diagnosis.—Kappis and Gerlach confirmed on over 100 patients Läwen's results as to the analgetic action of paravertebral injections of procain in certain abdominal affections. In disease of the stomach, the sixth to eighth thoracic segment must be injected. They confirm Läwen's interesting observation that it is sufficient in affections of the gallbladder, pylorus and duodenum to inject the right side only. Cholecystitis, stones in the common bile duct, etc., became painless after injections in the ninth to eleventh thoracic segment. Affections of the kidneys reacted to injections into the last thoracic and the first two lumbar segments. Appendicitis and gynecologic affections required more extensive infiltrations. Failures were rare, but injury of the pleura occurred in 4 per cent. of the patients.

Comparative Human and Bovine Tuberculin Test.—Koopmann was able to increase the number of positive tuberculin reactions by using a preparation of the bovine type in addition to the human tuberculin.

Münchener medizinische Wochenschrift, Munich

70: 1107-1140 (Aug. 31) 1923

*Functions of Stroma. M. Askanazy.—p. 1107.
*Genesis of Hydrocephalus. A. Dietrich.—p. 1109.
*Intracardiac Injection. H. Hohlweg.—p. 1110.
*Duodenal Tube in Diagnosis. K. Westphal.—p. 1113.
Sympathectomy in Treatment of Epilepsy. E. Forster.—p. 1114.
Subcutaneous Injections of Turpentine in Eye Disease. Behr.—p. 1116.
Estimation of Hemoglobin and Erythrocytes. K. Bürker.—p. 1118.
Live-Wire Injuries of the Skin. G. Riehl.—p. 1119.
Contagiosity of Infants' Tuberculosis. A. Bratusch-Marrain.—p. 1120.
Iodin Prevention of Goiter. Lutz.—p. 1121.
The Orthometer for the Heart. Lilienstein.—p. 1121.
Alleged Malpractice: Case VIII. A. Döderlein.—p. 1122.
"Isotopic Treatment of Tuberculosis." S. Widerøe.—p. 1123.
Experimental Pneumorhachis. Esau.—p. 1124.
"Bleeding After Delivery." Opitz.—p. 1124.
Liebig, Father of Scientific Nutrition. O. Krummacher.—p. 1124.
Social Insurance and Tuberculosis. Wilucki.—p. 1128.
Treatment of Nephritis in Children. M. Klotz.—p. 1127.

Functions of Stroma.—Askanazy reviews the old and new investigations on the function of the stroma. The primitive idea that its main function is to connect and support the parenchyma, has been left far behind. Protective mechanical and chemical cleaning is its most important function.

Genesis of Hydrocephalus.—Dietrich finds that the size of the hydrocephalus corresponds rather to the extension of the changes in the choroid plexus than to the seat of the occlusion. He agrees with Askanazy in the opinion that the plexus has resorptive functions. The common belief that it secretes the cerebrospinal fluid has so far no foundation except tradition. It is probable that the ependyma secretes the fluid.

Intracardiac Injection.—Hohlweg had a perfect result with intracardiac injection of 2 c.c. of camphorated oil in a case of shock during the filling of an artificial pneumothorax. The preferable point, he says, is the upper border of the fifth rib, close to the sternum.

Duodenal Tube in Diagnosis.—Westphal had some positive and negative results with cultures made from the duodenal juice (peptone reflex) in patients suffering or recovering from typhoid.

Wiener Archiv für innere Medizin, Vienna

6: 283-494 (July 1) 1923

*Metabolism in Tetany. H. Elias et al.—p. 283.
*Cheyne-Stokes Syndrome. S. Wassermann.—p. 303.
Typhoid Endocarditis. F. Redlich.—p. 335.
*Epinephrin in Blood. F. Högler.—p. 343.
Blood Colloids. J. Daniel and F. Högler.—p. 355.
Blood Gases. I. E. Freund and A. Simó.—p. 373. II.—p. 487.
Epinephrin Reaction. K.Csépai, B. Fornet and K. Tóth.—p. 383.
*Pathogenesis of Dysentery. M. Semerau.—p. 395.
*Charcot-Leyden Crystals. A. Neumann.—p. 407.
Retrograde Extrasystoles. R. Gussenbauer.—p. 423.
*Auscultation of Vowels. E. Fröschels and F. Stockert.—p. 427.
Diaphragmatic Hernia and Relaxation. H. Elias and K. Hitzenberger.—p. 437.
*Diaphragmatic Hernia. L. Reich.—p. 445.

Metabolism in Tetany.—Elias, Kornfeld and Weissbarth compared the composition of urine after drinking equivalent amounts of hydrochloric acid and sodium chlorid solutions. They found in normal subjects, as anticipated, a stronger increase in the acidity and ammonia content of the urine after ingestion of the acid. Slight disturbances (movements, fever) were sufficient to cause differences. In tetany, such changes are very frequent, and may be so marked that the patient eliminates less acid after taking the hydrochloric acid than after the salt.

Cheyne-Stokes Syndrome.—Wassermann considers inhalation of oxygen as a specific treatment for the Cheyne-Stokes syndrome. One must take care, however, to prevent the patient from tearing the mask off when he starts breathing. The usual heart tonics and stimulants may be used as adjuvants. Syphilitic etiology requires specific treatment. Opium and its derivatives, and all narcotics and hypnotics are strictly contraindicated.

Epinephrin in Blood.—Högler found that blood plasma from healthy persons inhibits the peristalsis of a segment of cat intestine (Dittler's method for determination of epinephrin). Plasma from patients with hypertension had a stronger action, while the plasma from two cases of Addison's disease was without effect.

Pathogenesis of Dysentery.—Semerau believes that the dysenteric changes in the intestines follow bacillemia.

Charcot-Leyden Crystals.—Neumann believes that the mother substance of the Charcot crystals is derived from the protoplasm of eosinophil cells during coagulation of blood. It seems to have some relation to the formation of fibrin.

Auscultation of Vowels.—Fröschels and Stockert report their investigation of the changes in the auscultation sounds of vowels in healthy persons. Karplus has reported changes of this kind in pneumonia and pleuritis. Only the continental A remains the same in auscultation of healthy subjects. The eventual changes are due to interference of air conduction and the resonance of the thorax.

Diaphragmatic Hernia.—Reich reviews the symptomatology of diaphragmatic hernia. Müller's experiment is the ideal method for determination of the functional condition of the diaphragm. The subject is asked to make an extreme expiration. Then, after closing his nose and mouth, he makes an inspiratory movement. In healthy persons, both sides of the diaphragm move then in the same direction or remain in place. In affections of one side of the diaphragm, the diseased side rises higher than the other. The literature is quoted extensively.

Wiener klinische Wochenschrift, Vienna

36: 585-602 (Aug. 16) 1923

*Complications of Tonsillectomy. W. Falta and F. Depisch.—p. 585.
*Idem. F. Schlemmer.—p. 589.
Anaphylaxis After Milk Injections. K. Schreiner.—p. 591.
Ascaris in Roentgenogram. J. Reiter.—p. 592.
Trombidiasis in the Alps. K. Toldt.—p. 592.

General Complications of Tonsillectomy.—Falta and Depisch publish eight histories of patients with nephritis, endocarditis or arthritis. In all of these cases the tonsillectomy or removal of infected roots of teeth was followed by an acute exacerbation of the disease. One of the patients was a physician who had pains in the joints only after expression of the tonsils and the operation, but never before. They attribute the acute exacerbation to an invasion of the blood by the germs during the operation. They believe that operative methods should be revised from this standpoint.

Idem.—Schlemmer points out that internal complications follow only after tonsillectomies which had been indicated because the tonsils were the probable source of the infection. He has seen pains in joints and elevation of the temperature in several instances after expression of tonsils. He considers this a serious intervention, saying that it is contraindicated in patients with latent tonsillogenous affections. He never grasps the tonsil in the first stage of tonsillectomy. He seizes the pillars of the fauces instead of the tonsils themselves. The tonsil can be grasped without danger of spreading the infection into the lymphatics when more than half of it is already freed.

Zentralblatt für Chirurgie, Leipzig

50: 1345-1384 (Sept. 1) 1923

Freezing of Nerves in Angiospastic Conditions. Läwen.—p. 1346.
Pseudarthrosis of the Scaphoid Bone. H. R. Schinz.—p. 1350.
Luxation of the Navicular Bone. F. Magenau.—p. 1354.
Metastatic Epulis. M. Weichert.—p. 1356.
*Laceration During Correction of Deformity. P. J. Schultz.—p. 1357.
Comparison of Methods of Protecting Surgeon's Hands. Klapp and Vogeler.—p. 1359.
Acute Postoperative Duodenal Paralysis After Billroth I. S. Kostlivj.—p. 1367.

Laceration During Redressement.—Schultz recommends immediate application of Thiersch epithelial flaps to lacerations occurring during forcible correction of deformities.

Zentralblatt für Gynäkologie, Leipzig

47: 1393-1440 (Sept. 1) 1923

Treatment of Prolapsed Uterus in the Aged. Labhardt.—p. 1394.
A Peculiar Type of Eclampsia. Koerting.—p. 1398.
Pregnancy in Rudimentary Accessory Horn. Conrad.—p. 1402.
Asepsis in Manual Removal of Placenta and in Version. B. Ragusa.—p. 1407.
Eye Disease and Induced Abortion. Eberhart.—p. 1409.
*Intra-Uterine Tamponing. E. Ekstein.—p. 1413.

The Indications and Technic of Intra-Uterine Tamponing.—Fritsch introduced intra-uterine tamponing chiefly to check hemorrhage in anemic women in febrile abortion cases in which evacuation of the uterus cannot be completed. The gauze keeps the os uteri open, and ovum remnants are removed simultaneously with the gauze. Fritsch leaves the gauze from three to four days after defervescence. Ekstein has used the method since 1891. He gives his indications as follows: In copious uterine hemorrhages that need to be checked quickly, irrespective whether the hemorrhage is caused by uterine disease or from retained remnants of the ovum; retention of remnants of the ovum when more or less profuse hemorrhages continue, often for several weeks; in induced interruption of pregnancy from the first to the fifth month; in hemorrhages resulting from atony of the uterus post partum; retention of secretions post partum or post abortum, and in febrile abortion, in place of all other forms of intervention, when the retention of remnants of the ovum or secretions cannot be ruled out with certainty. Ekstein regards intra-uterine tamponing as contraindicated in febrile inflammatory affections of the adnexa and the pelvic peritoneum. This contraindication arises from the fact that the

technic of intra-uterine tamponing always causes a displacement of the uterus and the adnexa.

Tohoku Journal of Experimental Medicine, Sendai

4: 275-416 (July 30) 1923

Blood Alcohol. K. Yamakami.—p. 275.
*Action of Pancreas Extract on Vessels. T. Oka.—p. 287.
Occurrence of Meningococci. S. Kondo.—p. 307.
*Glycogen Formation. II. K. Sato.—p. 312. III.—p. 347.
*Physostigmin and Ocular Pressure. Y. Hayashi.—p. 361.
*Camphor and Circulation. F. Nakazawa.—p. 373.

Action of Pancreas Extract on Vessels.—Oka found that extracts from the pancreas have a vasoconstricting action, which is substituted by a vasodilating action when the extracts were made at a temperature of 70 C. Extracts made with dilute acetic acid also had a vasodilating action. It was stronger and more constant than in extracts from other organs.

Glycogen Formation.—Instead of determining the amount of glycogen in particles of liver cut out serially during the course of the experiment, Sato used a series of animals, so that the one used had not been injured before. He found that infusions of glucose increase, at first slowly, then more rapidly, the glycogen content in the liver. This reaches its maximum in about three hours after the injection. Epinephrin prevents, and theobromin-sodium salicylate checks the formation of glycogen. Phlorizin did not inhibit it, in spite of the glycosuria, when given in suitable amounts.

Physostigmin and Ocular Pressure.—Hayashi investigated the action of physostigmin on the intra-ocular pressure in normal subjects. He found that it causes a transitory increase in pressure.

Camphor and Circulation.—Nakazawa finds that camphor paralyzes the formation and conduction of the impulse in frog's hearts, and in large doses stimulates the latent automatism. He believes that the favorable effects of camphor in strophanthin and aconitin poisonings are due to its paralyzing action on the abnormally irritated heart muscle.

Norsk Magazin for Lægevidenskaben, Christiania

84: 761-848 (Sept.) 1923

*Treatment of Chronic Leukemia. T. Brandt.—p. 761.
Incarcerated Hernia of Line of Spigelius. C. Bull.—p. 802.
Subcutaneous Emphysema. S. Laache.—p. 806.

Roentgen-Ray Treatment of Chronic Leukemia.—Brandt has had nine cases of chronic myelogenous and five of chronic lymphatic leukemia under observation for years before and after roentgen-ray treatment. Of the eight that have died, only one survived for thirty months after the disease had been diagnosed. The others died in less than two years. Roentgenotherapy, therefore, does not cure leukemia, but it improves the general condition, restores the earning capacity, and has a favorable action on the erythrocytes. Leukemia patients always eliminate more uric acid than normal, and this elemination becomes exaggerated under roentgen treatment. The latter is only symptomatic, and it is contraindicated in acute leukemia, and should be suspended if the general condition shows aggravation, but a loss of 3 or 4 pounds in the first week need not be heeded. One woman with leukemia was delivered of healthy twins, after which the disease became graver. A trial of convalescents' serum gave negative results.

Ugeskrift for Læger, Copenhagen

85: 653-668 (Sept. 13) 1923

*Composition of Spinal Fluid. A. V. Neel.—p. 653. Conc'n, p. 669.
Case of Myeloid Leukemia. K. Hrolv.—p. 660.

Composition of Spinal Fluid.—Neel cites what the authorities have to say on the cell and albumin content of the normal spinal fluid. These statements are often conflicting, and he compares them with the tabulated findings in 1,118 various nonsyphilitic nervous affections he has investigated, with or without syphilis in addition, or epidemic encephalitis, and 699 normal controls. Whenever the number of cells was over one in 3 c.mm., there was always evidence of syphilis or other organic disease. In the normal fluids there was no globulin but the albumin was frequently found up to 10. This formula: cells none or up to one third cell per c.mm.; globulin, 0, and albumin, 10, had so few exceptions that he regards it as dependable to exclude organic disease. The tests were made without knowledge of the source of the fluid. They apparently demonstrated that normal spinal fluid has a remarkably constant composition in respect to cells and albumin. He warns that, as with many other tests, only positive findings are decisive.

85: 669-684 (Sept. 20) 1923

*Competitive Examination for Professorship. C. Gram et al.—p. 679.
*Delirium Tremens at Copenhagen. K. H. Krabbe.—p. 679.

Selection of a Professor in Denmark.—The complicated procedure for selecting a successor to Prof. C. Gram was commented on editorially, Oct. 27, 1923, p. 1444.

Denmark's Successful Fight Against Alcoholism.—Krabbe relates that prohibition was decreed in Denmark in 1917. The decree absolutely prohibiting the sale and importation of alcohol was dated Feb. 27, 1917, but in less than a month this decree was revoked, and the only restriction on alcohol then imposed was to raise the retail price of strong liquors about fifteen-fold. People stopped buying liquor then, and the fight against alcohol was won, without restrictive laws. Krabbe presents as evidence to prove these statements the record of cases of delirium tremens at the public hospital at Copenhagen. Whereas, from 1903 to 1916, inclusive, there had never been less than 249 cases of delirium tremens in any year, and the number sometimes reached 447, in 1917 it dropped to 82; to 9 in 1918; 11 in 1919; 18 in 1922. The previous hard drinkers said they could not afford liquor at these high prices, and they left it alone. He reiterates that these facts prove that Denmark is on the right track. Merely by enforcing a very high price for hard liquors, chronic alcoholism became so rare that the cases of delirium tremens dropped off 95 per cent. He adds that prohibition might have accomplished the same, but with the plan adopted there was no opportunity for conflict with the law, and the profession is grateful that it did not have to contend with the temptation to write prescriptions for alcohol.

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*Ageing of the Rabbit Thymus. II. T. Blom and N. Aderman.—p. 301.
Proteolytic Liver Ferment. C. G. Zachrisson.—p. 333.
*Acute Meningitis in Children. A. Wallgren.—p. 341.
*White and Grey Substance in Brain. G. Dahlberg.—p. 351.
Report on Traveling Fellowship. P. Häggström.—p. 369.
*The Parathyroids and Paralysis Agitans. E. Bergman.—p. 405.

The Rabbit Thymus.—In this second report of study of the ageing process, the number and size of Hassall's bodies are considered. (In German.)

Benign Acute Meningitis in Children.—Wallgren warns that epidemic encephalitis and poliomyelitis are liable to begin with symptoms deceptively simulating tuberculous meningitis. He describes three such cases in children, and cites Nauclér's ten in adults, the recovery disproving the presumptive diagnosis of tuberculous meningitis. In Eskuchen's case of rapidly fatal epidemic encephalitis presenting this same syndrome, lumbar puncture had shown 640 cells. Nauclér classes his cases as acute serous meningitis although in one case the puncture fluid contained 2,590 cells per c.mm. In one of Wallgren's cases, epidemic meningitis had been diagnosed and serotherapy was begun, but the next day paralysis of the legs corrected the diagnosis to poliomyelitis. (In German.)

Relative Volumes of Gray and White Substance in the Brain of Man.—Dahlberg has modified the Jaeger method for research in this line, and tabulates the comparative findings in different parts of the brain and in men and in women. If his findings are confirmed by others, they indicate, he says, a highly interesting difference between the sexes, especially in the frontal lobe. (In English.)

The Parathyroids and Paralysis Agitans.—Bergman reports negative results of parathyroid treatment and transplantation in an effort to benefit paralysis agitans and the parkinsonian symptoms of epidemic encephalitis. Nothing was observed in the eight cases described that suggests any connection between the parathyroids and parkinsonism.

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UROLOGY IN WOMEN *

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SAN FRANCISCO

There is at present an unfortunate tendency in many parts of the country to separate urology in women from urology in general, and place it in the hands of the gynecologist and obstetrician. The argument most commonly advanced in favor of this procedure is that the generative and urinary tracts are in close proximity in this sex, and, consequently, pathologic conditions of the two are frequently associated. As a matter of fact, the same intimate relationship exists between the female generative organs and the rectum and colon, but pathologic lesions of these are seldom classed as gynecologic conditions.

In a study of 200 nonpregnant women with urinary disturbances, I found that the symptoms were entirely due to urinary tract conditions in 73 per cent., whereas lesions of the generative organs, although present in a large proportion of cases, were possible etiologic factors in only 27 per cent.

These correspond with the figures of Bugbee,[1] who, in a series of 1,000 cases of frequency of urination, the most common genito-urinary symptom of which women complain, found the etiologic factor in the generative organs in contradistinction to the urinary tract in but 24 per cent.

Hunner [2] stated in 1920 that his observations of various clinics had led him to the belief that urologists as a class devote their chief time and energy to male patients, and that when an attempt is made to include women as clinical studies, "the work is usually done with indifference, if not with positive neglect." I do not think that this criticism holds good at the present time. In my opinion, the conscientious genito-urinary surgeon, devoting his attention to urology exclusively, is necessarily more familiar with the urinary organs in both men and women than the gynecologist, who, often combining obstetrics with gynecology, hardly finds sufficient time to acquire, or, having acquired, to maintain a proficiency in all three specialties.

Naturally, there are marked anatomic, physiologic and pathologic differences in the male and the female pelvic organs, and some female urinary tract disturbances are due primarily to diseases of the female sex; consequently, some previous training in gynecology is of decided advantage to the urologist.

In this paper I propose to discuss a pathologic condition of the urinary tract in women and girls which is frequently overlooked, and a few others which are more common or are limited exclusively to this sex.

URETHRAL STRICTURE

It is only within a comparatively recent period that urologists have begun to accord urethral strictures the recognition they deserve as important etiologic factors in genito-urinary tract disturbances in women and girls. They are frequently overlooked by the urologist, more often by the gynecologist who treats urologic conditions in women, and usually by the general practitioner. While comparatively uncommon in the lumen of the canal, they are often found at the meatus. Obstructions at this point, whether congenital or acquired, are nevertheless strictures in the anatomic sense. They are responsible for symptoms, such as frequent urination and dysuria, which improve rapidly under dilation. It is not uncommon to find the voided urine chemically and microscopically negative in these cases, although as a rule it contains a few pus cells, owing to the urethritis and trigonitis with which it is usually associated. Often symptoms ascribed to some other condition, such as ureteral stricture, are due to a urethral obstruction. In his analysis of 1,000 cases of frequency of urination, Bugbee found urethral stricture associated with urethritis and trigonitis to be the most important factor in fifty-four cases, while ureteral stricture was responsible in but four cases. In this series, he included only those in which it was difficult to pass an 18 F. dilator. Even then he was surprised to find so many strictures, and was forced to the conclusion, from his observations in this series of cases, that stricture of the female urethra is a comparatively common condition.

It has been my experience that unless olive tipped bougies are used for calibration of the urethra, many obstructions will be overlooked, and that strictures of a much larger caliber than 18 F. will often give rise to symptoms. Using this method of diagnosis in a series of 169 cases, I found urethral strictures in ninety-four, or 55.4 per cent.

The fact that almost without exception these patients improved under treatment directed toward overcoming the urethral obstruction proves that this condition was responsible for the symptoms.

Hunner, who finds a very large number of ureteral strictures, states that urethral strictures were present in more than 60 per cent. of the cases in which ureteral strictures were found.

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* Read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Bugbee, H. G.: Frequency of Urination in Women, J. A. M. A. **68**: 693 (March 3) 1917.

2. Hunner, G. L.: Urologic and Cutaneous Review **24**: 627, 1920; J. Urol. 4: 503 (Dec. 5) 1920.

Stanton [3] reports the observation of a large number of cases in which strictures of the urethra were responsible for severe attacks of renal colic. Ureteral strictures and infections or other pathologic conditions of the upper urinary tract were excluded. Immediate improvement followed dilation of the urethra.

In my series of cases of ureteral stricture, urethral strictures were present in 54.5 per cent., and in my urethral stricture cases, ureteral stricture was found in 46.1 per cent.

Inflammatory strictures of the urethra occur at or just within the meatus, and the most common etiologic factor is gonorrheal infection. Traumatic strictures occur at the meatus or in the lumen of the canal, and are usually the result of childbirth. Congenital stenosis at the meatus is by no means a rare condition. I have never been able thoroughly to satisfy myself that focal infections have any bearing on the etiology of this condition.



Fig. 1.—Obstruction of right ureter caused by child's head.

Gradual dilation at three or four day intervals is the most satisfactory treatment for the majority of urethral strictures. Contractures at the meatus of the female urethra respond more readily to this procedure than those occurring in the male, and incision or divulsion is seldom required. Preceding dilation, it is sometimes advisable to employ a local anesthetic, and a cotton tipped applicator saturated with a 10 per cent. solution of cocain is most satisfactory for this purpose. Following dilation, a small quantity of silver nitrate solution is usually injected because of the urethritis and trigonitis, which, as the result primarily of the stricture, are often present.

3. Stanton, E. MacD.: Am. J. Obst. & Gynec. 5: 72 (Jan.) 1923.

URETERAL STRICTURES

There has been much discussion during the last few years regarding the frequency and symptomatology of ureteral strictures in women. No less an authority than Hunner regards them as the most common pathologic condition of the female urinary tract. He believes that more kidney disease is due to ureteral stricture than to any other single factor, and states that they are responsible for pyelitis, pyelitis in pregnancy and the puerperium, hydronephrosis, pyonephrosis, kidney and ureteral stones, movable kidney and essential hematuria. In his opinion, innumerable abdominal and pelvic operations have been performed because of the symptoms due to this condition. He uses wax bulbed catheters and the presence of pain or "nagging discomfort" at the site of the stricture for a diagnosis.

I have recently made it a practice to calibrate the ureters with similar catheters and, in addition, in many instances, to obtain pyelo-ureterograms in patients complaining of symptoms of pyelitis or other pathologic conditions referable to the urinary tract for which no cause could be found in the lower urinary tract, or in patients who did not improve rapidly under treatment. As a result of thirty-seven calibrations, I found ureteral strictures in eleven, or 29.7 per cent.

From these figures I think that we are justified in concluding that pyelitis and other pathologic conditions of the upper urinary tract frequently exist in the absence of ureteral strictures, and also that strictures of the female urethra are far more numerous than ureteral strictures. Not unlikely, the symptomatic improvement apparently derived from dilation of the ureter is often due to the dilation of the urethra by the cystoscope or endoscope used in that procedure.

While, without doubt, ureteral strictures have been often overlooked in the past, I think that the pendulum has now swung too far in the opposite direction, and that strictures of the ureters are frequently diagnosed when they are not present and symptoms with which they have no connection are often ascribed to them.

The primary etiologic factor in ureteral stricture is not necessarily a distant focus of infection. They may occur secondarily to inflammatory conditions due to infection of the renal pelves with organisms other than the tubercle bacilli, and they may result from ascending infection.

I have found Garceau catheters of various sizes most satisfactory in the treatment of ureteral strictures, as with these the dilation is more gradual and more prolonged, and it produces less trauma than wax, silk or metal bulbed catheters.

PYELITIS DURING PREGNANCY

Pyelitis occurring during pregnancy is most interesting from the standpoint of etiology and treatment, although early diagnosis before the kidneys have become severely damaged is of the greatest importance. In 2,528 clinic patients admitted to the obstetric department of Stanford University Medical School, a diagnosis of pyelitis was made in thirty-one, or 1.22 per cent. In 1,114 obstetric cases in the Stanford wards of the San Francisco County Hospital, pyelitis was found during pregnancy in eight, or 0.7 per cent. From this series of 3,642 cases, it will be seen that pyelitis occurred during pregnancy in thirty-nine cases, or a little less than 1 per cent.

I believe that these figures are too low, many cases being overlooked because insufficient importance is attached to the urinary symptoms of which many of these patients complain during this period, and because a microscopic examination of the urine is often neglected, or the presence of pus ignored.

According to De Lee,[4] two thirds of the women dying during pregnancy have or have had pyelitis at some time. When we consider the number of cases occurring during infancy and childhood, it is evident that this figure is a conservative estimate. It does not seem to me unlikely that, regardless of pregnancy, almost every woman has had pyelitis at some time during her life.

The majority believe that pressure on the ureters by the pregnant uterus is the most important etiologic factor in pyelitis during pregnancy. De Lee, on the other hand, is of the opinion that pressure by the uterus is never responsible for this condition; he believes, with some others, that kinking, stretching and torsion of the ureters are the principal factors. Pyelography, ureterography and necropsy findings, however, do not support this view, and while twisting, stretching, torsion and strictures of the ureters may be at times responsible, pressure by the pregnant uterus is unquestionably more frequently encountered. In this connection, I believe that the position of the child in the uterus is of some importance. Figure 1 demonstrates the soundness of this contention. In this case it was impossible to insert the roentgen-ray catheter or inject the sodium iodid solution beyond the obstruction in the right ureter produced by the child's head. At a second pyelography (Fig. 2), the solution passed the obstruction, and the upper part of the ureter as well as the renal pelvis was then found to be dilated.



Fig. 2.—Dilatation of kidney, pelves and ureters in a case of bilateral pyelitis during pregnancy.

Danforth[5] reports a case in which catheterization of the ureter was possible only after turning the patient on the unaffected side, thus permitting the uterus to gravitate away from the obstructed ureter.



Fig. 3.—Same case as in Figure 2, five weeks after confinement: very little dilatation.

Hodges,[6] following pyelography in seven cases of pyelitis during pregnancy, found dilated ureters and pelves in every case. Another point of interest is Hodges' demonstration that, although all symptoms disappeared and the urine became culturally and microscopically negative, some dilatation persisted after confinement. In four cases of my own in which pyelograms were taken, following confinement, dilatation was observed but once.

The fact that the fundus of the uterus and the fetal head usually lie on the right side of the abdomen accounts for the greater frequency of right sided pyelitis during pregnancy, and lends support to the opinion that pressure by these organs is the most important etiologic factor. Prior to the fifth month, other factors are of greater importance.

Some authorities believe that ureteral stricture is the most common cause of pyelitis in pregnancy. Calibration of the ureter with wax bulbed catheters in five cases of my own failed to reveal this condition, and I believe that, although it may be an occasional factor, its importance has been exaggerated.

Another condition that I believe to be at times a contributory factor in pyelitis in pregnancy is obstruc-

4. De Lee, J. B.: Obstetrics, 514, 1921.

5. Danforth, W. C.: Surg., Gynec. & Obst. **22**: 723-729 (June) 1916.
6. Hodges, F. M.: Am. J. Roentgenol. **9**: 352 (June) 1922.

tion of the urethra sufficiently pronounced to be responsible for the residual urine, with the accompanying cystitis, urethritis and infection, ascending in type, of the renal pelvis. This is more often the result of urethral stricture, although I have recently seen a case in which pressure on the urethra from a markedly antiflexed pregnant uterus was responsible for the obstruction. It is a well recognized fact that very little pressure is necessary to obliterate the lumen of the ureter. Without question, the congestion incident to pregnancy, in the presence of lesions not sufficiently pronounced to act previously as etiologic factors, will be responsible for pyelitis occurring during this period. No doubt, exacerbation of a preexisting pelvic infection often occurs at this time. Since Posner and Lewin have shown that bacteria enter the lymph channels directly from the intestine, and Franke, on the anatomic side, has demonstrated the occurrence of lymph channels leading directly from the ascending colon and also from the appendix to the right kidney and to its pelvis, this would explain the frequent incidence of pyelitis on the right side. Since constipation is more common in pregnancy than otherwise, it is also reasonable to ascribe to this condition an etiologic rôle in the pyelitis of pregnancy.



Fig. 4.—Left kidney of a girl, aged 10 months: The sodium iodid solution has penetrated the kidney as far as its fibrous capsule.

Pyelitis of pregnancy will often improve with rest in bed, mild catharsis, a large quantity of water by mouth, bland diet, alkalization and postural therapy, such as the assumption of the knee-chest position for a few minutes several times a day, or lying on the unaffected side in cases of unilateral involvement. If the condition does not respond immediately to this method of treatment, the renal pelves should be drained and irrigated with silver nitrate solution through ureteral catheters. Although prolonged retention of the ureteral catheter is at times advantageous, the possibility of increased inflammation, because of the mechanical irritation caused by the catheter, is to be taken into consideration. Although the symptoms may point to the involvement of but one kidney, both ureters should be catheterized and urine obtained for culture and microscopic examination. I have seldom seen a case in which ureteral catheterization presented any particular difficulty, even as late as the ninth month of pregnancy, and I am not in accord with those who believe that induction of premature labor, nephrotomy or nephrectomy are frequently required. Notwithstanding the disappearance of symptoms following treatment or the termination of pregnancy, specimens of urine should be obtained from both kidneys, as well as from the bladder, for microscopic examination and culture; and, if either are positive, treatment should be continued until the infection has disappeared.

It is not unusual to see patients in whom all objective and subjective symptoms have disappeared during confinement, only to recur during a subsequent pregnancy. This is less apt to happen, however, if negative cultures, in addition to a symptomatic cure, have been obtained. In the presence of residual urine during pregnancy or the puerperium, the bladder should be catheterized daily, and, if infected, it should be irrigated with silver nitrate or other solutions until the infection has disappeared.

When pyelitis occurs during the puerperium, it is often mistaken for puerperal sepsis. It may usually be differentiated from the latter by examination of the urine following ureteral catheterization. Occasionally, however, puerperal sepsis is mistaken for pyelitis. Although in many cases infection of the urinary tract existed prior to the puerperium, a large number occur for the first time during this period. The cystoscope reveals the fact that the bladder sustains more or less injury during every labor; residual urine is frequently present, and infection, extending to the kidney pelvis, readily occurs.

Pyelitis during the puerperium should receive the same treatment as that occurring at any other time.



Fig. 5.—Left kidney of an infant, aged 11 months, with subacute pyelitis.

In the presence of residual urine, daily catheterizations of the bladder, the number being regulated by the quantity of residual urine, are of the greatest importance. Obviously, these should not be discontinued even in the absence of subjective symptoms, until the residual urine has completely disappeared.

TUBERCULOSIS OF THE KIDNEY DURING PREGNANCY

Tuberculosis of the kidney during pregnancy is comparatively uncommon, very few writers having seen

more than one case. No tuberculous infections of the kidney were observed during pregnancies in the 2,528 cases in the obstetric department of Stanford University Medical School.

I believe, however, that this condition is often overlooked because of the frequency with which urinary disturbances occur during this period, and the failure to make a thorough urologic examination.

Pregnancy exerts an unfavorable influence on renal tuberculosis, and the consensus of opinion is that in the presence of bilateral involvement it should be terminated. If but one kidney is affected, it should be removed as soon as a diagnosis is made. The danger to the child in the presence of renal tuberculosis is illustrated by the following case:

Mrs. X., aged 22, in the fifth month of pregnancy, complained of frequency of urination. A large number of pus cells had been found in the urine nine months previously. Glands had been removed from her neck when she was 10 years old. The bladder urine contained a large number of pus cells, but was culturally negative. A few acid-fast bacilli were found. The function of the right kidney was diminished, and the urine contained a large number of pus cells. Urine from the left kidney was negative. The guinea-pig inoculated with the urine from the right kidney gave a positive reaction for tuberculosis; the one inoculated with urine from the left kidney gave a negative reaction. Nephrectomy was refused at this time. Four months later the patient was delivered with high forceps. The child was normal except for an infected wound on the left side of the neck, from which tubercle bacilli were recovered. This healed in three weeks, but about three weeks later a gland on the same side of the neck suppurated. Examination of the discharge revealed a large number of tubercle bacilli. Eight months later the baby died of tuberculous meningitis.

PYELITIS DURING INFANCY AND CHILDHOOD

Female infants and children are especially prone to infections of the renal pelvis, although other pathologic conditions of the urinary organs, such as hydronephrosis and hydro-ureter, tumors, calculi, tuberculosis, and urethral and ureteral strictures, are by no means as uncommon as many still believe. The presence of pus or blood in the urine urgently demands a thorough urologic investigation to determination its source, since, during infancy, pyuria or hematuria is often the only symptom that points to the genito-urinary tract. The importance of early diagnosis and treatment cannot be overestimated because, after reaching the chronic stage, many of these conditions are difficult, and at times impossible, to cure.

A colon bacillus pyelitis, while common in both sexes, is found at least three times as often in the female infant. The most plausible explanation of this comparative frequency seems to be the close proximity of the urethra to the rectum and vagina and the theory of direct ascending infection. I believe that, although the hematogenous route is more common, direct ascending infection, often due primarily to urethral obstruction such as stricture or congenital narrowing of the external meatus, not infrequently occurs.

Urethritis, often associated with trigonitis and cystitis, is not uncommon in these cases, whereas, even in severe hematogenous renal infection with colon bacilli, cystitis is seldom observed except in the presence of urethral obstruction. With renal infection serious enough to require nephrectomy, such as tuberculosis and pyonephrosis, cystitis is very frequently present; but in the absence of urethral obstruction, it usually clears up after the removal of the kidney.

As in adults, the primary etiologic factor in pyelitis during infancy and childhood is often an extrinsic or intrinsic obstruction of the ureter, but not infrequently it is impossible to demonstrate this condition. I believe congenital urethral strictures to be responsible for many of these cases. They are most often found at the meatus in the female, and both at the meatus and in the lumen of the canal in male children.

While a certain number of pyelitis cases are apparently self-limited, many persist indefinitely, often as low-grade infections with few, if any, symptoms. Others, however, because of lowered resistance or greater virulence of the infecting organisms, progress more rapidly and with marked symptoms, until the kidney is destroyed.



Fig. 6.—Right kidney of a girl, aged 12 months, with chronic pyelonephritis.

The majority of acute pelvic infections in infants and children clear up, at least symptomatically, under the same treatment that is so frequently successful in adults; namely, rest in bed, a large quantity of water, mild catharsis, bland diet, and alkalization of the urine. Not infrequently, however, recovery is slow or incomplete under this system of treatment, and these little patients, regardless of their age, are entitled to the more modern methods of diagnosis and treatment, such as cystoscopy, ureteral catheterization, calibration of the ureters with wax-tipped catheters, functional kidney tests, pyelography and, when indicated, dilation of the ureters and irrigation of the renal pelves.

In those cases in which only a symptomatic cure has been obtained, the infection may persist indefinitely, and in later life it may be an important factor in such conditions as pyelitis occurring during pregnancy or the puerperium.

I am not in accord with those who believe that ureteral catheterization and pelvic lavage are not practical in infants and young children. The female urethra dilates readily, and it is surprising to note how large a catheter may be used in the ureter of an infant. Gentleness is, of course, essential, and I would sound a warning at this time in connection with ureteral catheterization in these cases.

Figure 4 is the pyelogram of the kidney of a 10-months-old baby which has been penetrated as far as its fibrous capsule by the injected solution. A small No. 5 olive tipped catheter and a 10 per cent. sodium iodid solution were used for pyelography in this case. Fortunately, no ill effects followed, and roentgenography five days later showed that the solution had been absorbed.

Although a colon bacillus pyelitis ranks first so far as frequency of pathologic conditions of the urinary tract of the female child is concerned, treatment should not be inaugurated until roentgenography has excluded renal or ureteral calculi as contributory factors. I believe that pyelography should be reserved for those cases which do not respond promptly to pelvic lavage. Only one kidney at a time should be subjected to this procedure.

Three of the following cases under recent observation at Stanford Hospital are interesting, the first because of the age of the child, the second both because of the age of the child and as an illustration of the excellent results which it is possible to obtain by ureteral catheterization and irrigation of the renal pelves in otherwise hopeless cases, and the last because of the unusual etiology.

REPORT OF CASES

Case 1.—E. C., a baby girl, aged 10 months, had had a chill followed by a high fever two weeks before she was brought to the hospital. The fever had fluctuated irregularly since that time. The bladder urine contained a large number of pus cells. Cystoscopy showed a normal bladder sphincter, mucosa and ureteral orifices. The ureters were catheterized to the pelves, and urine was obtained for examination and culture. The right kidney urine showed a few pus cells, but was culturally negative. The urine from the left kidney was microscopically negative, but showed a growth of colon bacilli on culture. The bladder urine was culturally negative at this time, but a later examination showed gram-positive bacilli and nonhemolytic streptococci. Calibration of the ureters with wax-bulbed catheters showed no strictures. Pyelography revealed normal renal pelves. The baby began to improve after the first cystoscopy; the kidney urines were culturally and microscopically negative after the second cystoscopy, and the bladder urine was negative after the fourth cystoscopy.

Case 2.—A baby girl, aged 12 months, was referred from the pediatric department of Stanford Hospital with a history of pyelocystitis of at least three months' duration. The baby was irritable and had vomited more or less since birth. It was extremely emaciated, and its condition was serious enough to require the administration of salt solution intraperitoneally and glucose intravenously. On culture, a catheterized specimen of bladder urine contained a large number of pus cells and colon bacilli. The urethral meatus was contracted, but yielded readily to dilation. Cystoscopy revealed an injected bladder mucosa and a moderate degree of trabeculosis posterior to the trigon; the latter condition, unusual in infants, was probably due to the stricture of the urethra. One ureter at a time was catheterized through a single catheterizing cystoscope. The urine from both kidneys contained a number of pus cells and colon bacilli at some time during the period of observation. The guinea-pig test was negative for tuberculosis. Indigocarmin appeared at the left ureteral orifice in eight minutes, but none could be seen at the right twenty-five minutes after intramuscular injection. (The blood contained 88.3 per cent. of urea per hundred cubic centimeters.) A pyelogram of the right kidney showed the upper minor calices to be distinctly fuzzy and of the lower portion of the pelvis to be markedly irregular. The pyelogram of the left kidney was negative.

Improvement began almost immediately after the first cystoscopy. The baby gained in weight and was clinically cured after the fifth cystoscopy, although the urine still contains a few pus cells and colon bacilli.

Treatment will not be discontinued until the bladder as well as the kidney urines are microscopically negative, because of the danger of reinfection of the upper urinary tract in the presence of positive bladder findings.

Case 3.—M. S., a girl, aged 2½ years, was referred by Dr. Harold K. Faber, because of painful defecation of three weeks' duration and painful urination, hematuria and cloudy urine of three days' duration. In the urine passed two days before, a small, bloody mass was found which contained a tangle of wool fibers. The mother explained its presence by the fact that the child had been "riding horseback" on the arm of a chair. Cystoscopy showed a normal bladder. The urine from the right kidney contained a number of pus cells and colon bacilli on culture; that from the left kidney was negative. Rectal examination was also negative. Improvement began immediately after the cystoscopy, and a catheterized specimen of bladder urine examined a few days later was culturally and microscopically negative.

Case 4.—A girl,[7] aged 8 years, had had urinary symptoms which had begun when she was 3½ years old. On examination, a stricture was found at the external urethral meatus and another at the right ureteropelvic junction. The urine from this kidney was loaded with pus cells, and its function was practically absent. Pyelography revealed a marked degree of hydronephrosis and hydro-ureter on the right side. The roentgen-ray catheter formed a loop in the lower third of the enormously dilated ureter before it proceeded upward to the kidney pelvis. Fortunately, the left kidney and ureter were normal, and, following the removal of the hydronephrotic kidney, the child made an excellent recovery. In all probability the loss of the kidney would have been avoided if the condition had been recognized in its incipience.

Parenthetically, the fact should be emphasized that the age of the child should not preclude surgical procedures when indicated, as operations involving the genito-urinary tract in infants and young children are usually well borne.

I think that cases such as these help to demonstrate the practicability as well as the advantage to be derived from cystoscopy, ureteral catheterization and pyelography in the diagnosis and treatment of pathologic conditions of the urinary tract in female infants and children.

CONCLUSIONS

1. Pathologic conditions of the urinary tract in women should be treated by the urologist.
2. Strictures of the female urethra are not uncommon, and they are often responsible for marked functional and organic disturbances in the genito-urinary tract of this sex.
3. Ureteral strictures are not as common as many believe.
4. The most important etiologic factor in pyelitis of pregnancy is pressure on the ureters by the enlarged uterus.
5. Drainage and lavage of the renal pelvis through ureteral catheters is the treatment of choice in pyelitis of pregnancy.

7. I have previously reported this case, but it serves as such an excellent example of the value of pelography in children that I may be pardoned for again presenting it for consideration.

6. In unilateral renal tuberculosis occurring during pregnancy, the affected kidney should be removed as soon as the diagnosis is made.

7. Modern urologic procedures, such as cystoscopy, ureteral catheterization, pyelo-ureterography and pelvic lavage, should be used in the diagnosis and treatment of pathologic conditions of the urinary tract in infants and children.

Flood Building.

ABSTRACT OF DISCUSSION

DR. WILLIAM F. BRAASCH, Rochester, Minn.: There is no doubt that stricture of the urethra in the female occurs quite frequently and is sometimes the cause of symptoms. It occurs more often with vaginal atrophy in the woman of advanced age, and then does not usually cause symptoms. The stricture rarely becomes so advanced as to cause urinary obstruction, and it does not usually cause urinary symptoms unless there is urethritis present. I am glad that Dr. Stevens brought up the question of the occurrence of stricture of the ureter. This section should make an unbiased investigation of the claims made by certain observers that such strictures are of common occurrence. The use of wax bulbs or bougies does not afford sufficient data to determine the existence of a stricture. In fact, unless there is complete occlusion of the ureter, there is no way that ureteral stricture can be diagnosed unless a dilated ureter can be demonstrated above it. It has been my experience that unilateral stricture of the ureter, other than that caused by tuberculosis or stone, does not occur very often. The subject of the etiology with pyelitis of pregnancy is very interesting. I wish to call attention to the work of Quinby and his associates at the Peter Bent Brigham Hospital, in which they have demonstrated experimentally the possibility of ascending infection. It is well known that on ureteral catheterization there is usually residual urine present in the renal pelvis, which is evidently the result of pressure on the ureter. With the consequent interference of ureteral peristalsis, it seems possible that ascending infection should occur. I do not wish to criticize Dr. Stevens, and he possibly was justified in making a pyelogram in the case that he presented; but it should be emphasized that, as a rule, pyelography should not be employed in young infants. The danger of absorption, infection and shock is too great. I also wish to emphasize the fact that it is inadvisable to make bilateral pyelograms. It has been my experience that this is not alone a dangerous procedure, but is also unnecessary. It is much better to wait a few days and then make the second pyelogram, if necessary.

DR. HERMAN L. KRETSCHMER, Chicago: I agree with Dr. Stevens that strictures of the urethra are overlooked. Why? Urologists explore the male urethra as a routine, looking for urethral strictures. As urology developed, our attention was focused to the higher urinary tract, and we are now looking for strictures in the ureters as a routine. I think that strictures of the urethra in females, however, are often overlooked. I frequently find urethral strictures in women who are thought to be neurotic. I think we must include lesions of the urethra as an etiologic factor in the production of bladder symptoms in women. Regarding pyelitis of pregnancy, I take exception to some points. I agree that theses cases are overlooked, but I do not agree with Dr. Stevens on his statistics. I think that 1 per cent. is far too low. Dr. Falls found 5 or 6 per cent. in the obstetric department at Iowa City. It is easy to diagnose pyelitis of pregnancy. Anybody can make the diagnosis without a culture and without instrumentation, by means of the history and examination of the urine obtained with a catheter by noting the presence of pus and bacteria in the catheterized specimen. As to the dilatation, whether it completely disappears or not I do not know; but in ten days after delivery this dilatation has always disappeared to a large extent. In the pyelograms of others and in our own we have always found that most of the dilatation involved the ureter. That agrees with the statistics of Hirsch, who found at necropsy that the dilatation involved the ureter more than the pelvis of the kidney. I cannot quite reconcile myself to the statement of Dr. Stevens that the pressure on the ureters produces the dilatation in the pelvis during pregnancy. I should think that sufficient pressure to produce obstruction would produce necrosis. Most of our cases have been bilateral, and I agree with Dr. Braasch about regurgitation up into the pelvis of the kidney. This occurs very commonly, and I believe that the fact is often overlooked.

DR. ALBERT E. GOLDSTEIN, Baltimore: I am glad to hear that Dr. Stevens uses an olive tipped bougie for diagnosing urethral strictures. This is also very important in diagnosing ureteral strictures. As a rule, we hear of one passing a catheter for diagnosing ureteral strictures, but I think we should employ a bulb or olive tipped bougie the same as for urethral strictures. One should pass the bougie, not determining the presence of stricture on the entrance of the bougie but on the hang of the bulb on coming out. In dilating, I agree with Dr. Stevens up to 8 or 9, but do not see how a Garseau catheter will do good any farther than that; it will reach only a point about 9 or 10 and, therefore, is not large enough to dilate a stricture as it should be dilated. Passing the bulb will not be as painful if the patient is placed in the dorsal position. There is more pain when the knee-chest position is used. The important thing is a ureteral pyelogram. No stricture should be diagnosed without a ureteral pyelogram, and this should be made with the catheter low down, not with the tip in the pelvis of the kidney. The tip should be just beyond the orifice in the bladder. Strictures certainly are an entity. In view of the fact that Dr. Hunner is not here, I wish to defend him. He is very conscientious about his work and we must remember that, of the patients coming to Dr. Hunner, 95 per cent. come from all over the country for the purpose of having ureteral strictures determined. He looks for them and he does find them, while others do not even look for them. Three years ago I reported twenty-two ureteral strictures in the male, all determined by pyelograms. All had a dilatation. I agree with Dr. Braasch about bilateral pyelography, and think that it should not be done.

DR. B. A. THOMAS, Philadelphia: I wish to suport Dr. Stevens' statement as to pressure on the ureter being the cause of pyelitis. I have examined a number of pregnant women with the cystoscope, and even when there was no retention in the bladder I have frequently found from 10 to 25 c.c. of urine, infected, above the obstruction which was difficult to pass; so I feel that his position is correct, at least in some cases, if not in the great majority. I have always felt that external pressure on the ureter was a factor in the development of pyelitis. I wish to know how long Dr. Stevens considers it advisable to maintain catheter drainage in these cases of pyelitis; whether it is carried out for weeks or months, if necessary. About stricture of the ureter, it has been my experience to find always an associated, chronic, granular ureteritis in the ureters, which I agree is quite frequent, and often some small polypi which require treatment aside from the drainage; namely, fulguration or the application of strong solution of silver nitrate.

DR. LOUIS CLIVE JACOBS, San Francisco: In order to emphasize the frequency of occurrences of urethral strictures, I wish to report two cases. One woman, whose previous health had been excellent, noticed frequency of urination, with a profuse amount of urine passed. She came to my office after two or three months, complaining of severe backache. Examination revealed pus cells in the urine. I instructed my nurse to catheterize the patient, and this she was unable to do. I ascertained that I could not pass a small sized catheter, but with considerable difficulty I passed a very small sound and then a small sized ureteral catheter, and withdrew the urine. There were many pus cells in the urine. Under treatment, the pus cells in the urine and the urinary symptoms have all disappeared. I attribute this to the dilation of the urethra. In the other case, the patient had a stricture of the urethra and, following dilation of the urethra, she was completely relieved and the urinary symptoms have since disappeared.

DR. MARTIN MOLONEY, San Francisco: There are two fallacies in connection with stricture of the ureter; the fallacy of diagnosing what is a stricture of the ureter and the fallacy

of dilating from below a stricture of the ureter. I had a case of clearly defined stricture of the ureter with a well marked hydronephrosis and stones above the stricture. It looked like a tube with a string tied round it tight, and it was dilated above and below; it could not be mistaken for a kink. The more I attempted to dilate this tight, apparently congenital stricture from below through the bladder, the more difficult it became. Slow, prolonged dilation from above, up to 18 or 20 F., has given a successful result in this case. Now, six years after, the kidney pelvis is back almost to normal size, and free from renal colic which existed for fourteen years. With the exception of a narrow ureteral orifice, unless we diagnose by roentgenogram a definite outline of stricture of the ureter, showing dilatation above and below it, the statement is fallacious that we have cured a stricture, of the existence of which we have no definite proof.

DR. JOSEPH L. BOEHM, New York: I wish to know what Dr. Stevens' experience has been in regard to ureteral caruncle, in regard to ureteral stricture, and also whether he has had much difficulty in catheterizing ureters when there is a large inflammatory mass, be it tubal or tubo-ovarian. Regarding Dr. Braasch's statement about catheterizing young infants, a German firm is now making a small catheter for infants. I think that in Germany the practice of catheterizing young infants is much more common that it is in this country. It is advocated in many places.

DR. CHARLES P. MATHE, San Francisco: Occasionally, in making urologic examinations on women, I have found polypi in the urethra and on the vesical neck associated with urethral strictures, sometimes causing symptoms of irritability. These can be cleared up by fulguration. I asked Dr. Stevens in what percentage of cases he finds these polypi. Reversal of peristalsis of the ureter as causing ascending infection of the kidney has been mentioned. I firmly believe in this. In 1907, Alksne irritated the bladder end of the ureter by electrical stimuli, and caused pronounced antiperistalsis of the ureter. I have seen materials, such as protargin mild, injected into the bladder for the purpose of prophylaxis against infection, revealed at necropsy in the lobules and glomerular capsule of the kidney. Substances opaque to the roentgen ray, having been injected into the bladder for diagnostic purposes, have been revealed by roentgenograms in the renal pelves.

DR. WILLIAM E. STEVENS, San Francisco: We occasionally see strictures of the female urethra in the absence of urethritis or trigonitis, when no pus is present in the urine, and in the absence of positive endoscopic findings. As to pyelography, I do not employ this procedure, as a rule, in infants or young children, until treatment directed toward a suspected pyelitis has been given a trial and proved unsuccessful. Gonorrhea is a very important factor in the etiology of urethral strictures. I had occasion some time ago to examine a large number of prostitutes, all of whom had suffered from gonorrhea, and the percentage of strictures in these women was very much higher than that found in other patients. I wish to emphasize the fact that very little pressure on the ureter is required to produce obstruction, and I believe that pressure from a pregnant uterus is an important factor. As I mentioned in my paper, I consider ascending infection common in pyelitis occurring during pregnancy. The majority of ureteral strictures are in the lower third, and, if tight enough to produce symptoms, can usually be detected by means of an ordinary ureteral catheter. I do not think it justifiable to leave catheters in the ureters more than two hours because of the inflammatory reaction that is apt to occur if they are retained for a longer period of time. I have occasionally found caruncles associated with urethral strictures. I have seen no complications following ureteral dilation in the presence of tubal or tubo-ovarian inflammation. We frequently find polypi at the bladder sphincter associated with strictures of the female urethra.

Cardiac Murmurs in Aneurysm.—No murmur of any kind, systolic or diastolic, is audible in cases of thoracic aneurysm unless the thoracic orifice is involved. There is a general belief that a systolic aortic murmur may indicate the presence of an aneurysm. This is a mistake.—J. M. Gill: *Guy's Hosp. Rep.* **73**:418 (Oct.) 1923.

POSITION OF THE STOMACH, LIVER AND COLON

RESULTS OF A ROENTGENOLOGIC STUDY IN SIX HUNDRED HEALTHY ADULTS*

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In the last twenty years much has been written about the position of the stomach, about gastroptosis, and about visceroptosis, but no series of observations on the stomach position in a large number of healthy persons has been recorded. The prevailing idea of what is the normal position of the stomach and other abdominal viscera has been gained largely from the observation of persons suffering from some intestinal disturbance, or from postmortem studies such as those made by Bryant. By the use of such material, the normal position of the viscera cannot be established.

No. M162 NAME: Stern, F. NATIONALITY: Am. AGE: 25

Sex ♂ ✓ ♀ — Fat / Thin ✓ / Medium — Muscle development: Good / Poor / Medium / Abdominal — Coloring: Brunette ✓ / Blonde / Intermediate

Chronic intestinal disturbance 0
Chronic constipation 0
Weight: Kilos Lbs. 158.75

MEASUREMENTS

Height: Standing	cm. 70	in.	Intercostal angle 50	°	
Sitting	cm. 36	in.	Lumbar curve 4.3	cm.	in.
DIAMETERS:				cm.	in.
At level of third intecostal space, dorso-ventral				18.0	
lateral				27.0	
Half-way between jugular notch and symphysis, dorso-ventral				16.0	
DISTANCES:			lateral	27.0	
Greatest between iliac crests				26.0	
Between anterior superior spines				21.0	
Supra sternal notch to intercostal angle				18.0	
Supra sternal notch to symphysis pubis				52.0	
Symphysis pubis to 4th lumbar spine				21.0	
FLUOROSCOPIC:					
Caudal edge of liver, standing and lying				4	
Between greater curvature of stomach, standing and lying				8	

Am-10.'21

Fig. 1.—Measurements recorded of each subject used in this series: Weight is in pounds; height is in inches; all other measurements in centimeters.

This preliminary report gives the results of fluoroscopic and roentgenographic study of the position of the viscera in 600 healthy young adults, an equal number of men and women, most of them students in the University of California. Subjects with a history of chronic gastro-intestinal trouble or chronic constipation were excluded.

METHOD

Physical characters of the subjects that may modify the position are recorded as shown in Figure 1. All measurements except height and weight are in centimeters. Height is measured with the subject in stocking feet, and weight is taken with the subject in ordinary indoor clothing.

The method of measuring the intercostal angle is shown in Figure 2. The diverging lines are drawn from the junction of the seventh ribs with the sternum, along the caudal borders of the cartilages of the lower ribs. A point on the sternum in the median line of the body at the caudal border of the corpus sterni

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

is taken as the apex from which the angle is measured with a contact goniometer.

The depth of the lumbar curve is obtained by placing a yardstick longitudinally in the furrow on the dorsal surface of the body and measuring the greatest distance between the edge of the yardstick and the body (Fig. 3).

To determine the strength of the abdominal muscles, the subject lies on a table and, keeping the heels on the table, comes to a sitting position as many times as possible without intervals of rest.

The technic of taking the roentgenograms is as follows: The subject is given 2 ounces of barium sulphate the previous night, and eats no breakfast on the morning when the picture is taken. Immediately after the subject takes 4 ounces of barium sulphate in 14 ounces of malted milk mixture, a fluoroscopic examination is made and the positions of the caudal border of the stomach and of the liver are marked on the body. A similar examination and corresponding markings are made with the subject supine. The distance between these marks due to change in position of the subject is designated as the excursion of the stomach and liver. The roentgenogram is taken with the subject standing

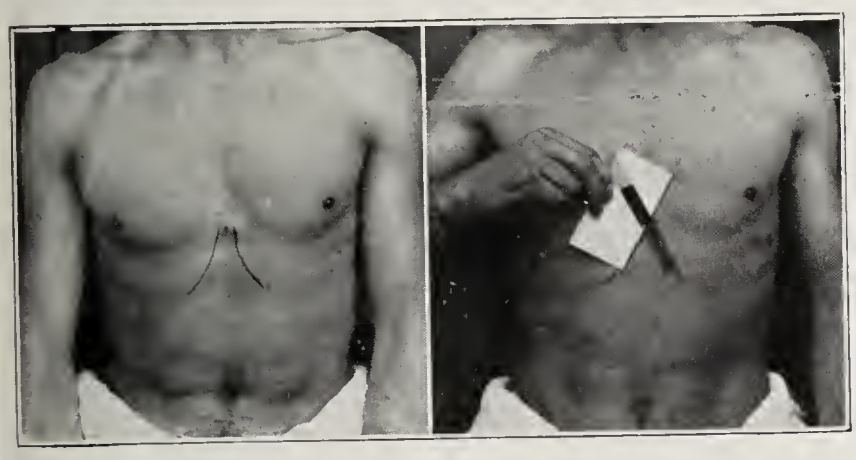


Fig. 2.—Method of measuring intercostal angle.

and the ventral surface of the body nearest to the film The film is centered at the level of the highest point of the iliac crests. The tube target is placed at this level and at a distance of 30 inches from the film.

As a fixed level from which to measure the position of the viscera, we use a line drawn between the highest points of the iliac crests and call it the interiliac line. The umbilicus is not used as a reference point because, as shown by Johnson, its position with reference to the distance between the sternal notch and the symphysis pubis varies in different persons.

STOMACH

The position of the stomach has been described by some investigators with reference to the position of its greater curvature, by others with reference to its lesser curvature, by some with the subject standing, by some with the subject supine. These results consider the position of the greater curvature, the lesser curvature and the pylorus, and are obtained with the subject standing. The position of the greater curvature is also measured with the subject supine. A distinct difference is found in the position of the stomach and the liver in men and in women; hence the results are given separately for each sex.

In the accompanying diagrams, the space cephalad and caudad of the interiliac line is divided into zones, each of which represents a distance of 2.5 cm. (1 inch).

In 25.6 per cent. of the 300 men, the most caudal part of the greater curvature is cephalad of the interiliac line (Fig. 6). Its most common position is in the second caudal zone, from 2.5 to 5 cm. caudad of the line. It is found here in 26 per cent. of the men. Its ordinary limits of variation are from 7.3 cm. cephalad to 13.5 cm. caudad, but in one subject its cephalic limit was 11 cm.



Fig. 3.—Measurement of lumbar curve.

In 13 per cent. of the 300 women, the most caudal part of the greater curvature is cephalad of the interiliac line; in 87 per cent. it is caudad of the line (Fig. 7). Its most common position is in caudal zone 3, 5 to 7.5 cm. caudad of the interiliac line. But in 46 per cent. it is more than 5 cm. caudad of the line, in 24 per cent. it is more than 7.5 cm. caudad of the line, and in 7.6 per cent. it is more than 10 cm. caudad of the line. Its ordinary limits of variation in position are from 6.5 cm. cephalad to 13.7 cm. caudad, but in one subject the cephalic limit was 9 cm.

In 80 per cent. of the entire group of these healthy men and women, the stomach extends caudad of the interiliac line, and the most caudal part of the greater



Fig. 4.—Technic of taking roentgenograms.

curvature is frequently found in the true pelvis. Our results agree with those of others in showing that the stomach is placed lower in the body in women than in men.

The most caudal part of the lesser curvature could be measured in 296 of the roentgenograms of the men.

In 86.7 per cent. of these it is cephalad of the line; in 13 per cent. it is caudad of the line. In 4.3 per cent. it is more than 2.5 cm. caudad of the line (Fig. 8). Its most common position in these men is in the first cephalic zone. Its limit of variation in position is from 15 cm. cephalad to 7 cm. caudad of the line.



Fig. 5.—Interiliac line drawn between highest points of crests of the ilium: This is about the level of the umbilicus; scale measures distance in centimeters cephalad and caudad of this base line.

The most caudal part of the lesser curvature could be measured in the roentgenograms of 298 women. In 71 per cent. of these it is cephalad of the line, in 29 per cent. it is caudad of the line, and in 10 per cent. it is more than 2.5 cm. caudad (Fig. 9). The most common position is the same as in men, in the first cephalic zone. But it is caudad of the interiliac line in twice as many women as men. Its limits of variation in position are

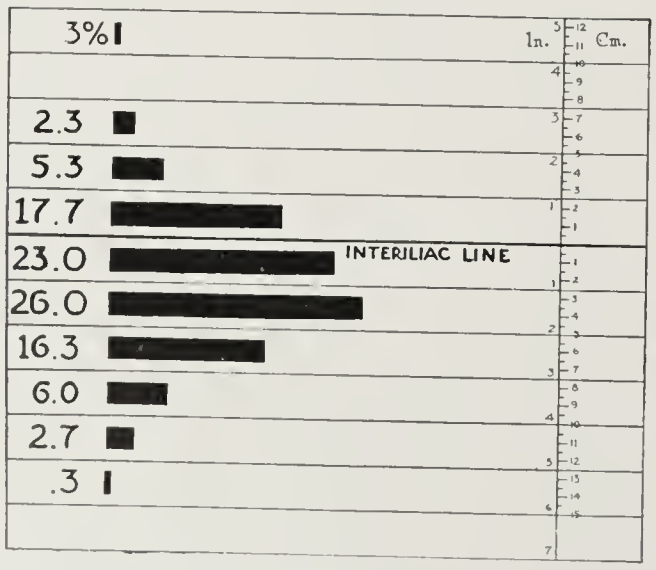


Fig. 6.—Percentage occurrence of greater curvature of stomach in men at different levels cephalad and caudad of the interiliac line: Average position is 2.5 cm. caudad of the interiliac line.

from 13 cm. cephalad of the line to 7 cm. caudad of the line.

In 96.6 per cent. of 293 men, the pylorus is found cephalad of the interiliac line, and in 2.7 per cent., caudad of the line (Fig. 10). Its most common position is in Cephalic Zone 2. The limits of variation are from 14.5 cm. cephalad to 8 cm. caudad of the line.

In 96 per cent. of 296 women, the pylorus is found cephalad of the interiliac line, and caudad of the line in 4 per cent. (Fig. 11). Its most common position in women is the same as in men. The limits of variation are from 15 cm. cephalad to 2.5 cm. caudad of the base line.

The most common position of the most caudal part of the greater curvature of the stomach is, in this group of 600 subjects, in Caudal Zones 2 and 3, between 2.5 cm. and 7.5 cm. caudad of the interiliac line, and in 36.3 per cent. it is more than 5 cm. caudad of the line. The most common position of the most caudal part of the lesser curvature is in Cephalic Zones 1 and 2, between the interiliac line and one 5 cm. cephalad of it, but in 20.6 per cent. it is caudad of the line. The most common position of the pylorus is in Cephalic Zone 2, between 2.5 and 5 cm. cephalad of the line; in 3.3 per cent. it is caudad of the line.

The range of the normal position of the most caudal part of the greater curvature is from 13 cm. caudad of the line to 7.8 cm. cephalad. The range of the normal position of the most caudal part of the lesser curvature is from 7.5 cm. caudad of the line to 15 cm. cephalad.

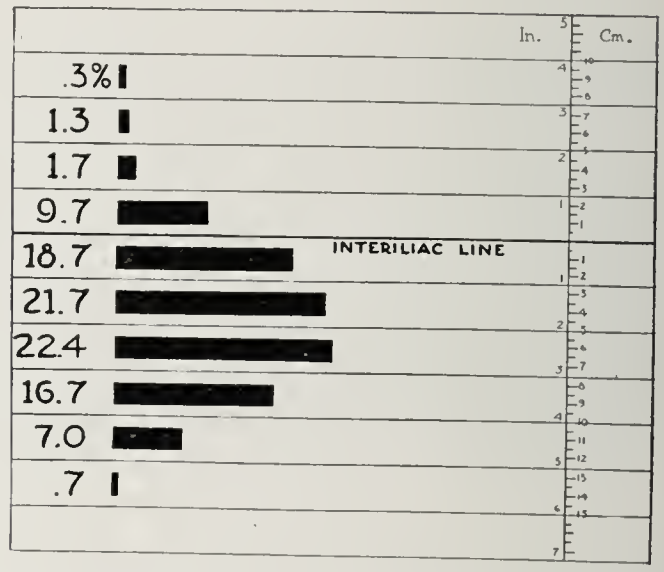


Fig. 7.—Percentage occurrence of greater curvature of stomach in women: Average position is 4.5 cm. caudad of the interiliac line.

These results give a new picture of the normal position of the stomach. It is lower than has been generally accepted. It is frequently found in the true pelvis in young adults with no symptoms of stomach or intestinal disorders. They also demonstrate that the use of the term gastroptosis is seldom justifiable.

Roentgenograms of ten subjects were taken more than once, at different times, under as nearly as possible the same conditions. The individual variation in the position of the most caudal part of the greater curvature of the stomach in these subjects is from 0.6 to 2.5 cm. This variation is small, in view of the flexibility and mobility of the walls of the stomach. It indicates that under similar conditions the stomach of any one person will be found at all times in nearly the same position.

The distance that the greater curvature of the stomach moves when the subject lies down we call the excursion. In both men and women the smallest excursion is zero; the largest is 16 cm. in men and 17 cm. in women. The most common excursion is between 9 and 10 cm.

In a man whose stomach excursion is zero, the position of the most caudal part of the greater curvature is 0.8 cm. caudad of the interiliac line. In the one

whose stomach excursion is 16 cm., its position is 1 cm. caudad of the line when the subject is standing. That is, with the subject standing, the position of the most caudal part of the greater curvature of the stomach is practically the same in subjects whose stomach excursions are respectively the smallest and the largest. In women whose stomach excursions are, respectively, 17 and 16.5 cm., the stomachs are not low. The most caudal part of the greater curvature is 7.5 cm. caudad of the interiliac line in the one and 8 cm. in the other. The excursion of the lowest two stomachs in women is moderate: 10 cm. in one and 7.4 in the other. The latter is less than the common excursion. Long stomachs tend to have a longer excursion than short stomachs, but there seems to be no definite relation between the length of the excursion and the position of the curvature when the subject is standing.

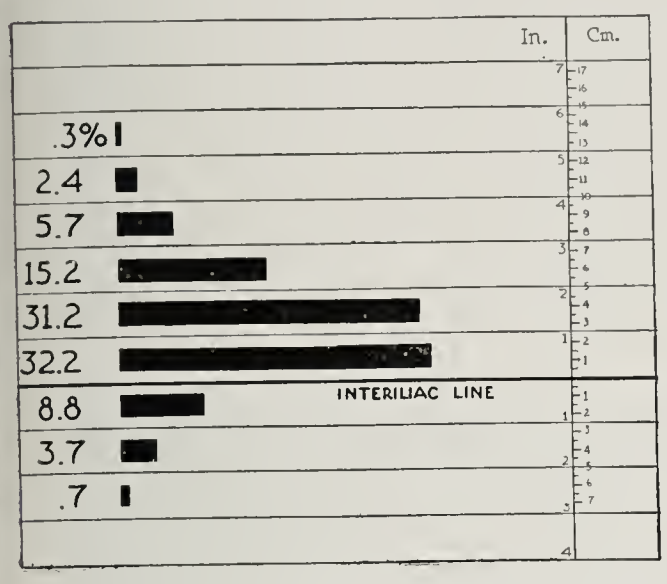


Fig. 8.—Level of occurrence of lesser curvature of stomach in men: Average position is 3 cm. cephalad of the interiliac line.

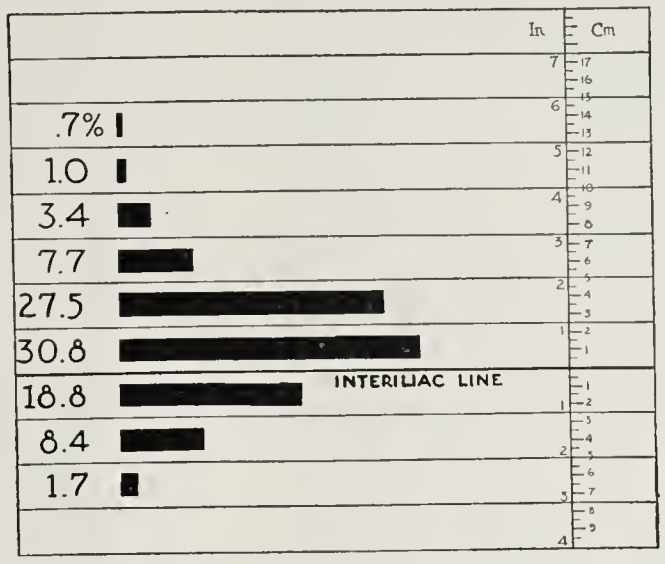


Fig. 9.—Level of occurrence of lesser curvature of stomach in women: Average position is 1.75 cm. cephalad of the interiliac line.

This lack of any definite relation between the position of the subject when standing and the excursion of the stomach is explained, in part at least, by the different shapes the stomachs assume as a result of their excursion. When the subjects lie down, the contents of many stomachs flow largely to the cardiac ends, and the shape of the stomach becomes that of an inverted chemical flask with a curved neck. In such cases the position of the stomach becomes more horizontal, the pylorus passing farther to the right of the median line of the body. In other cases the contents of the stomach do not pass to its cardiac end, but the stomach becomes shorter and broader, owing to an increase in its circumference. It is largely because of this excursion that the surgeon at operations and the student on the dissecting table find the stomach so far cephalad of the interiliac line.

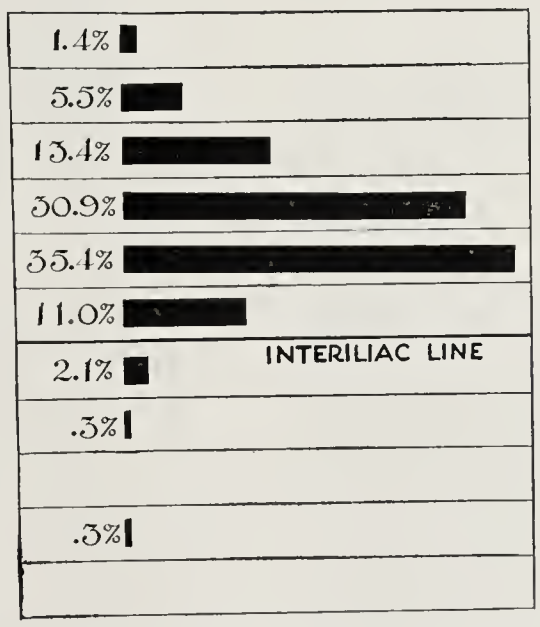


Fig. 10.—Level of pylorus in men: Average position is 5.3 cm. cephalad of the interiliac line.

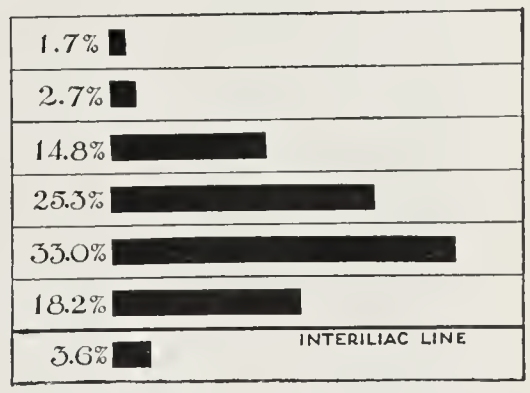


Fig. 11.—Level of pylorus in women: Average position is 4.8 cm. cephalad of the interiliac line.

Schlesinger's generally accepted classification of stomachs according to their tone into orthotonic, hypertonic, hypotonic and atonic is used in this paper with some modification. He describes the hypertonic stomach as high and short, broadest at its cardiac end, with its walls steadily narrowing to the pylorus. This gives it, he says, a steerhorn form and an oblique or transverse position, with its lower border well above the umbilicus. This, however, is only one of the kinds of hypertonic stomach.

Figure 12 shows a second form. The stomach is short and broad, with its walls approximately parallel and the most caudal part of the greater curvature caudad of the interiliac line.

A third form is found in Figure 13. It is very short and broad, its walls approximately parallel, its pyloric part held at right angles to the cardiac portion, and the most caudal part of the greater curvature well above the interiliac line. This type has still other forms and positions.

The hypertonic stomach is more common in men, the hypotonic in women. The former is found in 17.1 per cent. of men and 7.1 per cent. of women. The hypotonic occurs in 3.6 per cent. of the men and 15 per cent. of the women.

The most common position of the hypertonic stomach is in Cephalic Zone 1, between the interiliac and a line 2.5 cm. cephalad of the line; but in 37.5 per cent. of the stomachs of this type in the women, and in 23.4 per cent. in the men, the most caudal part of the greater curvature is found caudad of the interiliac line.

The orthotonic stomach is found in a large majority of both men and women, and in almost equal numbers in the two sexes. It is found in 78.6 per cent. of men and in 77.3 per cent. of women.

ABDOMINAL MUSCLES

One of the most widely accepted theories concerning the physical factors that modify the position of the stomach maintains that strong abdominal muscles hold the stomach up in what has been called the normal position; that a person with weak abdominal muscles and a low stomach could gain a high stomach by taking exercises to increase the strength of the abdominal musculature.

Most physical types of healthy men and women are well represented in the group of young people forming the basis of this study. The sedentary type, the athletic, those who work at hard manual labor during the long

summer vacations, those who spend much time in outdoor sport, those who idly amuse themselves, the sthenic and the hyposthenic, with a few of the hypersthenic and asthenic, are all there.

Out of this group of 600 students, at least 200 are athletes or are majoring in physical education. Their



Fig. 12.—A hypertonic form of stomach not described by Schlesinger.

general musculature and their abdominal muscles are considerably above the average in development, but the position of their stomachs is like that of the other 400: low in some, high in others. Of the ten men with the weakest abdominal musculature, the most caudal part of the greater curvature is cephalad of the interiliac line in two. In six it is in the zone of most common occurrence in men, and in only two is it caudad of



Fig. 13.—A hypertonic form of stomach not described by Schlesinger.

this zone. In eight of the men with the strongest abdominal musculature, the most caudal part of the greater curvature is caudad of the interiliac line. In one of them it is 7 cm. caudad and in one 11.3 cm. caudad of the line.

To test the theory that the position of the stomach varies with the strength of the abdominal muscles, the man with the best body development and the strongest abdominal muscles in the group of 300 took daily the sitting up exercise given commonly to increase the strength of the abdominal muscles. At the start he could do this exercise sixty-seven times; at the finish, he did it 300 times. At the finish, with the great increase in strength of abdominal muscles, the stomach was 1.3 cm. farther caudad than at the start.

Practically the increase in the strength was negligible so far as it affected the position of the stomach, for the change in the position of the stomach was within the limits of variation that may occur in the same person on different days.

A similar relation between the strength of the abdominal musculature and the position of the stomach is true in women. Some of them with the best developed general and abdominal musculature had the caudal part of the greater curvature of the stomach more than 7 cm. caudad of the line.



Fig. 14.—Strong abdominal musculature in male, with most caudal part of greater curvature 4.3 cm. caudad of interiliac line.

These findings have demonstrated that the strength of the abdominal musculature has practically no effect on the position of the stomach.

LOSS AND GAIN OF WEIGHT

In three subjects the effect of loss or gain of 20 pounds was observed. One athlete sprained his ankle, and as a result of enforced quiet gained 20 pounds. The position of the most caudal part of the greater curvature when he weighed 184 pounds was 0.4 cm. caudad of the interiliac line, and when he weighed 164 pounds it was 2 cm. caudad of the line, a change in position caudad of 1.6 cm.

Two other students by dieting lost 20 pounds each. In one of them, a woman, the change in position of the greater curvature was 3.9 cm. cephalad; in the other it was 0.5 cm. caudad. In two of these three cases, the change in position of the greater curvature was less than the variation that we have found in one person on different days, and in one case it was only 1.4 cm. more. So few cases are no proof of what may take place, but they suggest that a change of weight of 20 pounds

causes a negligible change in the position of the stomach.

The general relationship of bodily habitus to the position of the stomach was pointed out by Obrastow, as a result of observations made by percussion and auscultation. This was confirmed by Mills and Carman by the use of roentgen rays. Mills designates his dominant types as hypersthenic and asthenic, and in these we find that the relationship of bodily habitus to stomach position is quite definite. It is not so definite in the major, sthenic and hyposthenic types, and still less definite in the subtypes.

The position of the liver was determined in 250 men and 250 women. Its most caudal part, as seen in dorso-ventral roentgenograms, is caudad of the interiliac line in 53.2 per cent. of the men and in 41.2 per cent. of the women. The liver excursion, the distance the liver moves when the subject lies down, varies from zero to



Fig. 15.—Strong abdominal musculature in female, with most caudal part of greater curvature 8 cm. caudad of interiliac line.

9 cm. It is interesting to find that the position of the stomach is lower in women than in men, and the position of the liver is lower in men than in women.

The colon also has a large range of normal positions and shapes. The hepatic flexure may be caudad of the interiliac line or several centimeters cephalad of it; the splenic flexure may be caudad of the line or extend cephalad almost to the diaphragm; one flexure may be high and the other low in the same person.

The transverse colon is most variable in position, but in these 600 subjects is always found caudad of the stomach, sometimes in contact with the stomach but often dipping far caudad of it. This part of the colon has most often the shape of a loop with its convexity caudad. It is frequently found in the true pelvis, reaching as low as the symphysis pubis. In some cases this part of the colon is shorter and approximately transverse in position; in a few cases it passes obliquely cephalad. The low position of the loop is so common that it must be called normal, and the use of the term coloptosis, like gastroptosis, is rarely justified (Figs. 13, 18 and 19).

SUMMARY

1. The long stomach, commonly reaching from 3 to 7 cm. caudad of the interiliac line and often into the true pelvis, is found in 80.6 per cent. of this group of healthy adults. This type of stomach, with its greater curvature dipping in some cases as far as 13 cm. caudad of the interiliac line and its lesser curvature dipping in some cases as far as 7.5 cm. caudad of the line, is normal (Figs. 20 and 21).

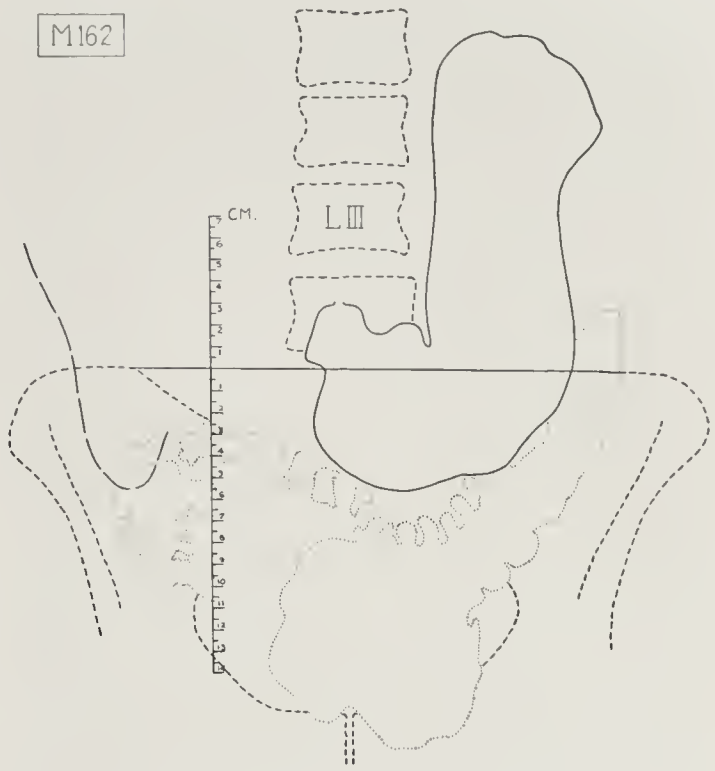


Fig. 16.—Tracing of roentgenogram showing position of liver in male with reference to the interiliac line: Distance cephalad and caudad is in centimeters; solid line, stomach; long dash line, liver; short dash line, iliac crests; dotted line, colon.

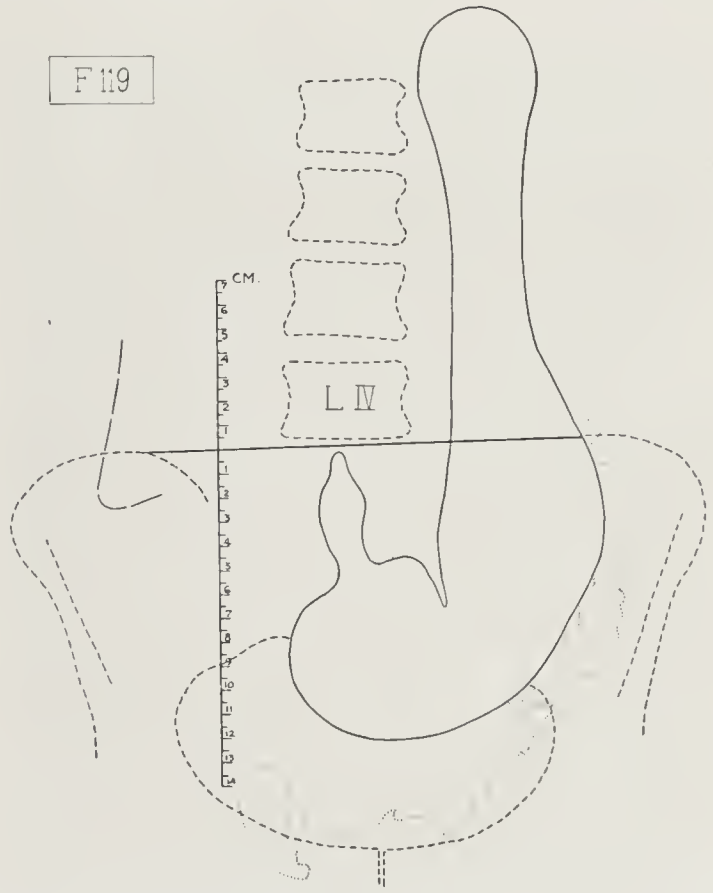


Fig. 17.—Tracing of roentgenogram showing position of liver in female with reference to the interiliac line: Distance cephalad and caudad is in centimeters.

2. This low position of the stomach is seldom or never a cause of gastro-intestinal disturbances.

3. The low colon, lying in the true pelvis, is also normal, and is seldom or never the cause of gastro-intestinal disturbance.

4. The strength of the abdominal muscles has little or no influence on the position of the stomach.

5. The use of the terms gastroptosis and coloptosis is seldom justified.



Fig. 18.—Common form and position of colon in male.

6. With the subject standing, the liver extends caudad of the interiliac line in a majority of the men and in a large percentage of the women. It reaches farther caudad in men than in women.



Fig. 19.—Common position of colon in female.

7. The common practice of putting patients to bed with a high diet and certain exercises prescribed to change the position of the stomach does not produce its beneficial effects by changing the position of the stomach.

ABSTRACT OF DISCUSSION

DR. SEALE HARRIS, Birmingham, Ala.: I have been interested in the subject of visceroptosis for a number of years, because, ever since the advent of the roentgen ray, many patients have come with a diagnosis of "fallen stomach," and some have been led to believe that it is an operable condition. About three years ago, my associate, Dr. Chapman and I undertook a clinical and roentgenographic study of a thousand consecutive cases of gastro-intestinal disease for the purpose of determining the normal position of the stomach and intestines. We found that in about 55 per cent. gastroptosis was present—I mean that the stomach, in the standing position, was more than 2 inches below the umbilicus. Our conclusions were that the position of the stomach has practically nothing to do with its function; that so long as the tonus of the stomach and intestines is normal, and so long as those viscera are freely movable, it is all right so far as the patient is concerned. It is the lack of tone rather than the visceroptosis that causes symptoms. We studied the same patients in the standing, prone and supine positions. We found that in some the lower border of the stomach would be resting on the brim of the pelvis in the standing position, but that in the supine position the stomach would



Fig. 20.—Normal long stomach in male: 8.8 cm. caudad of interiliac line.

gravitate upward above the umbilicus, to the so-called normal position. In other words, the contour of the spinal column and the smooth surfaces of the viscera enable the stomach and intestines to slide back into position, thus showing the folly of having the foot of the bed elevated in treating these cases. In the examination of the patients in the standing position, we found that voluntary contraction of the abdominal muscles would change an atonic stomach into a hypertonic one. The most important thing in the treatment of visceroptosis is to put on fat. When weight increases, the first place in which fat is deposited is the abdomen. In some cases in our experience, with the increase in fat, and increase in tone of the abdominal muscles, the stomach has been raised 2 or 3 inches. As to the value of exercise in these cases, I think these patients are usually what Bryan calls the chronic nervous invalid. They are in a state of chronic fatigue. If exercise is begun too soon, we increase the chronic fatigue. The patient should have a period of rest of three or four weeks and then begin graduated exercises, not only of the abdominal muscles, which are quite important, but general exercises. The abdominal belt is of very little value in these cases, except as a temporary measure. The most uncalled for operation in all surgery is gastropexy. I have seen a number of operations of this kind with bad results. It does the very thing that it ought not to do: It fixes the stomach or

olon when it ought to be freely movable. Visceroptosis goes ack to our ancestors. They are responsible for this con- ition more than any one else. The atony that sometimes oes with it is a thing with which we can deal. Many of the nest men and women I know, those who are doing the great



Fig. 21.—Normal long stomach in female: 11 cm. caudad of interiliac line.

things in this world, are people who have visceroptosis. It is important to impress on the patient that it does not make any difference what part of the abdomen the stomach rests in; it is a question of tone.

DR. E. C. FISHBAUGH, Los Angeles: It is not uncommon to have women enter the office bent forward and holding their abdomen, and bringing a diagnosis of visceroptosis. I think it is just as normal for some persons to have a low placed stomach as for some to have short legs and others to have long legs. It is part of the normal construction. When, in my cases of hyperfeeding on a milk diet, there has been marked increase in weight, no marked change in the position of the stomach has been noted. The great improvement following the gain in weight is probably not due to change in position of the stomach and intestines but to increased intra-abdominal pressure.

DR. G. R. SATTERLEE, New York: I think that we are now finding out quite generally that the position of the stomach has no very important bearing on the general health, and also that we are coming more and more to regard the stomach as being one of the less vital parts of the gastro-intestinal tract. I was one of the earliest to study the gastro-intestinal tract thoroughly by means of the roentgen ray. I started out with the idea, as many of us have done, that, because gastroptosis was so frequent in patients with gastro-intestinal and general symptoms, posture and support were fundamental in the treatment and care. Since that time I have been gradually eliminating one or both of these factors. And yet, I have seen a large number of patients with gastroptosis restored to health by the simple means of posture, abdominal support and elevation of the foot of the bed. Therein I differ somewhat from Dr. Harris' observations and theories. I have seen patients with a considerable amount of infection gain 20 or 30 pounds after correction of posture, without any very particular hygiene or treatment. However, instruction in general hygiene is important, and removal of foci of infection is indispensable. In gastro-enteroptotic patients, two factors are frequently overlooked: the care of the mouth and the study of the colon. The patients may be improved by general hygiene, but permanent results are frequently not obtained until oral infection is thoroughly eradicated. As the colon frequently is badly infected, the treatment should be directed particularly toward the care of this organ. Unless we treat these patients from the standpoint of both oral and colonic sepsis, the results will always be unsatisfactory.

DR. R. O. MOODY, Berkeley, Calif.: This study shows that the conditions clinically designated as visceroptosis and gastroptosis are common in healthy young men and women. The fact that patients said to be suffering from gastroptosis, after six weeks in bed with proper feeding and exercise, feel like new persons is not due to a change in the position of the stomach. Any run down, nervous person, put to bed for six weeks, with a forced diet and exercise, will be much benefited. The recovery of the patient is due to the improvement in the general condition, not to a change in the position of the stomach. Our results further indicate that increase in weight of as much as 20 pounds has little effect on the position of the stomach. Dr. Satterlee spoke of the effect of drawing in the abdominal muscles and pointed out what is a fact, that the stomach is forced immediately upward by such contraction of the muscles. But the inference he drew that the strength of these muscles has much effect on the position of the stomach does not follow. An increase in the strength of the abdominal muscles does not result in any such drawing in of these muscles. We think that this study demonstrates that the strength of the abdominal musculature is a negligible factor in the determination of the position of the stomach.

A NEW PROCEDURE FOR PERFORMING LITHOLAPAXY*

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During the last ten years, lithotomy has been written on extensively. Does this indicate that, in the advancement of surgical technic, lithotomy has become the operation of choice, or that litholapaxy is too dangerous a procedure? The advancement in prostatic surgery no doubt eliminates the stone cases that are complicated with a prostatic hypertrophy as these are today handled

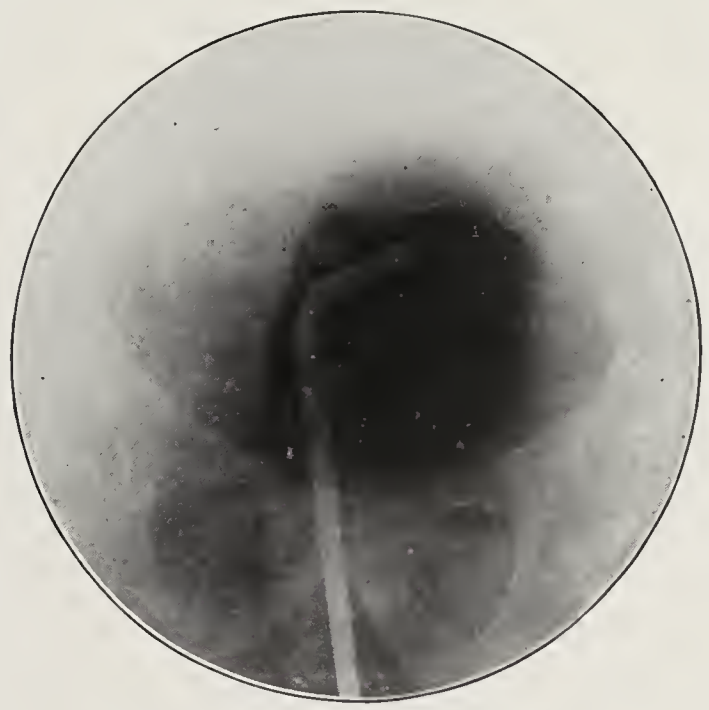


Fig. 1 (Case 1).—Lithotrite grasping stone.

at the time of prostatectomy. We have always been of the opinion that in an uncomplicated case of vesical calculus lithotrity or litholapaxy is the operation of choice.

* From the Urological Clinic of the Hebrew Hospital.
* Read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.
* Owing to lack of space, this article is abbreviated in THE JOURNAL by omission of a review of the literature. The complete article appears in the Transactions of the Section and in the authors' reprints.

OBJECTIONS TO THE PRESENT METHOD

Objections to the present method may be divided into two groups: (1) when the plain lithotrite is used, and (2) when the cystoscopic lithotrite is employed.

Under Group 1, the objections are that: (*a*) The operation is performed blindly. Everything depends on the sense of touch and good fortune. Neither the instrument nor the calculus is under the control of the eye. (*b*) There are possibilities of various accidents. (*c*) The operation is limited to those having had a long experience. Novices are excluded.

Under Group 2 the objections are that: (*a*) It is applicable only to small, soft stones (not exceeding 1 inch in diameter). (*b*) Accidents may arise, owing to the weak mechanical construction of the lithotrite. (*c*) The field is clouded from blood or crushed stone.

Not satisfied with the methods employed up to the present time, we attempted and devised a method by which the operation of lithotrity or litholapaxy is made a safe and rapid procedure, and at the same time visualized without the aid of the cystoscope. This is performed by combining litholapaxy with fluoroscopy in an air medium.

TECHNIC OF NEW METHOD

The patient is placed in a dorsal elevated position on the fluoroscopic table. Preparation is the same as for cystoscopy, washing the genitalia with soap and water and then with mercuric chlorid. The genitalia are then draped with sterile dressings. The operation should be performed under some form of anesthesia, which will be spoken of later.

It is essential for the external meatus to be sufficiently large to admit a large calibered instrument; therefore an external meatotomy is performed. A soft rubber catheter is inserted into the bladder, the urine emptied, and then the bladder irrigated with some antiseptic solution. The bladder is next examined under the fluoroscope and is located by observing the presence of the catheter. This is then drawn out so that there is no curling of the catheter. With a 50 c.c. syringe that will fit the catheter, air is injected slowly into the bladder to the full capacity as determined with fluid on some previous occasion. When the bladder is sufficiently distended, the catheter is removed. The calculus as seen under the fluoroscope appears as a dark shadow, and the air as a light shadow; therefore a direct contrast can be seen. Observations should be made as the air is being injected by an assistant, as the eye becomes better accommodated to the contrast of shadows. In the presence of a calculus, the air will be observed surrounding it.



Fig. 2 (Case 2).—*A*, vesical calculi: air injection; *B*, lithotrite grasping stone; *C*, after crushing.

The lithotrite is next introduced into the bladder in the usual manner, special care being taken in passing it through the posterior urethra and then into the bladder. No pressure should be exerted. After the instrument has passed by the vesical neck, there should be no attempt made at pushing the instrument without observing conditions under the fluoroscope. With the fluoroscope, the beak can be seen in the bladder. This



Fig. 3 (Case 3).—*A*, three calculi; *B*, lithotrite grasping stone; *C*, lithotrite grasping other stone; *D*, after crushing.

should be turned from side to side, and the blades opened and closed. With the blades open, which is easily seen, the calculus is again located and grasped. When the stone is caught between the blades, they should be locked. The beak of the instrument should be turned from side to side, and the calculus will be seen carried across at the same time. The next step is the crushing of the stone. This can readily be observed if the beak is turned to one side or the other. After the original stone is crushed, any large pieces that remain can be crushed likewise; or, if more than one stone is present, these can be treated in a similar manner. After the crushing procedure is completed, the blades are opened and closed two or three times under direct observation in order to force any small pieces out of the blades so that they can be brought together. The beak is then brought to the median line, turned upward, and the instrument removed with extreme gentleness.

As the air distended bladder is well observed under the fluoroscope, it is always possible to see whether the beak is pulling the bladder mucosa, as there will be an irregularity of the air shadow produced. After the lithotrite is removed, the evacuating apparatus may be inserted at this sitting or another sitting; or, if preferred, the cystoscopic rongeur may be introduced to

remove the larger crushed pieces and allow the patient to pass the small particles.

A catheter may or may not be inserted into the bladder. To avoid any unnecessary infection, it is advisable to inject about 2 ounces (60 c.c.) of some antiseptic solution into the bladder.

The patient is returned to bed and allowed to leave the hospital in from twenty-four to forty-eight hours.

ROENTGENOLOGIC TECHNIC AND EXPOSURE

The patient is placed on the horizontal fluoroscopic table, on which a rubber sheet has been placed. Any horizontal table will suffice for this purpose. The fluoroscopic box is controlled by a shutter which allows only the field under observation to be exposed and also acts as a protection for the patient. Either the self rectifying 30 milliampere fine focus tube or the regular fine focus tube may be used. Every precaution is taken both for the patient and for the operator in order to avoid any injury that may result from the effect of the rays, the operators using leaded rubber gloves and aprons of the same material. The table has an aluminum top which acts as a filter. Five milliamperes of current and 5 inch spark gap we find satisfactory.

The distance from the target to the tube in our case is 15 inches. We also use a filter. According to our arrangements, we are permitted to give the patient a total exposure of at least ten minutes. This time will have to be calculated according to the table used, as some distances increase more or less. The current is not allowed to pass continuously, only that degree of exposure being given for the operator to see the calculi, grasp and crush them, or to ascertain his bearings.

In our small series, no patient has had more than a total exposure of six minutes, with a minimum of four minutes.

ANESTHESIA EMPLOYED

It is advisable to use an anesthetic of some form, as the mucous membrane of the urethra and bladder in all these patients is very sensitive. If a local anesthetic is used, 3 ounces (90 c.c.) of a 5 per cent. procain solution should be injected into the anterior and posterior urethra, and also the bladder. A Dakin syringe is used for the injection in the urethra and through the catheter for the bladder. The solution is allowed to remain fifteen minutes before the lithotrite is introduced. With this, a fair anesthesia is produced, at least sufficient to keep the patient fairly quiet. The best anesthetic effect was obtained when spinal anesthesia was employed. For this we used morphin and scopolamin subcutaneously and apothesin intraspinally. Sacral anesthesia may be employed, but up to the present we have not used it in any of our stone cases. It is practically impossible to use nitrous oxid, owing to the inability to watch the patient in a darkened room. It is not advisable to employ ether anesthesia on account of the inflammable characteristics of ether, which would render it dangerous in the presence of the fluoroscope.

ADVANTAGES OF NEW METHOD

The advantages of the new method may be thus enumerated:

1. The operation is performed under the direct observation of the eye.
2. The time of operation is greatly reduced.
3. The possibilities for accidents are nil.
4. Stones of large size can be crushed.
5. No hemorrhages or trauma result.
6. It can be performed by any one using extreme gentleness.

THE CONTRAINDICATIONS FOR LITHOLAPAXY

Irrespective of the method employed, the contraindications remain the same, and are as follows:

1. For a calculus in a diverticulum, an open operation should be performed.
2. Again, for a calculus with an enlarged prostate, an open operation should be resorted to, the calculus being removed at the time of prostatectomy. If the patient should object to an open operation, or if it is questionable as to whether most of the disturbance is caused by the calculus or prostate, then the calculus should first be crushed.
3. A calculus in the presence of a urethral stricture should be treated after the stricture is dilated.
4. Should a calculus be so large as not to allow the blades of the lithotrite to be opened, then litholapaxy should not be resorted to. This can be determined best after an examination under the fluoroscope.
5. A calculus in the presence of a neoplasm should not be treated by litholapaxy.

REPORT OF CASES

CASE 1.—M. S., a man, aged 68, widower, merchant, seen Sept. 6, 1922, complained of frequency of urination. The family history was unimportant. He had had urinary disturbance for fifteen years. Two and a half years ago he had two calculi removed, each about the size of a large horse-chestnut. These were removed at the time of a two stage prostatectomy. The prostate was removed *en masse*. The suprapubic wound closed nicely. The postoperative cystoscopic findings were negative. The patient developed hernia. Otherwise the course was normal.

About three weeks before admission, the patient began having difficulty on urination, together with frequency, tenesmus, some straining and passing of blood. There was retention on one occasion; there were no constitutional symptoms.

General examination was essentially negative except for the presence of infected urine and the postoperative hernia. Rectal examination was negative. Cystoscopic examination revealed 30 c.c. of residual urine; there was no intravesical bulging; the vesical orifice was normal. There were three calculi in the bladder, the sizes of which were approximately 4 by 3 cm., 4 by 3.1 cm. and 0.7 by 0.5 cm. Several small calculi were present. A roentgenogram demonstrated three calculi in the bladder.

September 12, with the technic described, the bladder was irrigated with potassium permanganate solution, 1:3,000, 350 c.c. of air being used. The calculi were crushed. When the last large fragments were crushed, the evacuator was applied, removing large quantities of crushed calculi and numerous larger pieces. The cystoscopic rongeur was introduced, and several pieces about 1.5 cm. in diameter were removed. As no anesthetic was given, it was decided to remove the remainder of the fragments at another sitting. The operating time was eighteen minutes. The exposure time was six minutes (Tables 1 and 2).

September 19, the patient brought several large pieces he had passed. With a cystoscopic rongeur, three large pieces were removed, each about 8 mm. in diameter.

September 26, with the evacuating apparatus, three pieces of calculi were removed, each about 3 mm. in diameter.

October 4, the patient reported that he had been passing the urine in a very good stream. With the cystoscopic rongeur, the last two pieces were removed.

October 27, cystoscopic examination revealed no calculi in the bladder. The patient voided urine in a good stream.

Jan. 7, 1923, cystoscopic examination revealed no calculi.

April 12, cystoscopic examination revealed no calculi. The patient was voiding in a good stream, and was discharged, cured.

CASE 2.—H. H., a man, aged 69, married, tailor, seen April 3, 1923, was unable to urinate freely. The family history was negative as to tuberculosis, syphilis or malignancy.

He had had the usual diseases of childhood but was never seriously ill. Suprapubic prostatectomy (one stage) had been performed five months ago, complicated by epididymitis. After operation, a suprapubic fistula remained open for six weeks.

The present illness dated back from the time he left the hospital, when he suffered with frequency of urination, tenesmus and straining. In spite of operation, his condition had not improved. He was not subjected to cystoscopy because of the epididymitis that developed. His general condition was run down. He had lost about 15 pounds (7 kg.) in weight.

TABLE 1.—*Review of Cases*

Case	1	2	3
Age	68	69	60
Roentgenogram	Positive	Positive	Positive
No. of calculi	Three	Two	Three
Size of calculi	4 by 3 cm., 4 by 3.1 cm., 0.7 by 0.5 cm.	2.5 by 2.5 cm., 3.2 by 2.1 cm.	4 by 3 cm., 3 by 2.5 cm., 4 by 2.5 cm.
Consistency	Phosphatic	Phosphatic calcium oxid	Phosphatic
Nucleus of calculi	Pus and débris	Fibers of gauze	Unknown
Previous calculi	Yes	No	Yes
Previous operations	Suprapubic lith. and prostatectomy	Suprapubic prostatectomy	None
Previous attempts at crushing	None	None	Seven times
Time of operation	18 minutes	15 minutes	15 minutes
Exposure time	6 minutes	4 minutes	4 minutes
No. times lithotrite used	Two	One	One
Anesthesia	None	5 per cent. procain	Spinal
No. of sittings	Four	Two	Two
No. of days spent in hospital	Four	Five	One
Medium used	Air	Air	Air

Abdominal examination revealed no palpable tumor mass; neither kidney was palpable; there were no areas of tenderness in the renal or ureteral regions. There was a scar in the suprapubic region from the old operation. There was no hernia. The urine was cloudy, owing to many pus cells, red blood cells, many staphylococci and colon bacilli; it was positive for albumin and negative for sugar. Examination of the external genitalia revealed no urethral discharge and no testicular involvement. The left epididymis was enlarged and indurated. Rectal examination revealed the sphincter of good tone; there were no hemorrhoids. There was no enlargement of the prostatic area. The rectum was free. There were no areas of induration or adhesions. Cystoscopy revealed 50 c.c. of residual urine. The bladder capacity was 150 c.c.; it was of good tone, with no intravesical bulging. The vesical orifice was in good condition. The trigon was covered by two smooth calculi, round in outline, each measuring approximately 3.1 by 2.5 cm. No diverticulum or bladder tumor was observed. A roentgenogram demonstrated the presence of these calculi.

April 26, by means of the same technic as described, 5 per cent. procain being used as an anesthetic, the calculi were crushed, the operating time being fifteen minutes, including the taking of some roentgenograms. The exposure time was four minutes. The bladder was irrigated with a large catheter, and some of the crushed particles were removed.

May 3, with a cystoscopic rongeur, all the calculi were removed, some of which were very large.

May 10, the patient voided in a good stream and felt good, but said that he had some dribbling at the end of urination.

May 11, dribbling was less than it had been.

May 24, he voided in a good stream. Only occasionally did he notice a few drops of urine at the end of urination.

May 29, cystoscopy revealed a good vesical orifice, and no calculi were present. The patient said he was not disturbed with dribbling, and he was discharged, cured.

CASE 3.—S. H., a man, aged 60, married, merchant, seen April 17, 1923, complained of stones in the bladder. The family history was unimportant. The urinary disturbances were the only things of importance. There had been cutting pains in the penis for five years. Six months ago he visited a urologist, who examined him with a cystoscope and informed him that he had some large vesical calculi. Seven attempts were made at crushing with a lithotrite, only small fragments being removed. He had marked frequency, burning and tenesmus during the day, but not so much at night. There was some hematuria on straining. The patient stated that he was "torn to pieces" at the last attempt at crushing. There were no sexual or gastro-intestinal symptoms.

General abdominal examination was negative. The urine was cloudy, owing to many pus cells, many red blood cells, colon bacilli and staphylococci. Tests for albumin were positive; for sugar, negative. The external genitalia showed no pathologic changes. Rectal examination revealed no hemorrhoids. The sphincter was of good tone. The prostate was slightly enlarged, and of a soft, doughy and elastic consistency. There were no areas of stony hardness. The seminal vesicles were normal. Cystoscopy revealed 25 c.c. of residual urine, a bladder capacity of 150 c.c., and no intravesical bulging of the prostate excepting posteriorly, where there was a very small median lobe. Three large calculi were observed lying on the trigon; the sizes could not be determined. One was observed to have been chipped at a recent operation. A roentgenogram demonstrated three large calculi.

April 20, with the same technic, 5 per cent. procain being used, an attempt was made to pass the lithotrite; but, owing to the sensitiveness of the urethra, no crushing was attempted. A better anesthesia was necessary.

May 11, under spinal anesthesia, the three large calculi were crushed. The anesthesia was perfect. The evacuating apparatus was not used, as we were desirous of getting the patient to bed. The operating time was fifteen minutes; exposure, four minutes, as shown in the tables.

May 25, under gas anesthesia, all the calculi were removed with the cystoscopic rongeur.

June 1, the patient voided in a good stream. Cystoscopic examination revealed no residual urine; no calculi were present in the bladder. The patient was discharged cured.

TABLE 2.—*Details and Results*

Case	1	2	3
Evacuator	Used	Not used	Not used
Rongeur	Used	Used	Used
No. of large pieces removed	Fourteen	Ten	Twelve
Size of largest piece	1.6 by 1.2 cm.	1.5 by 1.1 cm.	1.8 by 1 cm.
Weight of pieces removed	430 grains	310 grains	550 grains
Amount of air	350 c.c.	150 c.c.	100 c.c.
Catheter drainage	None	For two days	None
Hemorrhage	None	None	None
Accidents	None	None	None
Incontinence	None	Temporary terminal dribbling	None
Urine	Many pus cells, few red blood cells, colon bacilli and staphylococci	Few pus cells, few red blood cells and staphylococci	Many pus cells, few red blood cells, colon bacilli and staphylococci
Residual urine before operation	30 c.c.	50 c.c.	25 c.c.
Residual urine after operation	None	None	None
Complications	None	None	None
P. O. Cyst	Bladder normal except for few cellules	Normal	Very small median lobe of prostate
Mortality	0	0	0
Results	Cured	Cured	Cured

RESULTS

A study of the accompanying tables reveals the various important data that would concern a new operation of this type.

Our results up to the present have been perfect, but owing to the small series of cases (three) that we have had, we would not be justified in saying that it is infallible.

An interesting feature in our results is demonstrated in Case 3. It appears that, since in seven attempts at litholapaxy a capable urologist was unsuccessful, our method must be superior since it effected a perfect result. In our small series we can report no accidents or complications, no mortality, and 100 per cent. cures.

COMMENT

In our series of cases we did not confine ourselves, strictly speaking, to litholapaxy, but deviated slightly and practiced lithotrity in two of them. The purpose was to try both methods. In our future work we intend to practice litholapaxy by employing the evacuator and the rongeur for the removal of crushed fragments at one sitting. With the rongeur, larger pieces can be removed. This, we observed, can readily be accomplished, as the actual time for crushing the stones in each case was between four and six minutes, including the taking of plates and demonstrations. Two patients had three and one patient had two calculi varying in size from 7 by 5 mm. to 4 by 3.1 cm. (Table 1).

To avoid any roentgen-ray burns, we advise that the maximum amount of actual exposure to the rays should not be over ten minutes at one sitting. If any difficulty should arise in crushing all the stones in that time (and it should not), it would be advisable to have the patient return for another sitting.

The rapidity with which the actual crushing of the stones can be performed gives one the assurance that no fear of a roentgen-ray burn need present itself. We advise an intermittent exposure. The duration of the operation may be extended at will, but the actual crushing of stones should be performed as speedily as possible. In order that the eyes should accommodate themselves to darkness, it is well to wear colored glasses or remain in a dark room for at least five minutes.

Various mediums for contrast shadows in the bladder have been tried. In our experience, air has proved the best. The air is not completely expelled from the bladder before from thirty to forty-five minutes. All the patients were over 60 years of age. This, together with the fact that two of them had previous suprapubic prostatectomies, made us feel that they were not the best subjects for another open operation. Case 3 certainly demonstrated to us that the operation is ideal, in that a blind litholapaxy was attempted on seven different occasions.

While spinal anesthesia gave us the best results, we have carried out the same procedure experimentally in cases without calculi, employing Scholl's method of sacral anesthesia. We find that it is very satisfactory, provided no attempt is made to distend the bladder too quickly. We feel that sacral anesthesia should be the method of choice.

Should the crushed fragments obstruct the manipulations of the lithotrite in a case of more than one calculus, then the fragments can be removed. To do this a reinsertion of the lithotrite is necessary. In our cases, all the crushing was done without reinserting the lithotrite at one sitting.

The actual number of days spent in the hospital is far below the number with the open operation for stone (Table 1). The impunity with which this operation can be performed in regard to accidents and complications (Table 2), and the rapidity with which it can be done, should place litholapaxy on a higher and safer plane as an operation than it ever has been.

The excellent contrast shadows produced by the air and the calculus under the direct observation of the eye make it possible for the operation to be performed by a novice.

With the new procedure, the former fears and some of the disadvantages of performing lithotrity or litholapaxy should be dispelled, as at present it meets all the requirements of a perfect operation. The presence of a large external meatus, together with a good anesthetic, assists in giving perfect results.

CONCLUSIONS

1. Litholapaxy or lithotrity, combined with fluoroscopy of the bladder in an air medium, is an ideal operation for vesical calculi.
2. Litholapaxy with the technic advised should be the operation of choice in uncomplicated cases of vesical calculi.
3. The operation is always under the control of the eye, making it a rapid and safe procedure.
4. Accidents and burns are negligible.
5. The operation can be performed by a novice.

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ABSTRACT OF DISCUSSION

DR. WILLIAM F. BRAASCH, Rochester, Minn.: Any attempt made to simplify or make more safe the procedures of litholapaxy and lithotomy should be commended. I have never tried the method Dr. Goldstein has recommended and am not in a position to discuss the procedure he has used. I would say, however, that if it makes it so easy that a novice could use it, it lays the method open to criticism. I wonder whether litholapaxy in any form ever should be used by a novice? It undoubtedly has its dangers, and the paper that Dr. Crenshaw recently wrote brings out very well the possible complications of the procedure. The majority of the stones that should be crushed can be felt and grasped by the sense of touch, and, as a rule, any one with experience should not have a great deal of difficulty. The smaller stones are sometimes difficult to get hold of, and it is possible that the coincident fluoroscopy might then be of value. The small lithotrite is frequently much better than the standard size in crushing the small stones. Of the several instruments that can be employed to crush small stones under inspection, the cystoscopic rongeur, as suggested by Young, is probably the most serviceable. Young has for years attempted to bring out an instrument that would permit of both inspection and litholapaxy, but so far has not been successful, according to his own statement. The suggestion of Dr. Goldstein appeals to me as one of considerable value and I think it well worthy of trial, although I dare say it would be confined largely to the small fragments that cannot be picked up by the ordinary lithotrite, and secondly to the deformed bladder, in which the anatomic landmarks are lost. As to the use of air in the bladder. I wonder whether any one has had any unfortunate experiences with this method? I remember that many years ago I used air in the distention of the bladder in connection with cystoscopy, and in several cases it was followed by alarming emphysema of the tissues of the entire abdomen and lower extremities. It is possible that this was the result of bad technic, but since then we have kept away from air in the bladder. It is quite easy for emphysema to take place in the tissues as the result of instrumental trauma. Furthermore, air inflation may be very painful unless one is very careful.

DR. B. A. THOMAS, Philadelphia: I wish to emphasize particularly the point that we should exercise a great deal of discretion in these cases. I take it that Dr. Goldstein recommends this as a routine, ideal procedure in almost all cases of stone in the bladder. I feel that there are many cases in which we should discriminate very carefully with regard to endoscopic removal of the stone or resort to cystotomy, preferably suprapubic, for removal of the calculi. Particularly in the cases of badly infected bladder, or when there is hypertrophy with diminished capacity, do I feel that the danger of litholapaxy is far greater than definite surgical procedures, such as cystotomy, for removal of the calculus; and yet I can see where there are certain selected cases in which, as the result of operation, prostatectomy or what not, or when the patients are in bad organic condition, the minority of cases, this procedure should receive very careful consideration.

DR. JOSEPH WALKER, Tacoma, Wash.: I was glad to hear Dr. Goldstein mention the use of air. Some years ago I tried

to distend the bladder and use the endoscope, and within a few minutes the patient died. The necropsy showed no lesions in the bladder or intestine, but a ruptured kidney pelvis. The entire blood system was filled with air, as well as the lungs and other tissues.

DR. VICTOR VECKI, San Francisco: From a historical standpoint it may be interesting to note that the first endoscope ever used was devised by a Hungarian in Budapest, Professor Antal. I was at his clinic in 1888 and have seen beautiful pictures, the structures showing very clearly, more so than we see them now. At the time of my last visit, one of the patients collapsed and it took hours to get him back to life at all. In the afternoon he was dead. The necropsy revealed no reason for death. That was the end of Antal's aero-endoscope. I think it really broke the poor professor's heart, for he died shortly afterward. About twelve years ago an aerocystoscope was made by the Wapplers, and I have used that for several years. Though I never saw any mishaps, I still was a little bit afraid and very careful because I saw that one man die at Budapest.

DR. JOSEPH L. BOEHM, New York: The method has its use in selected cases. I should like to ask Dr. Goldstein his opinion in regard to calcium oxalate and jackstone calculi. We know that these stones are very hard. I have seen some that the strongest hands could not crush with the strongest lithotrite. On the other hand, we see the so-called encysted stones, and I should like to know his attitude in regard to these two conditions. As far as the question of air is concerned, I wish to say that in 1900 we did considerable experimental work in St. Louis in the pioneer days of the air cystoscope. We injected air up into both ureters and into the veins in animal research work. The so-called air embolus never bothered us. I have seen emphysema of the tissues, such as Dr. Braasch reported, and these cases are alarming; but I have never seen a fatality from such a condition. Per se, with air injected directly into both ureters under some force, we never had a fatality.

DR. R. E. FOX, San Francisco: My experience has been quite limited, but in my opinion this procedure will become a very important factor in the removal of these conditions. Those of us who are afraid of air might use some other means; but in uncomplicated cases of large stones I do not think we would be justified in subjecting a patient to a procedure that keeps him in the hospital for two weeks or longer when we can return the man to work within a week by using other methods. Of course, I am talking from the army standpoint.

DR. HERMAN L. KRETSCHMER, Chicago: Dr. Goldstein is to be complimented on working out this new technic for stones in the bladder. The question of treating bladder stones by litholapaxy is something that has not received the widespread attention it should. It was Bigelow of Boston who first conceived the idea of crushing the stone and evacuating the fragments all in one sitting. It remained for foreigners, principally men in the Indian medical service, to report large series; and in this country the only large series in recent years has come from the Mayo Clinic. I believe that uncomplicated cases and the ones Dr. Goldstein presented following prostatectomy can be handled as they have in the past. I do not believe that men who are familiar with bladder instruments will have much trouble in grasping the stones and fragments. I think that if these cases are handled as they were formerly, by the sense of touch, they can be removed in this way, and that means a simplified litholapaxy technic. There may be a certain number of cases in which it is necessary to use the roentgen ray combined with litholapaxy; but this at once complicates the technic. I do not think that we should go away with the idea that all stones that have to be treated with litholapaxy will have to be treated with the combination of roentgen ray and litholapaxy.

DR. C. E. BURFORD, St. Louis: There are two reasons why I do not use litholapaxy, and I have not used Dr. Goldstein's method. In some cases a very severe reaction follows the crushing of the stone, out of all proportion to the magnitude of the operation, and for that reason I have done the suprapubic operation. In the second place, I have found in nearly all cases that have existed for some time a contracted vesical neck, and in some cases I have found it so very hard that I have been unable to dilate it and have had to take out a section of this ring, which was so contracted. In the vast majority of cases of stone in the bladder it is better to do a suprapubic operation so that we can deal with this contracted vesical neck, which seems to complicate the thing so greatly. I should like to know how much experience the doctor has had with the air distention.

DR. E. G. MCCONNELL, San Francisco: I have had some experience in this kind of work, and think that the doctor is right in stressing the sense of touch more than any other feature. I have known good clinicians who have entered the bladder with the lithotrite and have been unable to pick up the stone. I have known cases in which the stone has been crushed and they have not been able to pick up the fragments. That is all due to the sense of touch. There is no question that the method of Dr. Goldstein will aid in removing the small pieces. The ammonium phosphate stones are very easily removed; but to put the lithotrite in the hands of the novice I think is a grave mistake. There are liable to be grave consequences even when it is used under the eye of the operator. I have operated in at least 300 cases, and have used local anesthesia at all times.

DR. JOHN C. SPENCER, San Francisco: Referring to Dr. Goldstein's paper, I am reminded of an elderly patient with an immense overdistention of the urinary bladder. In attempting to relieve the retention, I passed a gum elastic instrument without discovering that there were calculi in the bladder. In attempting to palpate the bladder by rectum there was nothing evident but enlargement with exquisite tenderness. As there was so much distention I determined to do a two stage operation for removing the prostatic enlargement. On opening above the pubes and reaching down to the bladder neck, I came in contact with three calculi that were obstructing the neck of the bladder, and removed them. In that case Dr. Goldstein's method would have been useless, for the stones were too low and could not have been grasped by the lithotrite. This is one of the difficulties that one may encounter in the method reported by Dr. Goldstein.

DR. HENRY G. BUGBEE, New York: Several good points have been brought out in the discussion; namely, that the lithotrite should be used only by the trained operator. It is not an operation to be entered into lightly, and if one possesses the skill he should have before attempting this work he should be able, in the majority of cases, to perform the operation as it has been performed in the past. In some cases the procedure of Dr. Goldstein will be of value. In cases of smooth, hard stone, difficult to grasp in the lithotrite, this method would be of value, and in certain other cases, an oxalate stone for instance; but in the vast majority of cases I believe the older methods are still applicable.

DR. ALBERT E. GOLDSTEIN, Baltimore: Some very timely suggestions have been brought out, and the criticisms were well taken. The work is at the present time in its infancy, but it is our purpose in the future to work on a larger series of cases, and at that time I shall be able to discuss it more fully. As to the air injection, we have likewise injected air into the ureters and kidney pelvis on numerous occasions in connection with pyelography, and up to the present time we have never had bad results. I have also injected air into the bladder and as yet have never had any trouble. Whether we shall have trouble cannot be said; but I think that the principal thing is not to produce trauma. Certainly, if we produce trauma we can get emphysema and extravasation. In traumatic cases air is very bad, but in this work the air is introduced through an ordinary soft rubber catheter, and in that way one should not produce any trauma. It is very important to remember that no water or air should be injected into a bladder or kidney without knowing the capacity of these organs. Knowing the capacity, we shall never overdistend the bladder. We have had cases of contracted bladder, but by knowing the capacity we have never overdistended it. In the cases of very hard stones and in some other contraindicated conditions that are mentioned in the paper, the stones cannot be crushed and we are compelled to do a suprapubic

operation. In 1912, Cabot reviewed the literature and declared that in the hands of the novice a litholapaxy is safer than a lithotomy. The reports were extensive, and he had some good results in his work. I was glad to hear Dr. Boehm say that he never had any severe reaction with air. I agree thoroughly with Dr. McConnell that many experienced men have not been able to grasp a stone with a lithotrite. The third case I showed was one in which a noted urologist of our city had made seven attempts at litholapaxy, each time chipping off a piece of the stone, and then advised the patient to have an open operation. The man came to me for that purpose, but I persuaded him to let me try this method. We crushed all the stones at the first sitting and removed them. The patient has been examined by cystoscopy three times since then, and is well today.

RESTRICTION OF RATE OF FLOW AND INTERCHANGE IN THE CAPILLARIES

ADMINISTRATION OF VASOCONSTRICTOR DRUGS TO PREVENT ABSORPTION OF INJURIOUS SUBSTANCES, ESPECIALLY IN SUPERFICIAL BURNS, AND IN TRAUMATIZED AND INFECTED TISSUES *

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On Nov. 19, 1920, I began, with the following experiments, to study the restriction of the rate of flow and interchange in the capillaries by local and combined administration of vasoconstrictor drugs, as a means to prevent absorption of injurious substances, especially those encountered in superficial burns and in traumatized and infected tissues:

EXPERIMENT 1.—In a white rabbit, not used for experiment before, whose general condition was good, under short ether anesthesia the left ear was denuded of epithelium by rubbing with the edge of a razor blade over a measured area of 3 sq. cm. The wound was not deep enough to cause bleeding. A saturated solution of 1/10 grain strychnin sulphate was then rubbed into the wound for four minutes with the gloved finger. Four minutes from the beginning of the application of the strychnin, the animal became extremely irritable, and the slightest jar of the table produced violent convulsive movements of the extremities, which effect continued over a period of fifteen minutes, with the final production of opisthotonos, followed by return to a normal condition in a period of one hour.

EXPERIMENT 2.—In a brown rabbit, not used for experiment before, whose weight was the same as that of Rabbit 1, and whose general condition was good, in an exactly similar manner, under ether anesthesia, an area of the same size was denuded of epithelium to the same depth by abrasion of the left ear. Epinephrin chlorid, 10 minims of a 1:1,000 solution in 1 fluidram of procain, 1:100, was then applied to the wound for three minutes' time before washing it off. This produced marked blanching. Then an exactly similar saturated solution of strychnin, 1/10 grain, was applied in a like manner for four minutes by rubbing. In a period of fifteen minutes no symptoms that could be attributed to strychnin were elicited. For an hour the animal was quiet and not spastic in the least.

From a result so striking I seemed amply justified in concluding that (1) epinephrin chlorid and procain, when applied locally in very dilute concentration, will produce a circulatory block so complete as to prevent the absorption of a toxic dose of a drug in saturated solution, and (2) the blocking of the small vessels is maintained even in the presence of a strong drug and in spite of brisk rubbing with wet powder.

Many other quantitative experiments, all of them variations of the original, but with procain omitted in some, have confirmed these convictions and have added further interesting data. These will be reported soon in full detail.

The chief purpose in developing a treatment based on these principles is to attack conditions such as local inflammatory processes, due to traumas or infections of the external or internal body surfaces and cavities. Superficial burns quickly exposing large areas to the action of an injurious substance perhaps constitute the most urgent indication for local vascular constriction. But traumatized tissues, infected wounds, erysipelas, pleural empyema and cystitis also offer a broad field for its employment.

In treating such conditions in the future, I believe that more emphasis should be placed on the early production of a nonreceptive, nonexchanging surface, with vessels, by means of suitable drug action, forced to supply only the normal needs of the tissues instead of being allowed, as usual, to respond to the abnormal demands of organisms that may or may not be overcome in the inflammatory reactions which follow. Once the integument or membranes of the body are passed, the small vessels constitute the most important highways for invasion by organisms and for absorption of injurious substances. No organisms can live and multiply unless a suitable medium is provided. Their growth will not be favored by surface conditions such as the ones described. The tissues will not suffer injury from the production of such conditions, provided details of technic are followed carefully. A germicide that prevents the spread of organisms and their products while it kills the former offers distinct advantages.

My study of burns during a period of years has led me to believe that they should be regarded as surgical emergencies of the first order. From the experimental results of Vogt,[1] confirmed by the more recent ones of Cevario[2] and others, I am convinced that the major constitutional symptoms of burns, including the ones causing death after the early traumatic shock period and before the period of infection, are due to material absorbed from the surface. Much light has been thrown on the exact nature of the substance producing these symptoms by my colleagues, Drs. Kenneth D. Blackfan and C. A. Mills.[3]

I believe that extremely early intervention by local vascular blocking before or during the early stages of inflammation is always desirable, and in extensive burns is indispensable from the standpoint of the patient's life. Under a binocular microscope let one but see the enormous capillary bed (under normal conditions potentially closed) that is opened up quickly by a first or second degree burn; let him then think of it in terms of absorption, as conveniently illustrated by the experiment with strychnin mentioned above. I do not feel that he will then fail to realize this necessity of early intervention. We must keep in mind always that, before any aid arrives, a burned patient has already

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1. Vogt: Ztschr. f. exper. Path. u. Therap. **11**: 191, 1912.
2. Cevario: Sulla Pathogenesi della Morte per Ustione Pathologica, 1921, p. 13.
3. I am indebted to Drs. Kenneth D. Blackfan, George J. Heuer and C. A. Mills for checking the accuracy of my results. The parts of the work dealing with burns will be published later and simultaneously with the contributions of the two former men on the nature of the substance producing the symptoms in burns, an abstract of which appears in the Transactions of the American Society for Clinical Investigation for 1923.

passed through a severe ordeal. In the hours that follow he can ill afford to be subjected to further injury. The traumatic and the so-called "toxic" periods must be separated for him. Absorption of injurious substances, no matter what their nature, must be delayed, and, if possible, the cause eradicated later on. Though perhaps a less spectacular procedure, it is just as important to prevent a patient from being fatally poisoned through a large capillary bed as it is to prevent his bleeding to death by the application of a tourniquet. Hence my seemingly radical belief, which clinical results already seem to justify.

I first considered employing light local pressure, interrupted by periods of relaxation, as a means of exerting a "tourniquet" action on the capillaries, but the technical difficulties of applying inflatable rubber jackets or of immersing insulated patients in heavy solutions have made other methods appear more valuable clinically.

The results of my first experiment have stimulated me to investigate the fundamental factors involved both from a laboratory and from a clinical standpoint. In a series of gross and microscopic studies, I have recorded the actions of epinephrin, pituitary extract and ergot on the capillary circulation of rabbits, dogs and human subjects. In rabbits I have employed the ear vessels, in dogs the abdomen and thigh, and in human beings the nail base, the back of the hand and other locations presented by clinical wounds. In the microscopic human studies I have made use of a modification of the original method of Lombard,[4] and have avoided errors in observation as suggested by Krogh.[5] Both the local and the central method of administration have been of interest. Ointments and solutions have been tested on epithelialized and unepithelialized surfaces. The solutions have been combined in various ways with antiseptics, such as surgical solution of chlorinated soda. Quantitative factors have seemed especially important, so in all observations I have noted the force and duration of the pressor action for various drugs constantly and intermittently applied. Also I have determined absorption rates for large experimental and clinical wounds under such influences, the latter wounds including simple traumatized tissues, as well as superficial burns and infections.

At present, although tentatively following a routine in the wards, I do not feel at liberty to recommend any specific outlines of treatment until they have been given a safe and rational grounding by experiment. I am undertaking a study of the carbohydrate metabolism under the local, and the combined local and central administration of the drugs under consideration. Dr. C. A. Mills has kindly suggested a method for this. The effect on patients with hyperthyroidism must be studied; also the local effect of hypervascularization that may follow the prolonged and constant use of solutions that are too concentrated, followed by their sudden withdrawal. It is not within the scope of a preliminary report such as this to give a detailed description of these studies. Necessarily, though most of them are completed, the results must be published under separate headings. Further clinical and experimental data may alter our ideas with respect to details. However, even now, I am of the opinion that the following conclusions are borne out by the results obtained.

4. Lombard, W. P.: Am. J. Physiol. **29**: 335, 1912.
5. Krogh, A.: Silliman Lectures: Anatomy and Physiology of Capillaries, New Haven, Yale University Press, 1922.

CONCLUSIONS

1. Prompt and lasting restriction of the rate of flow and of exchange in capillaries may be produced over large surfaces devoid of epithelium by constant or intermittent local application of vasoconstricting drugs.
2. The capillary and arteriovenular beds may be reached through unbroken skin by appropriate local diffusion methods without subcutaneous injections.
3. The vessels underlying a superficial burn of the human skin respond readily to pressor drugs after such procedures, the pressor action being distinctly stronger than the dilator forces at work.
4. Experimental and clinical results indicate that epinephrin locally applied will largely, if not completely, prevent its own absorption through direct action on the first vessels not severely injured.
5. Procain, because of its synergy with epinephrin, seems to make this gross effect more complete and lasting.
6. Epinephrin locally seems nonirritating, even when applied for long periods of time to wound surfaces, but, when procain is used with it, analgesia may effectively and safely be obtained should this not prove true in every case. Analgesia thus obtained is useful for preventing pain in surgical dressings.
7. Restriction of the rate of exchange and flow in the capillaries by the means outlined prevents the local absorption of drugs or of other harmful agents into the general circulation until such time as they may be dealt with conveniently at the site of their formation. Absorption through the lymphatics and by tissue diffusion seems negligible.
8. Such restriction allays the extensive pouring out of blood elements into the tissues and the attendant signs of inflammation.
9. No vasoconstriction is absolute. Under direct action of pressor drugs, the circulation in the various small vessels in the nail base and back of the hand will be abolished or much slowed, but these vessels may be seen to open up once in a while (presumably for oxygen and other metabolic requirements). Thus, while the blocking to substances outside is almost complete, the viability of the tissues is not endangered.
10. In any extensive superficial burn or inflammation, the chief purpose should be to prevent the absorption into the general circulation at any one time of a lethal dose of symptom-producing substance until its source may be removed or locally destroyed by any means practicable. With treatment based on the principles outlined, we hope to be able to accomplish this in a large majority of cases.

Burns Kill More Women than Men.—There is only one kind of accident—burns—which causes more deaths of females than males. Statistics covering a long period of years show that three out of five deaths from this cause are of women and girls. It is estimated that in 1922 there were not far from 6,300 deaths from this cause in the United States. About 45 per cent. of the deaths from burns occur from birth through the fifth year. . . . During the first three years of life more boys than girls die of burns. With the fourth year the scale turns sharply. Figures for the United States registration area covering a period of twenty-one years show, without a single exception, that in the fourth year of life the relatively high death rate among females begins. The margin increases from five to nine years where more than twice as many girls as boys die of this cause, and there is a more or less pronounced excess in the death rate for females until age 35 is reached. . . . These figures strongly suggest that dress is an important factor.—*Statistical Bulletin*, Metropolitan Life Insurance Company, October, 1923.

THE RELATION OF SPECIFIC GRAVITY TO GLYCOSURIA IN DIABETIC AND NONDIABETIC CASES

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This study was suggested by the realization that too frequently in a case of suspected diabetes the general practitioner gives a negative opinion based solely on the fact that a rapid routine examination of the urine has shown a specific gravity below 1.030. Taking it for granted that if the urine contains sugar the specific gravity must be above that figure, he does not consider it necessary to make a urinary sugar test.

Laboratory experience has shown, however, that sugar can be present in urine of a low specific gravity; but whether this was a rare or a frequent occurrence I did not know, and for that reason the investigation reported here was undertaken. In 1,000 cases of glycosuria, the specific gravity was compared with the urine sugar content, the cases being classified according to the specific gravity (Table 1). Chart 1 shows that as one would expect, the percentage of incidence of glycosuria bears a direct relation to the specific gravity. But the interesting and significant point shown is the high incidence of glycosuria with a low specific gravity.

TABLE 1.—*Relation of Glycosuria to Specific Gravity Level of Urine: An Analysis of One Thousand Urine Examinations*

Specific gravity....	1.000 1.005	1.006 1.010	1.011 1.015	1.016 1.020	1.021 1.025	1.026 1.030*	Total No. of Cases
Positive.....	79	71	58	68	79	171	526
Per cent.....	7.9	7.1	5.8	6.8	7.9	17.1	
Negative.....	216	84	43	61	33	37	474
Per cent.....	21.6	8.4	4.3	6.1	3.3	3.7	
Total.....	295	155	101	129	112	208	
Positive per cent...	27	46	58	52	70	85	
Negative per cent..	73	54	42	48	30	15	

* 1.030 or above (+).

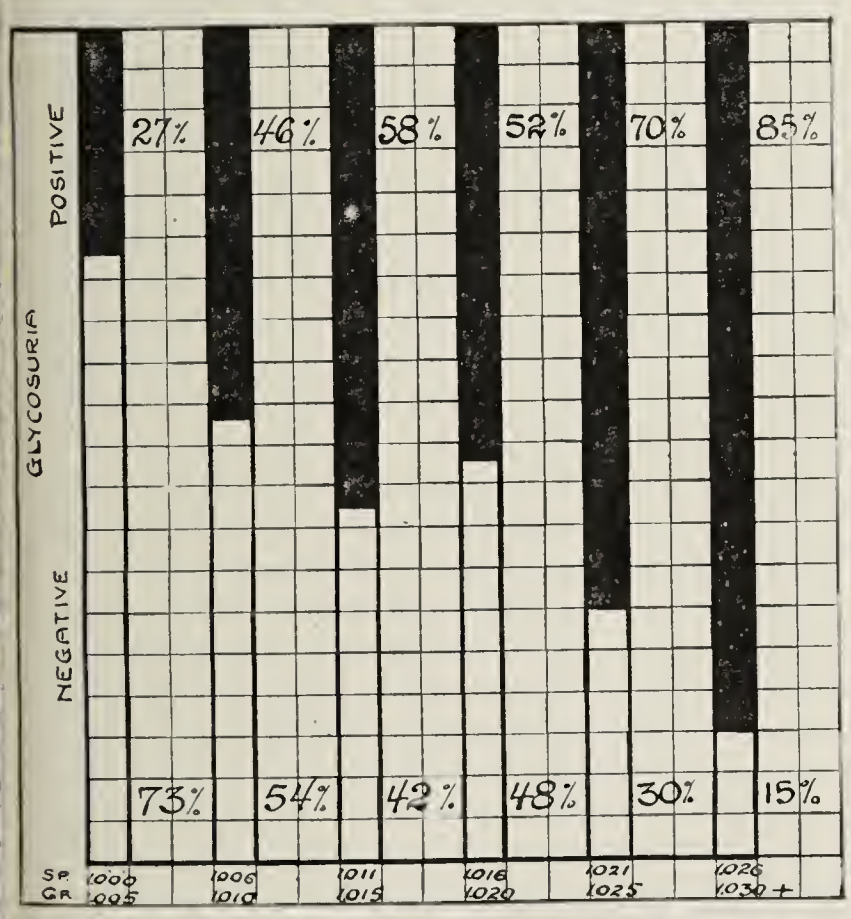


Chart 1.—The relation of glycosuria to the specific gravity level of the urine; an analysis of 1,000 urine examinations.

The cases analyzed in Chart 1 included both diabetic and nondiabetic cases. Chart 2 shows the relationship of glycosuria to nonglycosuria in the urine of 147 diabetic patients in which the specific gravity was 1.010 or below. The relationship shown here is even more significant than that shown in Chart 1, for it demonstrates what a large percentage, 72.5, of cases of diabetes would have been missed if diagnosis had been based on the low specific gravity alone.



Chart 2. — The relation of glycosuria to a urinary specific gravity of 1.010 or less, based on a study of 147 cases of diabetes.

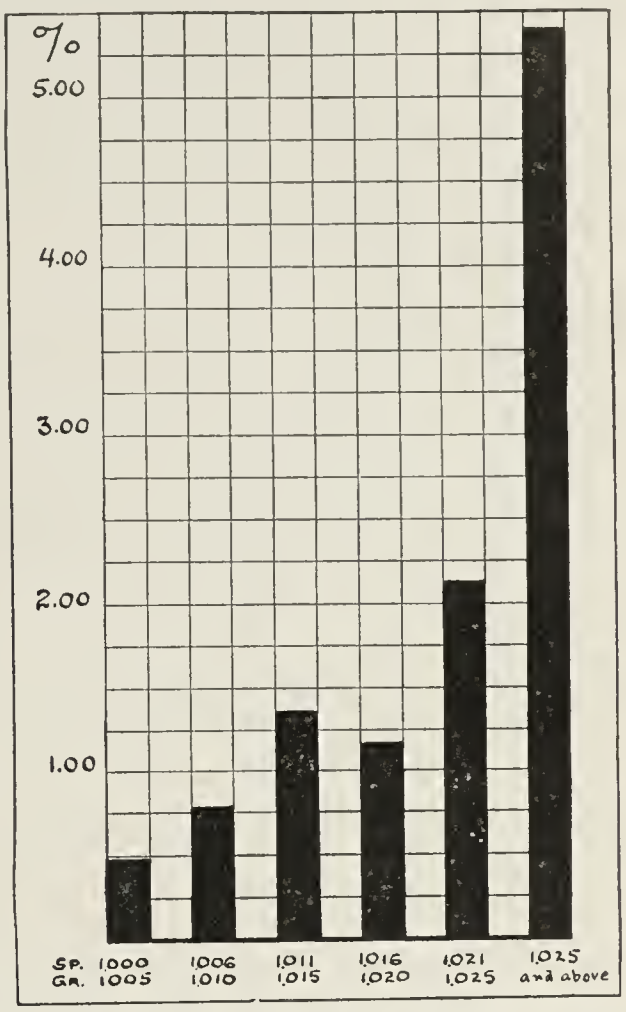


Chart 3.—The percentage of urinary sugar at different specific gravity levels; an analysis of 268 diabetic cases.

TABLE 2.—*Percentage of Urinary Sugar at Different Specific Gravity Levels: An Analysis of Two Hundred and Sixty-Eight Diabetic Cases*

Specific Gravity	Percentage of Sugar in the Urine	
	Average	
1.000 to 1.005	0.46	0.15, 0.08, 1.10, 0.42, 0.11, 0.63, 0.36, 0.01, 0.63, 0.42, 0.21, 0.48, 0.55, 1.30, 0.53, 0.53, 0.67, 0.14
1.006 to 1.010	0.78	0.16, 0.15, 0.11, 0.42, 0.77, 1.30, 0.53, 0.12, 1.50, 1.40, 1.10, 1.50, 1.00, 1.10, 1.70, 0.67, 0.91, 1.20, 1.10, 0.43, 0.43, 0.91, 0.11, 0.13, 0.25, 0.40, 0.63, 1.17, 2.10, 0.87, 0.63, 0.58, 0.58
1.011 to 1.015	1.34	0.33, 0.10, 0.38, 0.09, 1.80, 1.80, 1.20, 1.90, 2.10, 1.90, 0.83, 2.20, 1.10, 2.00, 1.90, 1.40, 1.10, 2.10, 2.50, 1.30, 1.80, 1.80, 0.71, 1.90, 1.90, 1.40, 0.34, 0.58, 0.53
1.016 to 1.020	1.19	0.29, 0.30, 0.31, 0.14, 0.91, 1.10, 1.70, 0.40, 1.20, 0.31, 1.10, 2.40, 0.48, 1.80, 0.91, 0.28, 2.40, 0.30, 0.10, 1.50, 1.80, 1.70, 1.90, 2.40, 2.00, 2.10, 2.10, 0.91, 0.83, 0.71, 0.10, 0.58, 4.35
1.021 to 1.025	2.11	0.40, 0.31, 0.70, 1.80, 0.53, 1.90, 1.20, 2.60, 3.30, 2.20, 0.45, 2.30, 0.38, 3.20, 3.00, 3.60, 2.60, 3.70, 0.68, 1.40, 1.60, 1.60, 3.10, 1.90, 1.20, 1.00, 1.70, 2.00, 2.30, 2.40, 3.00, 3.19, 3.60, 2.40, 3.70, 1.90, 2.50, 3.80, 3.30, 2.90, 4.30, 1.30, 1.40, 1.70
1.026 to 1.030 and above	5.37	0.63, 2.00, 2.00, 2.00, 1.20, 1.70, 3.60, 3.00, 0.38, 1.80, 2.30, 2.10, 2.60, 0.91, 2.20, 2.70, 3.40, 3.60, 3.60, 3.60, 1.90, 3.10, 2.80, 3.20, 3.30, 1.30, 1.50, 3.10, 0.36, 2.40, 2.40, 3.80, 2.80, 2.80, 4.00, 1.90, 2.20, 2.00, 2.20, 3.00, 5.00, 2.20, 1.50, 2.40, 2.40, 2.30, 3.40, 1.50, 1.90, 2.50, 2.10, 3.60, 2.20, 2.90, 4.00, 3.80, 3.10, 3.60, 4.00, 5.00, 1.28, 1.67, 0.83, 0.34, 0.14, 0.58, 0.53, 0.69, 1.50, 1.40, 1.30, 1.60, 4.16, 4.16, 1.30, 2.94, 7.69, 4.90, 2.10, 6.25, 7.35, 3.30, 2.50, 2.00, 2.00, 2.00, 0.88, 2.90, 0.97, 4.30, 4.30, 1.70, 0.20, 0.91, 1.00, 2.50, 0.14, 1.30, 1.30, 1.30, 2.00, 2.50, 2.50, 2.50, 2.50, 6.25, 7.13, 8.33, 5.55, 5.55

In order to find what is the average percentage of sugar at different specific gravity levels, I analyzed the records of the urine examination in 268 diabetic cases. The percentage of sugar in each case is given in Table 2, and the averages in each group are shown graphically in Chart 3. This study again emphasizes the importance of making as complete a study of urine of a low specific gravity as of urine of a high specific gravity. As this study demonstrates, by a negative diagnosis of diabetes based on a low specific gravity of the urine, at least half of the cases would be missed.

CONCLUSIONS

1. Specific gravity alone is not a criterion for or against the presence of sugar in the urine.
2. In many cases—both diabetic and nondiabetic—urine of a low specific gravity contains sugar; and the fact that urine has a high specific gravity does not necessarily indicate the presence of sugar.
3. The only criterion whereby the presence or absence of glycosuria can be determined is the urine sugar test.

MERCUROCHROME-220 SOLUBLE AS A VALUABLE ADJUVANT TO THE SILVER COMPOUNDS

IN THE TREATMENT OF GONORRHEA AND ITS COMPLICATIONS

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Any favorable opinion regarding drugs of doubtful value is necessarily received with skepticism and hesitancy. It is difficult to explain why different workers are at such variance in their results. Assuming that investigators voice honest experiences and conclusions, the varied results must be due to the preparation of the drug, to unknown chemical reactions, or to instability under ordinary atmospheric conditions which render the drug inert, or unfit for use.

With the foregoing problematic factors in mind, we endeavored to determine the clinical value of mercurochrome-220 soluble. So many diverse conclusions have been expressed concerning its value that no attempt has been made to review the conflicting literature. Our subjects include men and women, and for convenience are divided into three groups: (1) acute gonorrhea; (2) chronic gonorrhea with associated complications, and (3) acute exacerbations of old chronic gonorrhea.

During our experimental process, observations were made as follows: (1) Solutions of mercurochrome are very unstable and should not be used if they have stood longer than seventy-two hours; (2) tolerance of the gonococci occurs if the treatment is continuous; (3) solutions ranging from 0.25 to 1 per cent. are just as efficacious as stronger solutions when used in the urethra, and produce no distressing subjective symptoms, and (4) mercurochrome is not a substitute for silver compounds, but is most effective when used in conjunction with them.

TREATMENT

To our previous routine form of treatment for acute gonorrhea in men, which for convenience was divided into four periods, ranging from seven to ten days each, a freshly prepared mercurochrome solution was also used, which we now feel certain added to the potency of the silver compounds, and thereby shortened the course and lessened the complications in most instances.

Patients are given the customary advice with regard to rest, elimination, stimulants, excesses, food, and particularly the forcing of large quantities of water, which is perhaps the most important single factor in preventing the extension of the infection.

First Period (mercurochrome with protargin mild [argyrol]).—The patient is instructed to use, after urinating, an anterior urethral injection of 0.25 of 1 per cent. freshly prepared solution of mercurochrome, four or five times daily for three days, and then to alternate with a 5 per cent. solution of protargin mild (argyrol) for three days. At the end of the latter period, the use of mercurochrome is resumed. During this time, the patient receives office treatment daily, and a 1 per cent. solution of mercurochrome, or a 5 per cent. solution of protargin mild is injected into the anterior urethra, which is promptly followed by anterior and posterior urethral injection of 1 per cent. mercurochrome, or 5 per cent. protargin mild. The former is retained for ten minutes and the latter for from twenty to twenty-five minutes, by means of an ordinary rubber band placed around the glans between the corona and the meatus. The drug used in the office treatment is the opposite of that used by the patient.

Second Period (mercurochrome with protargin strong [protargol] and protargin mild).—The protargin mild injections are now replaced by 0.5 per cent. protargin strong solution, a 0.5 per cent. solution of mercurochrome being used for alternate periods of three days each. The daily office treatments of anterior and posterior injections of 1 per cent. mercurochrome and 5 per cent. protargin mild are continued.

At the end of the first period there is much less discharge, and the secretion is usually free from gonococci. With the changed treatment, however, an increase in the discharge is often noted in the second period, and often the organisms occur temporarily, the result of the stimulating and desquamative action of the protargin strong. Such increased discharge usually subsides by the end of the second period, but sometimes the treatment must be prolonged for a few days.

Third Period (stimulation).—At this time there are ordinarily no subjective symptoms, and slight, if any, objective. A small sound is passed for the purpose of making a background over which to express the urethral follicles, and to flatten out granulations. This is followed by the slow injection into the anterior and posterior urethra of a 1 per cent. silver nitrate solution, which is massaged lightly into the tissues. Repetition of this form of treatment depends on the recurrence or absence of symptoms. In the absence of symptoms, the treatment is repeated with sounds of increasing size, and on intermittent days by catheter (Diday method) irrigations of weak, warm potassium permanganate, to which a little weak silver nitrate solution is occasionally added. During this period, the prostatic secretions should be expressed for examination, as infection of the prostate follicles usually takes place, and massaging the prostate slightly at this time usually prevents future trouble in the gland.

Fourth Period (irrigations).—Resolution rapidly takes place at this stage, and the urine is carefully watched. If a few specks remain, an occasional sound, and possibly the injection of 1 per cent. silver nitrate may be necessary. Further light expression of the prostate

may sometimes be required. Increasingly weaker hot potassium permanganate Janet irrigations are continued daily. If the condition seems somewhat resistant, anterior and posterior Kollman dilators may be passed, and the urethra dilated to 33 or 35 F., after which a urethral injection of 1 per cent. silver nitrate is given. In the absence of reaction, the hot irrigations are continued for several days, and the patient is dismissed from observation.

The foregoing division is, of course, an arbitrary one, for personal judgment must be exercised in all cases. The periods may be lengthened or shortened; but, as a general procedure, the routine described has given uniformly satisfactory results. In checking over uncomplicated cases after periods of several months, we have found them to be objectively and subjectively negative.

Recurrence is rarely seen, even in patients who have developed urethral adnexa and genital complications during the course of treatment, and who later have indulged in excesses. Our experience leads us to believe that if the foregoing treatment, terminated with mechanical, chemical and instrumental stimulation, does not produce evidence of infection, any remaining organisms are so attenuated that the improved bodily resistance will soon destroy them.

The treatment of patients with early chronic gonorrhea and its complications has been varied to meet the symptoms. As a rule, such patients have already had too much treatment with protargin mild, and therefore do not respond well to its use. It is probable that here again a tolerance is developed on the part of the organisms for the same drug if continuously used. Protargin strong and mercurochrome to the urethra, with local care of the urethral adnexa, appear to fulfil a real need in these cases. When used alternately for periods of three days, the protargin strong sets up a desquamative form of urethritis, eliminating much of the superficial layer of the mucosa, which is already much lower in resistance and allows the mercurochrome to penetrate into a much healthier and more resistant tissue, the organisms of which seem to respond well to the action of mercurochrome. The discharge of urethral origin usually disappears within a comparatively short time. If it persists, the urethral adnexa will usually be found to harbor infection, and prompt response will result from additional massage of the prostate, vesicle stripping, light dilation with a Kollman dilator, and massage of the urethra over sounds, followed by a few injections of silver nitrate alternated with mercurochrome. Certain cases may be quite protracted, and if so, resolution may be hastened by Janet or Diday irrigations with very warm potassium permanganate, to which a little silver nitrate is sometimes added. In some instances, it may be necessary to discontinue all treatment for several months. This procedure and the duration of the interval is dependent on the amount of treatment previously administered, and the chronicity of the disease. A cysto-urethroscopic examination should always be made in resistant cases to rule out the possibility of urethral polypi, excrescences and other inflammatory processes in the posterior urethra and neck of the bladder.

In addition to local treatment, hydrotherapy is most important. Patients should drink large quantities of water, and are greatly benefited by local pelvic hyperemia produced by sitz-baths and rectal douches. We recommend that the patient sit in a tub of hot water for from three to five minutes twice a day, and have a rectal douche of a half pint of hot water once a day, retaining it for twenty minutes. In early chronic cases, complete cures are often possible; in markedly chronic cases, however, the percentage of such cures is small. It is probably more correct to speak of them as subjective and objective, for the percentage of subjective cures in both groups is higher than that of the objective. Nevertheless, the early chronic cases, under diligent treatment lasting from six to eight weeks, often present complete subjective and objective cures. We consider it advisable to discontinue treatment when no discharge follows full dilation with the Kollman dilator of the anterior and posterior urethra, and the injection of 1 per cent. silver nitrate, when the first and second glasses of urine are clear, when the material massaged from the prostate contains only an occasional pus cell to the high-power field, and when the patients are entirely free from symptoms. Some of these patients continue to have a high pus cell count in the prostatic smears, regardless of the treatment, and yet may be free from all objective and subjective symptoms. The patients respond better when not treated too vigorously, and when allowed long periods of rest between treatments. As a rule, their condition is not infectious; but they have a low grade of prostatitis which harbors pyogenic bacteria other than the gonococcus.

Acute urethritis from an exacerbation of an old gonorrheal infection is not uncommon. These attacks flare up following excessive sexual intercourse, other forms of stimulation, and instrumentation. Under the treatment outlined for acute gonorrheal urethritis, the attacks are of short duration, rarely being very virulent.

In the treatment of gonorrhea in women, we have had many excellent results with the use of mercurochrome, alternating with the silver compounds and iodin. Some of the cases have been subacute and chronic, with marked cervicitis, erosions and persistent leukorrhea; these complications have resisted the usual treatments.

During the acute stage, we begin by swabbing the cervix and vault with tincture of iodin, or a 2 per cent. solution of silver nitrate. This produces a profuse desquamation and discharge, after which the protargin mild and mercurochrome treatment is begun. The vagina is wiped dry, pure crystals of mercurochrome are placed in the os of the cervix, and the vault is swabbed out with 1 per cent. freshly made mercurochrome solution. This is alternated daily with protargin mild crystals in the os, and swabbing out of the vagina with 5 per cent. protargin mild solution. The urethra is injected daily, alternating with 0.5 per cent. mercurochrome and 5 per cent. protargin strong. The patients are instructed to use hot weak solutions of potassium permanganate as a douche from two to four times a day, and to sit in a tub of hot water five minutes each night and morning. This treatment is continued for approximately two weeks, after which it is alternated daily with weak solutions of silver nitrate and 5 per cent. solutions of protargin strong to the cervix and vault. The daily douches are changed from potassium permanganate to warm iodin solution (3.75 c.c. of the tincture of iodin to 1,000 c.c. of water).

Here again it may be necessary to change the order of the medicaments used, although the procedure, as outlined, usually gives very satisfactory results. We have been able to shorten the course in acute cases, and have seen but few complications, in spite of the fact that certain cases have been very protracted, often terminating with a low-grade mucous endocervicitis.

In cases treated by various local injections and internal medications, exacerbations are not uncommon. Such infections have become so attenuated that by using our routine treatment and shortening somewhat the intervals of applications, the infection promptly subsides.

SUMMARY

From the standpoint of shortening the course of the disease, preventing complications, and freeing the host from gonococci, the treatment as outlined has proved very satisfactory. It is not our purpose to advise mercurochrome as a panacea for all infections of the genitalia; nevertheless, our experience warrants the conclusion that, in the armamentarium of urinary antiseptics, mercurochrome, when properly used, is a valuable adjunct to the common-sense treatment of gonorrhea and its complications.

HYPERTENSION AND HYPERGLYCEMIA *

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The association of hypertension and hyperglycemia has attracted the attention of a number of clinical observers. In 1910, Neubauer [1] noted this and offered the unproved theory that excessive activity of the suprarenals was the underlying factor. In this country, O'Hare [2] first established the fact of a decline in tolerance for carbohydrate in certain examples of high blood pressure. He offered the theory that sclerosis of the arteries of the pancreas might be the pathologic background of the condition. Pearce and Keith [3] suggested that, because a diseased kidney is unable to utilize the ordinary amount of sugar brought to it by the blood, diminished sugar consumption results, with increased accumulation of this substance in the blood stream. Meyers and Killian [4] noted the increase of the diastatic activity of the blood in examples of nephritis, and expressed the idea that this might account for the hyperglycemia often noted in such cases. Härle,[5] in a study of a series of cases of hypertension, failed to discover any exact parallelism in the curves of blood pressure and blood sugar. He found that real hyperglycemia was rare in cases with definite kidney lesion and hypertension. However, in one fourth of the cases of hypertension without apparent kidney lesion, there was definite hyperglycemia. In another fourth, the blood sugar was at the upper limit of the normal. Härle concluded that hypertension and hyperglycemia are not the common result of increased activity of the chromaffin system. Botti [6] found that, in the presence of hypertension, blood sugar is increased and sugar tolerance lessened. He states that assimilation of carbohydrates may be impaired through delayed metabolism, lessened functional capacity of the liver, or disturbance of the general circulation. He could establish no relation between the degree of hypertension and the level of sugar in the blood. Janeway [7] noted a tendency to hypertension in elderly patients having diabetes with arteriosclerosis. Rosenbloom,[8] in a study of the blood pressure in diabetes, concluded that in the average case the blood pressure tends to be below normal. However, when arteriosclerosis or nephritis is present, the blood pressure is often elevated. Recently, Kylin [9] has described the association of lowered carbohydrate tolerance with hypertension. He makes further mention of the increase of uric acid in the blood in cases of this type, and states that cases characterized by hyperglycemia, hyperuricemia and hypertension belong in the group of essential hypertonias rather than in that of the diabetics.

PERSONAL OBSERVATION

Observation of the association of high blood pressure and increased concentration of glucose in the blood carried out during the last three years has led to the opinion that the majority of the cases belong in a quite definite group characterized by the four cardinal symptoms: hypertension, hyperglycemia, obesity and arteriosclerosis. While it does occur, it is rare that hyperglycemia is found in the thin person with hypertension.

Six typical examples of the symptom group set forth above are presented in the accompaning charts. These were ambulatory, office patients, who were observed over periods of from one to three years. The age of these patients was between 50 and 64. Three were men and three were women. All were overweight and exhibited symptoms of cardiovascular strain, varying from dyspnea on exertion to anginal attacks or circulatory stasis. All had for some time prior to this study taken a diet from which meat was largely or entirely excluded, and had, in consequence, eaten more than an ordinary amount of carbohydrate. In two cases, there was an increase in the uric acid of the blood. The chlorids of the blood exceeded 5 gm. per liter in only one instance. In no case was the urea nitrogen above 20 mg. in 100 c.c. of blood. Arteriosclerosis was demonstrable in the retina in four of the cases.

The clinical management of this group may be briefly summarized. The patients were allowed to go about their ordinary concerns with no restriction other than the avoidance of undue fatigue and effort, and, in addition, a modified diet. Such factors as physical rest, release from immediate pressure of the burdens of business or family, which make data on blood pressure obtained under institutional conditions so misleading, are, therefore, not to be taken into account here. The diet prescribed contained about 1,600 calories, thus distributed: protein, 85 gm.; carbohydrate, 125 gm.; fat, 80 gm. In most instances, so strict a diet with its relatively high protein was followed for periods of from five to ten days with intervals of from one to two days during which the patient "broke training." If satisfactory decline in weight did not result, on every fifth or seventh day a limited milk diet was enforced. As will be noted, all patients lost weight. In all, both the systolic and the diastolic blood pressure declined appreciably, and in general remained below the initial point so long as the regimen was carried out. With the decline in weight and in blood pressure, there was an expected improvement in the cardiovascular symptoms, with corresponding increase in comfort.

COMMENT

In our description of the hypertonias, we separate from among the examples of hypertension that are

* Read before the Association of American Physicians at Atlantic City, N. J., May 2, 1923.

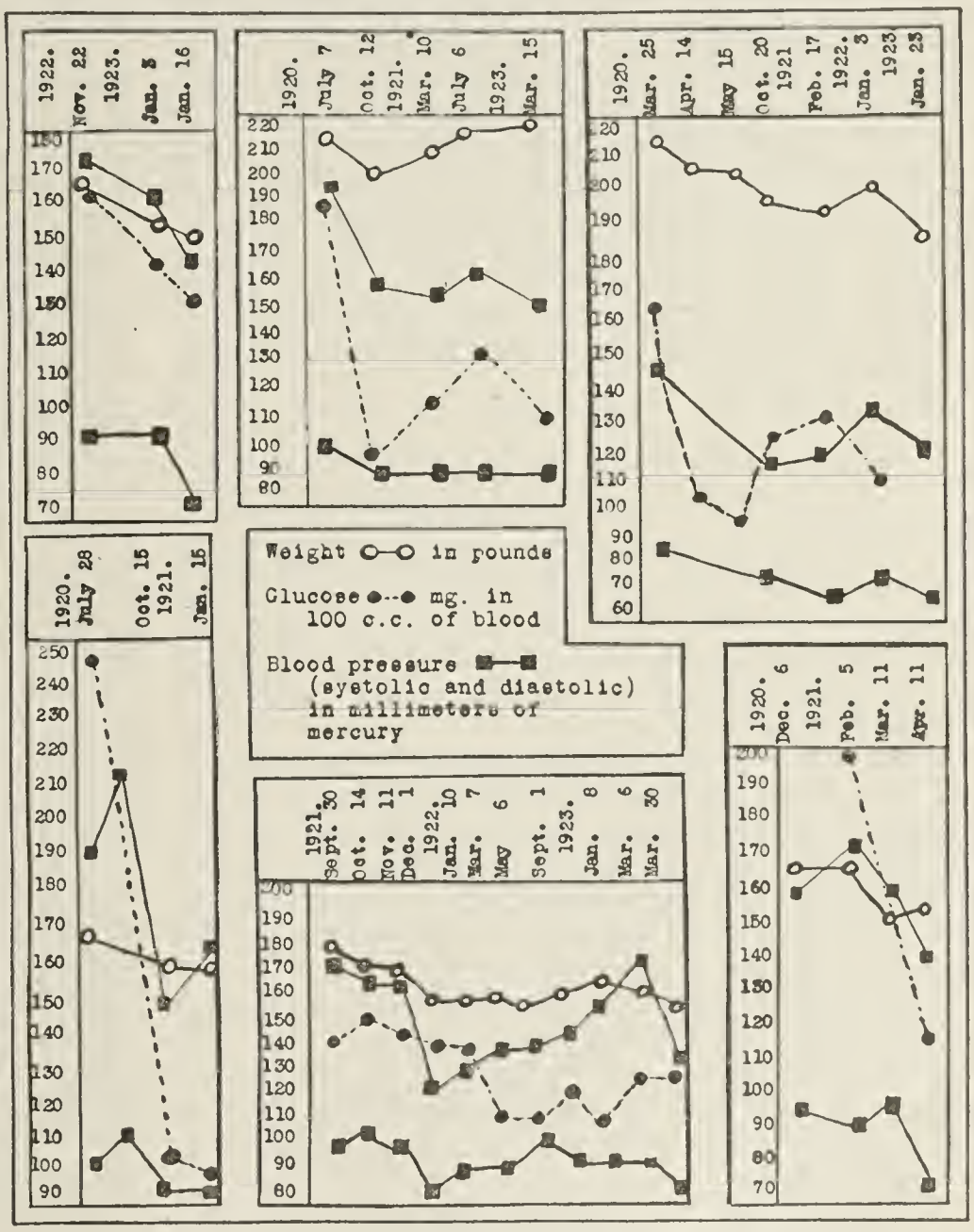
1. Neubauer, E.: Biochem. Ztschr. **25**: 284, 1910.
2. O'Hare, J. P.: Am. J. M. Sc. **159**: 369 (March) 1920.
3. Pearce, G., and Keith, N. M.: Proc. Soc. Exper. Biol. & Med. **12**: 210, 1915.
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5. Härle, F.: Hypertonia and Sugar Content of Blood, Ztschr. f. klin. Med. **92**: 124-133 (Nov.) 1921.
6. Botti, A.: Policlinico, Rome **29**: 249 (Feb. 20) 1922; abstr. J. A. M. A. **78**: 1236 (April 22) 1922.
7. Janeway, quoted by Rosenbloom (Footnote 8).
8. Rosenbloom, J.: J. Lab. & Clin. Med. **7**: 392 (April) 1922.
9. Kylin, E.: Zentralbl. f. inn. Med. **44**: 81 (Feb. 10) 1923.

associated with other definite conditions, such as kidney insufficiency, aortic leakage, toxemias of pregnancy, thyroid disturbances and increased intracranial pressure, a group without other recognized clinical association, the group we call the essential hypertonias. As clinical study develops, these so-called essential hypertonias will doubtless be further subdivided for purposes of clinical description and management. I would suggest as a tentative subdivision the type of case described, that characterized by the symptom group hypertension, hyperglycemia, obesity and arteriosclerosis.

While such speculative conditions as excessive activity of the chromaffin system, or sclerosis of the arteries of the pancreas, may well be in the background, in not a few of these patients one can trace possible etiology of the hyperglycemia and associated conditions to faulty and ill balanced diet. It is still a matter of tradition and practice among not only the laity, but also perhaps a majority of the profession, to prohibit or limit the amount of protein food taken by the patient when hypertension is present. Since the amount of fat that one can comfortably take is limited, protein deprivation leads directly to an increase and excess in carbohydrate intake. So much has been said and so little proved in respect to the dangers of protein food that the possible dangers of overfeeding with carbohydrate have had scant consideration.

What are the consequences of an ill balanced diet with an excess of carbohydrate in a person in middle life with hypertension? If tolerance for carbohydrate is below the normal, there is certain overstrain of the pancreas and a tendency to the development of diabetes. There is also the almost certain result of increase in weight. In addition to these two results, which are scarcely debatable, there are two further possible consequences: one is an increasing tendency to arteriosclerosis; another, a rise in blood pressure. There is considerable ground for argument in favor of the view that arteriosclerosis and hyperglycemia are not mere casual associates. Even in juvenile diabetes, arterial thickening is extremely common. In the diabetes of later life, arteriosclerosis is constant. The happy effect of the control of hyperglycemia in cases exhibiting such arteriosclerotic complications of diabetes as gangrene and retinitis is scarcely disputed. However, I know of no experimental work on the relation of hyperglycemia and arteriosclerosis. Arguments favoring such a view are based solely on clinical observation. In the clinical type being considered—that characterized by hypertension, hyperglycemia, obesity and arteriosclerosis—the relation of hypertension to hyperglycemia is probably indirect. In this group, reduction of the blood sugar and its maintenance at or about normal, is, in my experience, quite constantly followed by reduction in blood pressure. It is probable that this is not a direct cause and effect, but is a consequence of the reduction in bulk of body which quite constantly follows the dietary regulation of high blood sugar in the obese, hypertonic patient. Rose and others have shown that decline in weight is almost always accompanied by decline in blood pressure, particularly when this has previously been high.[10]

The symptoms of cardiovascular strain that were universal in this group of obese patients having hypertonia with hyperglycemia were very favorably influenced by the decline in weight attending the decline in hyperglycemia. Effects of this kind are probably due to reduction in body bulk, reduction in volume of circulating fluid, reduction in total metabolism, and possibly, as will be discussed elsewhere,[11] to alteration in concentration or distribution of some of the crystalloids of the blood. It has been my experience that those exceptional persons who are not overweight, but who have nevertheless a hypertension and hyperglycemia, do not show reduction in blood pressure by a regimen that brings the blood sugar down to a normal level and keeps it there.



Relation of systolic and diastolic blood pressure, weight and blood sugar.

It would, therefore, seem that the observations of Botti and Härle are substantially correct, and that there is no exact parallelism betwen the curves of blood sugar and the curves of blood pressure. The suggestion of Mosenthal,[12] that the decline in blood pressure, observed to follow reduction in blood sugar in cases of the character discussed, is probably the result of undernutrition resulting in loss in weight, is probably correct.

10. Rose, R. H.: New York M. J. **115**: 752 (June 21) 1922.
11. Herrick, W. W.: Relation of Chlorides and Glucose in the Circulating Blood, J. Lab. & Clin. Med., to be published.
12. Mosenthal, H. O.: M. Clin. N. Am. **6**: 1139 (May) 1922.

In view of this apparent fact, the observation of the blood sugar in such cases might appear an unnecessary elaboration. The weight alone might seem an adequate guide in treatment. With this I do not agree. In patients of the type considered, resolution is often as flabby as tissue, and the physician needs every possible argument to enforce his decrees. The necessity of lightening the burden on the cardiovascular system can be stressed. If, in addition, the threat of diabetes can be held over the head of the patient, there is added argument for reduction in weight. The level of blood sugar is a useful guide in diet. Further, the reduction in weight of the obese person with hypertension plus hyperglycemia is a much simpler and easier matter than the reduction in weight of a similar type of patient with a normal or low blood sugar. With this more complete knowledge, the therapeutic problem can be approached with a vigorous certainty, which adds to the physician's influence. The immediate improvement in the general well-being of these patients, and the quick relief from the annoying symptoms of cardiovascular strain that follow the loss of a few pounds, are a convincing argument to the intelligent patient. If both physician and patient realize that not alone is obesity being fought, but diabetes and arteriosclerosis, with its consequences, both can realize that the attempt is more than worth while.

CONCLUSIONS

1. Hyperglycemia is present in a considerable number—from 10 to 30 per cent.—of examples of arterial hypertension.

2. It appears to be more common when high blood pressure is not associated with obvious disease of the kidney.

3. This association of hyperglycemia and hypertension is most common in those who are obese and inclined to show arteriosclerosis.

4. The cause of the hyperglycemia of hypertension is unknown. Plausible but unproved theories are: overactivity of the chromaffin system; sclerosis of the arteries of the pancreas, and increased diastatic activity of the blood. An undoubted cause in some cases is excessive use of carbohydrate food, the result of unwise restriction of protein.

5. Prolonged hyperglycemia may tend to cause arteriosclerosis and enhance blood pressure.

6. The reduction of blood sugar to a normal and its prolonged maintenance at a normal level in the type of cases considered is generally followed by significant fall in blood pressure.

7. This fall in blood pressure is probably due to the loss in weight which results from restricted diet.

8. Weight and blood sugar are valuable guides in the treatment of the obese person with hypertension.

9. In hypertensive cases in which the patient is overweight, carbohydrate is probably far more dangerous than protein. The latter should not be restricted unless incompetence of the kidney for the products of nitrogenous catabolism is demonstrated.

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Common Colds.—Olitsky and McCartney, experimenting on rabbits with filtered nasopharyngeal washings from early cases of common colds, failed to discover any constant, pathogenic agent or incitant. They were unable also to find in any of their material the "globoid bodies" of Foster. Their experiments showed that the effects of infectious material derived from colds are distinct from those of epidemic influenza.

SELECTIVE COLLAPSE IN PULMONARY TUBERCULOSIS *

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Selective collapse is a term that the late Dr. Thompson and I first used to denote the behavior of involved parts of the lung under partial pneumothorax, spontaneous or artificial. Further study by physical signs, necropsy, and especially by stereoroentgenograms, showed the same behavior of inflamed or irritated regions of the lung in all cases of tuberculosis. It constitutes a general principle, the knowledge of which not only explains the action of partial pneumothorax, but is of value in the general treatment of tuberculosis.

The precise explanation has not been conclusively demonstrated. A few plausible theories are discussed in the article on selective collapse in our monograph.[1] Sewall [2] cites references to a discussion of the action of this principle in bronchial irritation and obstruction nearly a hundred years ago.

The principle of selective collapse is manifested in a series of phenomena that may be described thus: (*a*) If the lesion is not too severe, inflammation or irritation of the tissue in any region of the lung causes a tendency of the involved tissue to collapse; (*b*) a similar tendency to collapse is present in any anatomic division of a lung (lobe, primary lobule, secondary lobule), the bronchus supplying which is inflamed or irritated. This contraction behaves as if it were due to a partial loss of elasticity, which loss is, however, in one direction only, excepting in severe lesions. Contractility is slightly, if at all, diminished, while expansibility is markedly impaired. The contraction develops gradually, and in a few hours or days the tendency to contract is balanced by the increased tension of the adjacent healthy portion. This increased tension is distributed unequally throughout the lung, the greater part being borne by the adjacent lung tissue, because the lung is obliged to conform to the thoracic cavity, and cannot alter its form.

If, now, there occurs a reduction in the volume of the lung, as by a limitation of motion of the chest wall, or a higher position of the diaphragm or other cause, this further lessening of volume is not evenly distributed through a lung in which there are localized lesions. The principle of selective collapse comes at once into play, and the lesions again contract until a balance is reestablished with the reduced general tension. This balance is subject, as before, to the limitations imposed by the necessity for the lung to conform in shape to the thoracic cavity. Completely consolidated foci, of course, cannot contract, but the principle of selective collapse is manifested at the periphery of such lesions, where the lung tissue is involved but not consolidated. Massive lesions may, therefore, require very close study before the action of the principle is evident.

APPLICATIONS IN PARTIAL PNEUMOTHORAX

The induction of a small quantity of gas or air into a pleural cavity that is free from adhesions introduces an entirely new condition. Not only is the total volume of the lung, and consequently the tension, reduced, but also the lung is now free to assume any form whatever. The principle of selective collapse is now unhindered in its action, the pleura over the involved parts of the

* From the U. S. Veterans' Bureau School of Tuberculosis.

1. Barlow, Nathan, and Thompson, J. C.: Small Pneumothorax in Tuberculosis, Bull. 132, Hyg. Lab., U. S. P. H. S., 1922.

2. Sewall, H.: Pulmonary Atelectasis, Am. Rev. Tuberc. **4**: 811 (Jan.) 1921

ung becomes retracted, and the gas collects over the most involved regions, as first described by Parry Morgan.[3] This localization of the gas (or air) is a result of the action of the principle of selective collapse. Some investigators have misunderstood what is meant by selective collapse, for example, in a recent article by Hennell and Stivelman.[4] This misapprehension of the definition is doubtless due to the use of the term "selective collapse" by Barlow and Kramer[5] in the title of an article describing its action in partial artificial pneumothorax, while the definition and explanation were given in a relatively short article in a large monograph.

This localization of the air in the pleural space over the most involved part of the lung is a result of the selective collapse; possibly the best descriptive term so far introduced is "ideal localization," as proposed by Gwerder,[6] The collapse itself takes place in the lung tissue, and appears to select, first, the inflamed tissue in and around the lesions, and, secondly, lung tissue in the regions supplied by involved bronchi. In scattered deep-seated lesions, the lung may not be collapsed immediately beneath the retracted pleura, but only around each lesion, leaving expanded parts between the lesions. This selection of diseased areas explains how a relatively small amount of air may cause effective collapse of lesions scattered through an entire lobe. The results of selective collapse and its relationship to partial pneumothorax, both artificial and spontaneous, have been discussed in the articles already cited.

THE PROTECTIVE MECHANISM

There are certain peculiarities in the behavior of selective collapse that are of importance in the general management of cases of tuberculosis, and a knowledge and appreciation of this principle will help us in our treatment of patients. Bray[7] has called attention to "the practical value of a study of the mechanism of compensation." This mechanism serves not only for compensation in established conditions, but also for protection in progressive disease, and consists of two parts. The extrapulmonary protective mechanism includes the limitation of motion and retraction of the chest wall, the elevation of the diaphragm, the deviation of mediastinal structure, and the fatigue and other subjective symptoms that limit the exertion of the patient and consequently reduce his respiration. The intrapulmonary part of the mechanism includes selective collapse of the inflamed parts and the resulting increased expansion or even emphysema of neighboring uninvolved regions. The development and maintenance of effective selective collapse requires that the extrapulmonary mechanism be not disturbed during and for a time after the formation of the collapse, owing to the following peculiarities in its development:

1. Selective collapse requires from several hours to several days, usually from twenty-four to forty-eight hours, to develop to the point at which it is balanced by the increased local tension.

2. When recently formed, selective collapse is easily dissipated by forced breathing, severe or prolonged coughing, or by vibration, as in percussion.

3. After selective collapse has developed to the point of balance with the intrapulmonary tension, there will be a slow and gradual further development of collapse, provided the part is kept at nearly complete rest.

4. After selective collapse has endured for some time, it resists reexpansion, and tends to become permanent, as was shown first by Parry Morgan.[8] (This peculiarity depends in part on the formation of fibrous tissue, and explains the permanent good results after brief partial artificial pneumothorax, as used in Morgan's method.) On reexpansion, the adjacent parts become compensatory.

APPLICATION IN THE GENERAL TREATMENT

In the early stages of treatment, any exertion that causes rapid or deep breathing should be avoided; a walk to the bathroom once a day may, if it causes forced breathing, entirely prevent the development of efficient selective collapse.[9] With some patients much may be accomplished by an intelligent explanation of the fact that the effect of overexertion is not limited, even mechanically, to the duration of the increase in pulse and respiration, but that forceful breathing opens up the lesions so that there is more movement in them for several hours.

It is easy to understand[10] why better and more permanent healing is likely to be obtained if the patient is kept at absolute rest for at least six weeks, even though his pulse and temperature become normal. If the lesion is not stretched, the selective collapse will slowly increase for at least this time, and any movement should be avoided until there has been time for the collapse to become fixed. The more perfect the collapse in this early period, the more contracted will be the lesion when healed, and the less contracted the lung, as the fibrous tissue will be limited to a smaller area.

Frequent severe examinations, and all examinations by prolonged or hard coughing, prolonged or heavy percussion, and especially those requiring the patient to exhale all possible air before coughing, which is immediately followed by deep inspiration, are to be avoided, as they break up the selective collapse so completely that marked changes in the physical signs are sometimes noted, even on the following day.

Prolonged or severe cough must be checked. Ordinary cough does not seem to interfere with selective collapse; it may even favor it. The strain is on the extrinsic muscles of expiration, not on the lung tissue, and the sudden release of air permits a rapid contraction and consequent reduced tension of the lung tissue, which may permit a greater contraction of the lesion. In fact, the explanation of râles after cough may be that the suddenly reduced tension permits the momentary selective collapse of the involved areas to a degree that brings moist surfaces into contact. But when the cough is so prolonged or severe that it is followed by forced deep breathing, it results in loss of collapse.

In the active and progressive period, dyspnea after any exertion, even standing up, is a contraindication to that particular exertion, of even more importance than acceleration of pulse. Frequent repetition of an effort that causes labored breathing may entirely prevent the selective collapse of the lung.

Breathing exercises, wind instruments, loud singing, all of which require extreme expansion of the lungs,

3. Morgan, W. P.: Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis, Quart. J. Med. **11**: 1 (Oct.) 1917.
4. Hennell, H., and Stivelman, B. P.: So-Called Selective Collapse in Artificial Pneumothorax, Am. Rev. Tuberc. **7**: 291, 1923.
5. Barlow, Nathan, and Kramer, D.: Selective Collapse Under Partial Pneumothorax, Am. Rev. Tuberc. **6**: 75 (April) 1922.
6. Gwerder: Entspannungspneumothorax, Beitr. z. Klin. d. Tuberk. **47**: 231, 1921; Low-Tension Pneumothorax, Tubercle **4**: 13 (Oct.) 1922.
7. Bray, H. A.: The Mechanism of Compensation in Pulmonary Tuberculosis and Its Relation to Physical Signs, Am. Rev. Tuberc. **6**: 1013 (Jan.) 1923.
8. Morgan, W. P.: On the Possibility of Achieving by Partial Pneumothorax the Advantages of Complete Pneumothorax, Lancet **2**: 18, 1913.
9. Barlow and Thompson (Footnote 1). Sewall (Footnote 2).
10. Morgan, W. P. (Footnote 3); Hennel, H., and Stivelman, B. P. (Footnote 4).

may break up a selective collapse, even when it is partly fixed by fibrosis.

The use of the spirometer in any case in which recently active disease is suspected is unjustifiable, as it cannot fail to dissipate the collapse around the lesions.

A knowledge of this principle may aid us in determining indications for special treatments that alter the type of breathing, as those of Sewall and Swezey,[11] and Knopf.[12] If the disease is progressive on one side only, with a good development of the protective mechanism, limitation of motion, elevation of the diaphragm and well developed selective collapse, we should not experiment with anything which will change the type of breathing or interfere with the established defense, as we may break up a collapse around the lesions which it will take days or weeks to reestablish. But in bilateral lesions limited to the upper parts of both lungs, and in cases in which the mechanism is not established, such treatments may help to bring it about.

Experimental proof of some of these points is given in the articles cited by Sewall, and in Morgan's writings. Some of them are easily demonstrated during the alternate expansion and contraction in the pathologic technic followed in Dunham's clinic.[13] We have demonstrated all of them in various ways. If the reader desires to study any of them, serial stereoroentgenograms taken by a soft technic (spark not over 5 inches; not over 40 milliamperes; exposure short enough to carry the trunk markings well out toward the pleura) offer the easiest method. Overexposure or rays of great penetration blot out slight differences in density.

Only a few of the clinical applications of this principle have been mentioned. Others frequently present themselves in the treatment of patients. There are some who will say that these precepts in treatment are well known to them as a part of the accepted treatment of tuberculosis, and that it is unnecessary to invoke a new theory about "selective collapse" to teach them what they already know. It may be replied that conversation with some of those who stand highest in the treatment of tuberculosis in this country, and observation in some of the very best sanatoriums, have convinced me that, however well known and accepted these precepts may be in theory, in practice they receive but slight attention. The reason is obvious. It has been felt that the ill effects of such things as labored breathing and heavy percussion were limited to the duration of the disturbance and to the single extra amount of toxic products that might enter the circulation.

We should never forget that selective collapse is slowly formed but may be quickly destroyed, and that it must be left undisturbed at least for weeks before it can withstand any unusual increase of tension. The ill effect of a period of labored breathing does not end when the respiration becomes normal; it persists until selective collapse is reestablished. If the development of this collapse is prevented by daily exertion, even though brief, healing of the lesion may be indefinitely delayed. And if this collapse is periodically broken up before it becomes fixed, the final healing and fibrosis, instead of being firm and compact, may be diffuse, loose and consequently insecure.

11. Sewall, H., and Swezey, S.: The Effects of Limiting the Respiratory Excursions of the Upper Thorax in Refractory Cases of Pulmonary Tuberculosis, Am. Rev. Tuberc. 5: 547 (Sept.) 1921.

12. Knopf, S. A.: Controlled and Diaphragmatic Respiration as an Adjuvant in the Rest Cure of Pulmonary Tuberculosis, Canadian J. Med. & Surg., November, 1922.

13. Wooding, C. E.: Postmortem Procedure, Bull. 132, Hyg. Lab., U. S. P. H. S., 1922, p. 221.

AGGLUTINATION OF TYPHOID GROUP OF ORGANISMS IN CASES OF JAUNDICE AMONG VACCINATED PERSONS *

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In recent years an unusual number of cases of jaundice, sometimes in epidemics, have come under the care of American physicians, especially in the Northeastern states. The most recent report is that by Bloomer,[1] which expresses the current opinion that the disease is an infection due to some specific organism at present unknown. The same increase in cases of jaundice has been reflected in the army, without, however, the occurrence of any definite epidemics, so far as I know. Sporadic cases have occurred in a number of stations in the Second Corps Area, which includes New York, New Jersey and Delaware. In the course of an investigation of this disease, one positive finding has been made, which, it is thought, should be recorded.

A number of cases have shown, in the blood serum, a definite agglutination of paratyphoid B bacilli, with a less marked agglutination of typhoid and paratyphoid A bacilli. All these patients had been vaccinated with triple typhoid vaccine, but in most instances more than a year before the attack of jaundice; and agglutinins, after vaccination, as a rule do not persist over a year. The agglutinins in the patients also disappeared promptly after the attack. This finding may be of little significance as a nonspecific reaction, like the agglutination of *B. proteus* in typhus, but, on the other hand, it may point to some toxin of food poisoning that has stimulated a group response of agglutinins in vaccinated persons.

My attention was first definitely directed to this problem of jaundice by Major C. R. Bell, of Fort Slocum, New York, who treated several patients in 1922 and had an attack himself in August. Several of the patients were soldiers returning from Germany, some of whom became sick en route. It was decided to investigate the disease, and Colonel Keefer, the Corps Area surgeon, issued a circular emphasizing the occurrence of jaundice and requesting that a history and specimens of blood, urine and feces be sent to the laboratory for examination. In this way, twenty-two cases have been studied during the last year, most of them in stations near New York. One death occurred. Especial assistance in this work has been received from Majors Bell, Demmer, Herbert and Woodard and Captain Dodson of the Medical Corps of the Army. Most of our series would previously have been diagnosed as "catarrhal jaundice." Several, however, had a definite history of syphilis with the administration of arsphenamin, and were excluded from consideration.

Although no proved case of Weil's disease has yet occurred in the United States, it was thought best to look again for *Leptospira,* in view of the possibility of importation of the disease from Germany. A number of inoculations of guinea-pigs were made with blood, blood serum and urine from active cases, and with urine from convalescents. None of the animals showed any evidence of infection. Cultures made with Noguchi's lepto medium also remained sterile. Most conclusive of all, however, were the Pfeiffer reactions with

* From the Second Corps Area Laboratory, Army Building, 39 Whitehall Street, New York.

1. Bloomer, George: Infectious Jaundice in the United States, abstr., J. A. M. A. 80: 1873 (June 23) 1923.

the serum of convalescents, which were kindly made for us by Dr. Noguchi, and which were entirely negative. This evidence may, therefore, be added to the negative findings of Symmers,[2] Williams[3] and others to the effect that we are not dealing with Weil's disease.

Attention was then directed to the possibility of an intestinal infection. Stools were plated for the typhoid group, and cultures were taken of the duodenal contents in several cases. None of the cultures revealed any significant organism. A fatal case occurred in a soldier at Fort Slocum. The liver presented a picture of acute yellow atrophy, with marked destruction of the central part of the liver lobules. There was no obstruction of the bile passages. No significant findings of a bacteriologic nature were made.

Agglutination tests of blood serum with suspensions of paratyphoid A and paratyphoid B bacilli were made in ten cases. In four they were entirely negative in dilutions of 1:40 to 1:320. In six, however, a definite agglutination occurred with paratyphoid B, typhoid and paratyphoid A bacilli in descending order. These serums were taken fairly early in the disease. When the test was repeated from a week to ten days later, the agglutinins had practically disappeared. It may be that in the negative cases the time element was a factor.

The case presented below is a typical one of the behavior of agglutinins.

REPORT OF CASE

N. J., a man, aged 32, a private, U. S. Army, with no history of typhoid, went to Camp Alexander Hamilton, Long Island, N. Y., from Fort Totten, N. Y., June 4, 1923, in good condition. In about a week he began to have indigestion, and pain in the abdomen. There was some vomiting and loss of appetite, but no fever. Jaundice appeared in two weeks. The feces and duodenal contents were negative for the typhoid group. Triple typhoid vaccination was completed in March, 1922.

Agglutination

Organisms, Serum	1-20	40	80	160	320
July 7, 1923, ten days after jaundice appeared:					
Typhoid	++	++	++	+	—
Paratyphoid A	++	++	+	—	—
Paratyphoid B	++	++	++	+	+
July 12, 1923, convalescing:					
Typhoid	+—	—	—	—	—
Paratyphoid A	+—	—	—	—	—
Paratyphoid B	+—	—	—	—	—

It will be seen that the serum of the patient, sixteen months after vaccination, agglutinated, in fairly high dilutions, the organisms of the typhoid group, and that the agglutinins disappeared quickly. Convalescent serum failed to agglutinate *B. aertrycke* (Mutton and Newport strains), *B. enteritidis* and *B. suipestifer.*

At one time a possible clue seemed to be found in Major Bell's information that a commercial culture of "Rattin" was being used at Fort Slocum to destroy rats. Some human infections have been reported from such products, especially in children.[4] No agglutination, however, was obtained with this culture by serums in four cases. The rat has also been suspected in connection with this form of jaundice as a carrier of *Leptospira.* It can apparently be excluded from connection with this disease on this count, but can still be a carrier of paratyphoid organisms.

2. Symmers, Douglas: Epidemic Acute Hemorrhagic Jaundice of Toxic Origin; Its Symptoms and Pathology, J. A. M. A. **74**: 1153 (April 24) 1920.

3. Williams, Huntington: Epidemic Jaundice in New York State, J. A. M. A. **80**: 532 (Feb. 24) 1923.

4. Rabinger, H., and Bahr, L.: Ztschr. f. Hyg. u. Infections-kr. **95**: 442, 1922. Wollfuer and Wendlandt: Ibid. **94**: 192, 1921.

COMMENT

It is, of course, possible that this agglutinin reaction is due to a nonspecific stimulus of the immune mechanism of vaccinated persons. Nonspecific response to an unrelated antigen has been demonstrated experimentally by Clark.[5] Dreyer's rules for group agglutinations among vaccinated persons may not apply to this reaction. No cases have been examined for agglutinins just before the attack, but there is no doubt that the agglutinins rise and fall in vaccinated patients during an attack of jaundice. This phenomenon has not yet been observed personally in the examination of a number of other diseases unrelated to typhoid.[6]

On the other hand, the reaction may give a clue to some form of food poisoning. It is improbable that there is an actual infection with human paratyphoid bacilli, as evidence of their presence would have been found by more investigators. The French workers[7] in Gallipoli during the war reported a paratyphoid D organism causing jaundice. This organism was later identified at the Pasteur Institute as paratyphoid A, and cannot be accepted as the cause of this disease.[8]

Two Polish investigators[9] have recently reported a study of sixty-seven cases of "catarrhal jaundice," with three deaths. They obtained agglutination of the typhoid group of organisms in about 20 per cent. of the cases, and a marked agglutination with *B. aertrycke* (Stanley) in 80 per cent. of the cases. This organism was isolated from the blood in one case. The authors believe that an "antigenic mosaic" of paratyphoid bacilli is concerned in the etiology of so-called cases of "catarrhal jaundice." This may be true in the sense of a toxemia rather than of an infection.

On inquiry, it was found that considerable work had been done on this disease in Coblenz by our medical officers. A report of the work by Michie[10] states that 218 cases occurred in two years in about 14,000 men. No evidence of infection with *Leptospira* was found. The most probable cause was believed to be food poisoning due to sausage.

In this connection, the history of several of our cases is suggestive. A common story is that the patient has been home or away on furlough or making a change of station; has overeaten or eaten irregularly, and soon after return to station, has had an intestinal upset followed by jaundice. One officer fixed the cause definitely as some canned salmon.

It is desired to record the reaction mentioned above for what it is worth, and to suggest that persons vaccinated against the typhoid group may be sensitized for agglutinins to some toxin of food poisoning analogous to that of botulism, which, however, attacks primarily the liver. Group vaccination apparently gives no antitoxic immunity, as the cases among the vaccinated seem to be of average severity. In any case, the work done in this laboratory supports the growing opinion that the disease is primarily a hepatitis rather than a "catarrhal jaundice."

SUMMARY

1. An unusual number of cases of jaundice have recently occurred in the army, as well as in the civilian population of the Second Corps Area.

5. Clark, P. F.; Zellmer, C. E., and Stone, H. W.: J. Infect. Dis. **31**: 215 (Sept.) 1922.

6. Wood, F. C.: Chemical and Microscopical Diagnosis, Ed. 3, New York, D. Appleton & Co., p. 242.

7. Sarrailhé, A., and Clunet, J.: Lancet **1**: 664 (March 25) 1916; Bull. et mém. Soc. méd. d. hôp. de Paris **32**: 45, 563, 1916.

8. Martin, C. J.: J. R. A. M. C. **30**: 102, 1918. Hurst, A. F.: Brit. M. J. **1**: 527, 1917.

9. Anigstein, L., and Milinska, Z.: Medycyna (Warsaw) **1**: 63, 1923.

10. Michie, H. C.: Mil. Surgeon **52**: 390 (April) 1923.

2. No evidence could be obtained of infection with *Leptospira* of Weil's disease.

3. No evidence was found of actual infection with the typhoid group.

4. Several cases gave a definite agglutination to paratyphoid B bacilli and less marked agglutination of typhoid and paratyphoid A bacilli. The agglutinins disappeared in a short time. The patients had been vaccinated with triple typhoid vaccine, but at least a year before the attack.

5. The reaction may be nonspecific or may point to a toxemic form of food poisoning due to some member of the paratyphoid group.

6. The condition is believed to be a hepatitis rather than a "catarrhal jaundice."

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PROGNOSTIC VALUE OF ANEMIA IN CHRONIC GLOMERULAR NEPHRITIS *

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Since the advent of recent methods for studying renal function, a great deal of additional information has been gained which aids in the diagnosis and prognosis of renal disease. The work of Myers [1] and his associates on the relationship of increased concentration of creatinin in the blood, and life expectancy in chronic nephritis, has been of great value in drawing accurate prognostic conclusions. These workers have shown that the maintenance of a high level of creatinin (5 mg. or more for each 100 c.c.) in the blood indicates a very grave prognosis, and that values from 2 to 5 mg. for each 100 c.c. are of serious import. These conclusions have been amply verified. A consistently high level of blood urea, or a continued low excretion (5 per cent. or less of phenolsulphonephthalein in the urine in two hours), also usually indicates a serious prognosis. Moreover, the ophthalmoscopic examination is important in reaching a conclusion regarding life expectancy. The presence of a characteristic neuroretinitis of chronic glomerular nephritis usually indicates a severe renal injury and a serious prognosis. Unfortunately, these valuable procedures have not been universally applied because of the technical skill necessary for their use. Any clinical method of less complexity, which would give an equal or approximate amount of information, would be gratefully received by clinicians.

ANEMIA IN NEPHRITIS

The anemia of chronic glomerular nephritis has long been recognized. Bright [2] states that the healthy color of the countenance fades, and that the pallor is noted some time after onset, with headache, suppressed urination and edema. In a previous study of the anemia of chronic glomerular nephritis, we reported certain additional facts concerning its cause, mechanism of development, and importance as a diagnostic and prognostic sign. Loss of blood and albumin were demonstrated not to be the cause of this type of anemia. Excessive hemolysis was not found. The question of diet in the production and maintenance of anemia was studied. In the work of Whipple [3] and his associates, the effect of different diets on blood regeneration in the bleeding anemia of dogs was noted. They found that, with excessive carbohydrate diets, the regeneration of blood was retarded.[4] It is very possible that slow regeneration in the anemia of chronic glomerular nephritis bears some relationship to the low protein and excessive carbohydrate diets that are so uniformly given in this disease. We believe, however, that more probably the severity and chronicity of the anemia stand in closer relationship to the severity of the toxic injury which is responsible for the "renal break." No evidence was found to show that hydremia was responsible for the anemia of chronic glomerular nephritis. Considerable data were obtained which showed that the bone marrow probably undergoes injury concomitantly with the retinal, cardiac and renal tissues. Anemia does not become evident until two or three weeks have elapsed. This can be explained by the diminished erythrogenic function, the replacement of cells falling short of normal blood destruction. A close relationship was found to exist between anemia and the retention of creatinin in the blood. In twenty cases in which the creatinin values were 5 mg. or above for each 100 c.c. of blood, a marked anemia was found. In this group the average hemoglobin was 48.5 per cent., Dare, and the erythrocyte count was 2,950,000. Nineteen patients in this series died within ten months from the time of observation.

OBSERVATIONS ON CREATININ RETENTION IN THE BLOOD, AND ANEMIA IN CHRONIC GLOMERULAR NEPHRITIS

One hundred and thirty-nine cases of chronic glomerular nephritis [5] studied at the Mayo Clinic during the last two and one-half years are included in this report. All cases were excluded from this study in which marked complicating diseases, such as tuberculosis, malignancy, chronic sepsis, pyelonephritis and marked blood loss, were present, which in themselves could cause anemia. Our study has convinced us that in this disease the presence of anemia in the degree

TABLE 1.—*Mortality Rates* * in Chronic Glomerular Nephritis with Different Concentrations of Blood Creatinin*

Creatinin Mg. for Each 100 C.c.	Cases	Patients Living	Patients Dead	Not Heard from	Mortality per Cent.	Per Cent. Showing Anemia: 60 to 70 (Dare)	60 or Less	Total Incidences
2 and less..	31	24	3	4	19	22 (7 cases)	3 (1 case)	26
2 to 5.....	41	13	23	5	56	46 (19 cases)	27 (11 cases)	73
5 and over.	67	7	57	3	86	25 (17 cases)	71 (48 cases)	96

* Length of observation, from nine months to two and one-half years.

* From the Division of Medicine, Mayo Clinic.

1. Myers, V. C., and Killian, J. A.: The Prognostic Value of Creatinine of the Blood in Nephritis, Am. J. M. Sc. **157**: 674-695, 1918.

2. Bright, Richard: Cases and Observations Illustrative of Renal Disease Accompanied with Secretion of Albuminous Urine, Guy's Hosp. Rep. **1**: 338-379, 1836.

3. Hooper, C. W., and Whipple, G. H.: Blood Regeneration After Simple Anemia, Am. J. Physiol. **45**: 573-577, 1918.

4. This observation was incorrectly quoted in our former paper (The Anemia of Chronic Nephritis, Arch. Int. Med. **30**: 817-840 [Dec.] 1922) as follows: "Hooper and Whipple have shown that in simple anemia, secondary to hemorrhage, of dogs the blood regeneration is more rapid when carbohydrate diets are given." This should have read ". . . when protein diets are given."

5. Vollard and Fahr classification: It is important to make a careful clinical differentiation between the different types of renal lesions. Anemia is not usually found in focal lesions of the kidney, or in the so-called nephroses. In the vascular type of nephritis due to arteriosclerosis and hypertension, anemia follows periods of renal insufficiency, as in chronic glomerular nephritis.

ndicated is of great prognostic importance. Because f the ease and universality with which the hemo- lobinometer is used, we feel that, in arriving at a rognostic conclusion, closer study of this phase of the isease will render less necessary the use of the more laborate blood chemistry methods.

Methods.—Estimations of hemoglobin were made y the Dare hemoglobinometer and by the method of

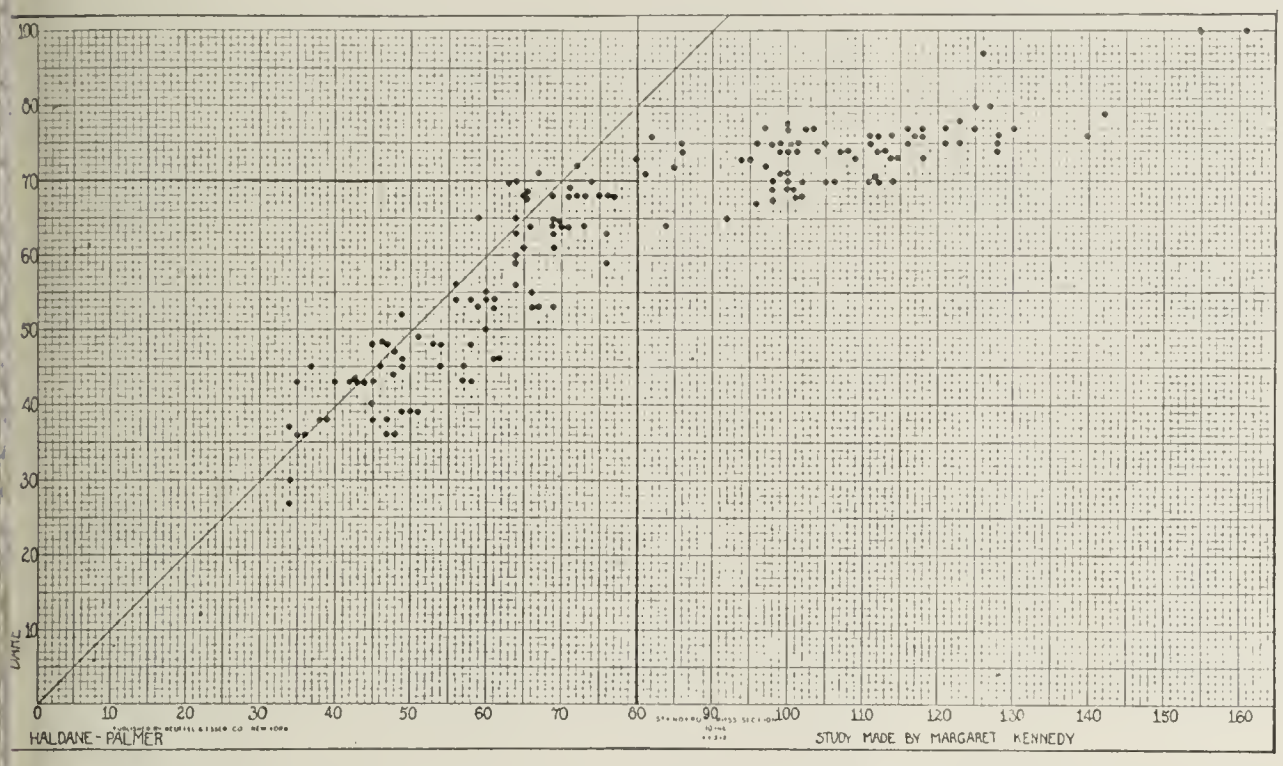


Chart 1.—Relationship of Dare and Haldane-Palmer hemoglobin estimations.

Haldane-Palmer. As shown in our previous paper, the Dare instrument is quite accurate up to 70 per cent., and up to this figure corresponds closely to values obtained by the Haldane-Palmer method. In Chart 1 is shown the relationship that exists between the hemoglobin readings by these two methods. We have considered that anemia existed if the reading was less than 70 per cent. by the Dare instrument, and less than 85 per cent. by the Haldane-Palmer method, and if the erythrocytes numbered 4,000,000 or less for each cubic millimeter.

Creatinin Retention and Life Expectancy.—In Table 1, the 139 cases of chronic glomerular nephritis are divided into three groups, according to the degree of concentration of creatinin in the blood. The difference in mortality rate is strikingly apparent, and these statistics correspond to those of other observers. Myers and Killian have reported that, in their series of eighty-five cases with creatinin values of 5 mg. or over, eighty patients died within the five year period. Subsequent work by various investigators has amply corroborated the fact that creatinin retention in such a degree indicates a bad prognosis in cases of chronic glomerular nephritis.

It is important to note that there are two types of creatinin retention: (1) the acute, such as is found in urinary obstructions, and various forms of toxic nephritis in which short rises of creatinin are compatible with a favorable prognosis; and (2) chronic, such as is found in chronic glomerular nephritis. The latter group, of course, is the one included in our study. Chart 2 shows the relationship between hemoglobin and creatinin values in the entire series of cases. In all but four cases, in which the creatinin values were 2.5 mg. and over, anemia was present.

Anemia and Life Expectancy.—Table 2 includes fifteen cases of chronic glomerular nephritis divided into three groups as follows: Group 1, chronic glomerular nephritis with no anemia; Group 2, chronic glomerular nephritis with moderate anemia (hemoglobin ranging from 60 to 70 per cent., Dare, or from 60 to 85 per cent., Haldane-Palmer method); Group 3, chronic glomerular nephritis with marked anemia (with hemoglobin values less than 60 per cent., Dare or Haldane-Palmer methods).

In Group 1, of the thirty patients with no anemia, five died within two and a half years, a mortality of 18 per cent. Several of these deaths were due to cardiac and cerebral accidents, and could not be directly attributed to renal insufficiency. In Group 2, of the forty-six patients, nineteen died within from nine months to two and one-half years, a mortality of 46 per cent. In Group 3, sixty-six of the seventy-eight patients died during an observation period of from nine months to two and one-half years, a mortality of 85 per cent.

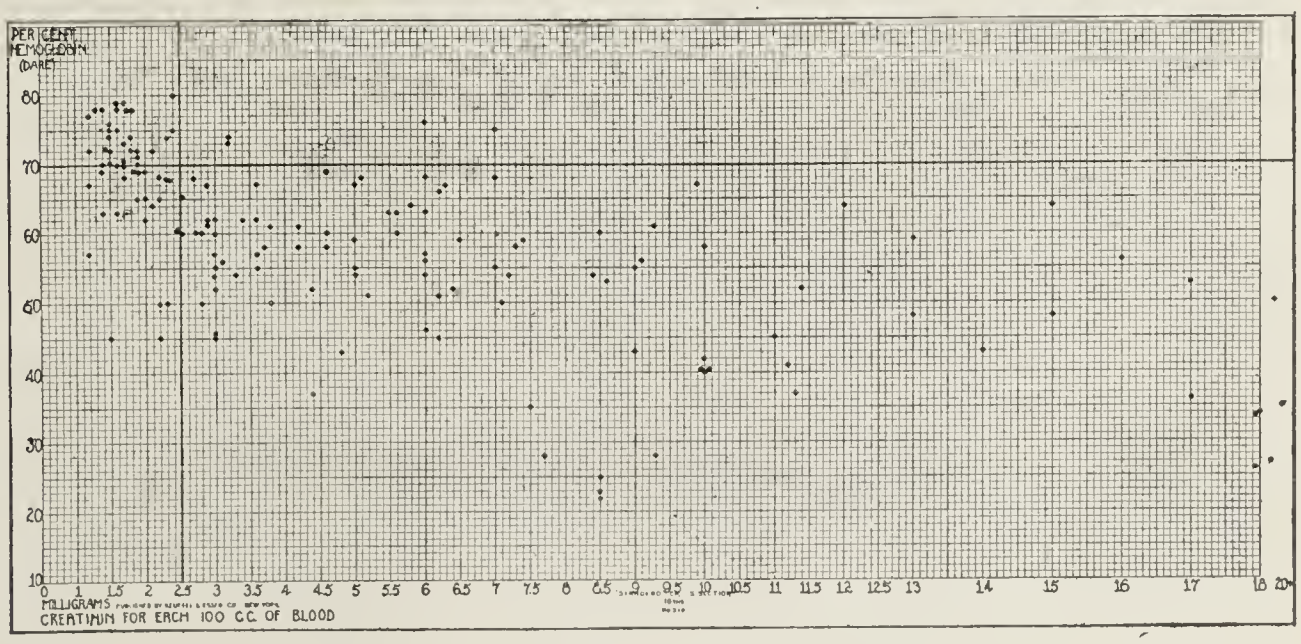


Chart 2.—Relationship between creatinin and hemoglobin values.

COMMENT

There seems to be no doubt that a close relationship exists between creatinin retention and anemia (though no etiologic relationship has been demonstrated), and that impaired bone marrow and renal function is some-

what parallel in the later stages of the disease. The relationship is an inverse one. Patients with high blood creatinin values usually have correspondingly low hemoglobin values and erythrocyte counts. We are convinced that the bone marrow partakes of the generalized tissue injury, although the impaired function does not always run parallel to the impairment in other tissues. We have observed a case in which the hemoglobin was 22 per cent. and the blood creatinin was 6.8 mg. for each 100 c.c. It would seem that at times the

TABLE 2.—*Mortality Rates* in Chronic Glomerular Nephritis With and Without Anemia*

Group	Degree of Anemia	Cases	Patients Living	Patients Dead	Not Heard from	Mortality per Cent.	Blood Findings Average: Hemoglobin, per Cent.	Blood Findings Average: Erythrocytes for Each C.Mm.
1	None.....	30	22	5	3	18	..	.....
2	Hemoglobin (Dare) 60 or 70 per cent.; erythrocytes 4,000,000 and over	46	23	19	4	46	65	3,730,000
3	Hemoglobin (Dare) 60 per cent. and less; erythrocytes less than 4,000,000	78	5	66	7	85	48	2,830,000

* Length of observation period varied from nine months to two and one-half years.

bone marrow receives a disproportionate amount of injury as compared with the renal tissue. Again, cases occur in which the renal tissue has received a disproportionate amount of injury as compared with the bone marrow. Perhaps increased tissue susceptibility explains this disproportion. The lethal threshold of kidney tissue is higher than the lethal threshold of erythrogenic tissue, and therefore death takes place from renal rather than from bone marrow injury, although the latter, no doubt, is a factor in the hastening of death by lowering the metabolism.

In this series of cases we have found only two patients with continued absence of anemia with marked renal insufficiency. We can offer no explanation for this except on the basis of disproportionate injury, but are convinced that more cases of this type are likely to be encountered in the future. We have noted that, in certain cases on first observation, renal injury was definitely evidenced by increased nitrogen levels in the blood, but anemia was absent. A gradual decrease of hemoglobin and erythrocytes is found if these cases are observed over a period of from two to four weeks. In another series of twelve patients the "renal break" took place during the hospital period, and subsequent examinations of the blood revealed the onset of definite anemia within the time limits just stated.

Comparison of the mortality rates in the anemia group and in the creatinin retention group shows a parallelism. If moderate anemia is present, that is, if the hemoglobin is between 60 and 70 per cent., the mortality rate within a period of two and one-half years was 46 per cent., as compared with a mortality rate of 56 per cent., in patients having a creatinin retention of from 2 to 5 mg. for each 100 c.c. In comparison of the group with severe anemia (that is, 60 per cent. or below) with the group having creatinin retention of about 5 mg., the mortality rates are 85 and 86 per cent., respectively. It would seem, therefore, that these high degrees of anemia indicate a definite unfavorable prognosis, and that they should be regarded as of serious import.

CONCLUSIONS

1. Comparative studies of the percentage of hemoglobin and the concentration of creatinin in the blood in chronic glomerular nephritis indicate a close inverse relationship.

2. Hemoglobin of 60 per cent., or less, has approximately the same serious prognostic significance within the two and one-half year period as have blood creatinin values of about 5 mg. for each 100 c.c.

3. The prognostic value of the anemia of chronic glomerular nephritis has approximately the significance of the complicated blood creatinin determination.

STUDIES ON THE INTRAVENOUS INJECTION OF URIC ACID IN ANIMALS*

JAY F. SCHAMBERG, M.D.
AND
H. BROWN, B.Sc.
PHILADELPHIA

In the course of an investigation [1] on the significance of an excess of uric acid in the blood in various dermatoses, we endeavored to determine whether it was possible to produce any disturbance of the skin in animals by the intravenous injection of large amounts of uric acid. Uric acid injections in man [2] had served only to illustrate, by its rapid elimination, the regulatory and protective power of the human organism. However, comparatively small amounts were injected and it was thought, in our work, that by using animals enormous quantities could be injected and some skin eruption might conceivably be evoked.

A 1 per cent. solution of uric acid in 0.44 per cent. lithium carbonate was used in all our experiments. The uric acid was determined by the method of Folin and Wu.[3]

TABLE 1.—*Uric Acid in Blood of Rat*

	Mg. per Hundred Cubic Centimeters
Before injection	Trace
After injection:	
0 minutes	600.0
15 minutes	40
30 minutes	15
60 minutes	Trace

A number of albino rats, each weighing 115 gm., were selected. The normal blood uric acid was determined in a few. The rest were then injected intravenously with 5 c.c. of the uric acid solution, equivalent to about 600 mg. per hundred cubic centimeters of blood, and the uric acid in the blood determined at various intervals, thereafter, one rat being used for each determination. All analyses were repeated several times. Several of the injected rats were kept under observation for two weeks.

Table 1 is typical of all our results. It shows the amount of uric acid retained in the blood after the

* From the Research Institute of Cutaneous Medicine, Philadelphia.

1. Schamberg, J. F., and Brown, H.: The Relationship of Excess of Uric Acid in the Blood to Eczema and Allied Dermatoses Based on an Analysis of Over Two Hundred Cases, Arch. Int. Med. **32**: 203 (Aug.) 1923.
2. Griesbach, W.: Biochem. Ztschr. **101**: 172, 1920.
3. Folin, O., and Wu, H.: J. Biol. Chem. **38**: 81 (May) 1919.

intravenous injection of the equivalent of 600 mg. of uric acid per hundred cubic centimeters.

It will be noticed that there was practically no uric acid in the blood before injection, which is contrary to the view expressed by Folin and Morris,[4] who found that the albino rat's blood contained from 2 to 3 mg. per hundred cubic centimeters; that is, about an amount equal to that in human blood. The very rapid elimination of uric acid, in spite of the enormous quantities introduced, made it probable that there would be no effect on the skin. In fact, except for a marked diarrhea and convulsive breathing lasting about fifteen minutes after the injection, rats under observation for several weeks showed no untoward results.

Thirty minutes after the uric acid injection, when the blood uric acid revealed 15 mg. per hundred cubic centimeters, the kidney contained 12 mg. per hundred grams, and the liver and skin only traces of uric acid. It would seem, therefore, that the removal of uric acid was taking place in two ways: by direct elimination through the kidneys, and by the breaking up of the uric acid by the uricase of the liver.

Similar experiments with a dog likewise produced negative results on the skin. A dog, weighing 14 kg., was maintained for four days on a uniform diet containing a moderate amount of protein. Before feeding on the fifth day, 40 c.c. of the uric acid solution (equivalent to about 30 mg. per hundred cubic centimeters of blood) was injected into the left jugular vein. Blood was drawn from the right jugular. There was no reaction.

Table 2 shows that the elimination of injected uric acid in a dog is about as rapid as in the case of the rat.

TABLE 2.—*Uric Acid in Blood of Dog*

	Mg. per Hundred Cubic Centimeters
Before injection	0.4
After injection:	
0 minutes	30.0
10 minutes	3.8
15 minutes	2.6
30 minutes	1.5
60 minutes	0.8
120 minutes	0.3

Repeated intravenous, as well as subcutaneous injections, failed to produce any changes in the skin.

CONCLUSIONS

1. Our experiments would indicate that the blood of the albino rat contains only slight traces of uric acid.
2. Enormous amounts of uric acid are removed from the animal in a very short time. This is accomplished either by the action of the liver or by elimination through the kidneys. Analyses of the organs indicate that both methods are probably operative in the process.
3. No cutaneous manifestations were observed by intravenous or subcutaneous injections of large quantities of uric acid.

2101 Pine Street.

4. Folin, O., and Morris, J. L.: J. Biol. Chem. **14**: 509, 1913.

Parent and Offspring.—When one parent is feebleminded and the other epileptic, the results are commonly still more disastrous. In fifteen matings of this kind studied by Davenport and Weeks, twenty-eight of the fifty-five offspring were epileptic, twenty-six were feebleminded, and one was insane.—Holmes: Studies in Evolution and Eugenics, New York, 1923.

Clinical Notes, Suggestions, and New Instruments

GUINEA-PIG INOCULATION FOR TUBERCLE TEST*

RAYMOND L. SCHULZ, M.D., LOS ANGELES

Several methods of facilitating the rapid recovery of tubercle bacilli from inoculated guinea-pigs have been suggested. Intraperitoneal inoculation requires at least six weeks for the satisfactory development of lesions, subcutaneous inoculation at least four weeks. Exposure to roentgen rays previous to inoculation has been suggested to increase the susceptibility and make possible a recovery of the tubercle bacillus in two weeks. With intrahepatic inoculation, a search for tuberculous abscess is made after two weeks. All these methods require killing the animal, the test is interrupted, and further observation is impossible, particularly in apparently negative or doubtful cases. Besides, it may be necessary in some of these tests to make tissue examinations in order to arrive at a diagnosis.

With intracutaneous inoculation, a result can be obtained in less than two weeks; the development and location of the lesion are always under observation, and the animal may be kept alive for further observation if desired, particularly when there is a tendency toward a negative result.

The method is especially adapted for the detection of tubercle bacilli in urine or other fluids that contain but little sediment without secondary infection. The urine is centrifugalized, and the sediment of several tubes may be concentrated into one.

The groin of the guinea-pig is shaved and cleaned. About 2 c.c. of the suspected fluid is drawn into a hypodermic syringe with a small needle. The injection is made intracutaneously about the midportion of the thigh so as to produce a bleb about the size of a lima bean, and if any fluid is left in the syringe, it may be injected subcutaneously.

If the amount of cellular material injected is not enough to produce necrosis, the resulting induration at the site of injection subsides almost completely in about six days, and only a minute nodule remains. After that, if tubercle bacilli are present, a small tubercle develops at the site of inoculation which becomes inflamed and shows evidence of lymphatic dissemination. By about the thirteenth or fourteenth day, the nodule may be about 3 mm. in size and slightly elevated. It may then be incised under ether anesthesia, and smears made direct from the material in the center. A better way is to insert the point of a medium sized hypodermic needle into the center of the nodule, stir it around gently, and aspirate the material into the stem of the needle. Suction must be released before the needle is withdrawn, or the material, which is very small anyhow, will be drawn farther up into the aspirator and lost. A wire stylet is then inserted through the needle, which forces the contents out at the point. One or two smears are made and stained for tubercle bacilli. No difficulty should be experienced in finding plenty of them if the infection was present in the original specimen.

In case there has been considerable pus in the original material injected and an acute abscess forms at the site of inoculation which breaks down in a few days, the animal should be kept under observation. Smears may be taken immediately. The lesion may scab over and seem to be healing, but, if tubercle bacilli are present, it will break down again about the twelfth or fourteenth day, when smears should be taken. It is important that the material for smear be selected from the portion of the wound most likely to show bacilli. Very minute caseous tubercles can sometimes be seen; these are particularly useful for a test, and show an abundance of bacilli. If the tests are negative, the animal can be kept alive for further observation, if desired. The method is particularly useful also in proving the absence of tuberculosis from the opposite kidney in cases of unilateral involvement without necessitating too long a wait. Since

* Demonstrated before Los Angeles County Medical Society, June 1, 1922.

the lesion develops in the skin and can be observed every day, the absorption of the injected material and the disappearance of induration will soon show the absence of tuberculosis. However, it is important that sufficient material be injected intracutaneously; subcutaneous injection alone should not be relied on.

When one considers how long it takes for a culture of the tubercle bacillus to grow on medium in a test tube before becoming visible, it is not probable that the time for recovery of tubercle bacilli from the guinea-pig can be shortened to less than is possible by the foregoing method.

1020 Story Building.

POTASSIUM FLUORID AS A PRESERVATIVE FOR BLOOD *

RALPH H. MAJOR, M.D., KANSAS CITY, KAN.

The need of a satisfactory preservative in specimens of blood for chemical studies has long been felt in this clinic. This need has become greater with the increasing use of insulin.

Diabetic patients are often admitted to the hospital at hours when it is not possible to make estimations of the blood sugar and carbon dioxid, however desirable such examinations may be, and experience has shown us that specimens of blood collected in oxalate solution may be unsatisfactory for study the following day, even when kept on ice. The need of a preservative is also felt when the physician without adequate laboratory facilities wishes to mail a specimen of blood for determination of the sugar and carbon dioxid tension.

We have been experimenting recently with various substances which are described as having an antiferment action and which should thus either delay or prevent the glycolytic activity of the blood. Some of these substances proved fairly satisfactory, while others were of no value.

The most satisfactory substance used was potassium fluorid. A saturated solution was employed, one drop being added to each 5 c.c. of fresh blood. No oxalate is necessary, since the potassium fluorid effectually prevents clotting.

In Table 1 are presented the results of a series of analyses of single specimens of blood at varying time intervals. All specimens were collected in test tubes containing the potassium fluorid solution, which had been stoppered with cotton plugs and autoclaved. All were kept at room temperature.

TABLE 1.—*Results of Blood Sugar Analyses at Varying Intervals* *

	Sugar				Sugar		
No.	First	Second	Interval	No.	First	Second	Interval
1.....	333	330	5 days	8.....	125	125	24 hours
2.....	91	93	2 days	9.....	143	143	7 days
3.....	74	81	5 days	10.....	118	111	2 days
4.....	320	323	4 days	11.....	80	80	5 days
5.....	168	158	7 days	12.....	133	133	2 days
6.....	133	132	5 days	13.....	100	90	4 days
7.....	91	91	24 hours	14.....	149	143	8 days

* Specimens preserved with potassium fluorid solution. Sugar in milligrams per hundred cubic centimeters. "First" indicates first determinatiou; "second," second observation.

An examination of this table shows that in fourteen specimens of blood there was no change in the blood sugar readings for periods varying from twenty-four hours to eight days. A few specimens not included in this table, showing a marked fall or absence of blood sugar in a few days, proved on examination to be contaminated with bacteria.

In Table 2, the results of analyses at the end of one week are shown, in twenty specimens. Ten of these were in test tubes stoppered only with cotton, while ten were sealed with paraffin. All of the specimens were kept at room temperature, and determinations were made of both the sugar and the carbon dioxid tension.

* From the Department of Internal Medicine, University of Kansas School of Medicine.

An examination of the results of this table shows that the twenty specimens, at the end of one week, presented no marked variations in either the sugar content or the carbon dioxid tension. The same results were obtained in both the tubes stoppered with cotton, and in those sealed with paraffin.

All the blood sugar determinations were carried out by the method of Folin, and the carbon dioxid tension by the method of Van Slyke. The specimens of blood were obtained from patients with diabetes, from patients suffering from various other diseases, and from normal persons.

TABLE 2.—*Results of Blood Sugar and Carbon Dioxid Determinations at Intervals of One Week* *

	Sugar		Carbon Dioxide			Sugar		Carbon Dioxide	
No.	First	Second	First	Second	No.	First	Second	First	Second
1.....	118	118	40	43	11.....	105	95	40	41
2.....	91	95	30	32	12.....	120	130	41	35
3.....	100	95	39	40	13.....	238	223	38	40
4.....	100	99	44	40	14.....	95	100	37	38
5.....	88	95	38	40	15.....	65	75	43	42
6.....	87	80	40	37	16.....	74	80	47	49
7.....	91	80	40	42	17.....	103	105	47	51
8.....	105	101	41	40	18.....	82	73	41	51
9.....	91	80	39	41	19.....	67	56	49	49
10.....	77	80	47	46	20.....	132	133	44	43

* Specimens preserved with potassium fluorid. Sugar in milligrams per hundred cubic centimeters; carbon dioxid tension in per cent. by volume. "First" indicates first determination; "second," observation one week later.

SUMMARY

1. Specimens of fresh blood collected in sterile tubes containing a saturated solution of potassium fluorid in proportions of one drop to each 5 c.c. of blood have shown no change in blood sugar or carbon dioxid tension, for a period of one week.

2. Care must be taken to prevent bacterial contamination.

3. Oxalate solutions are unnecessary when potassium fluorid is used, as the latter prevents clotting.

A FLUOROSCOPIC SIGN OF A PARTIALLY ADHERENT PERICARDIUM *

NICHOLAS LUKIN, M.D., NEW YORK

During a fluoroscopic examination at the Bronx Hospital of the chest of a colleague, who about nine months previously had suffered from a serofibrinous pericarditis from which he had apparently completely recovered, I observed a rhythmic tug of a part of the left dome of the diaphragm near its center with each systole of the heart when the diaphragm was fixed in an inspiratory pause. This tug I interpreted as a sign of a pericardial symphysis, even when present only to a slight extent, because no other evidence of an adherent pericardium was present in that case. This sign is elicited during an inspiratory pause because "the fibrous pericardial sac is inserted over the dome of the diaphragm and adheres closely to the phrenic center. It gives only an inappreciable fluoroscopic shadow above the left portion of the diaphragm. This shadow disappears entirely in forced inspiration, the heart being then separated from the diaphragm by a clear space which corresponds to the base of the left lung and the lower edge of which is outlined for the greater part of its length against the clearness of the pulmonary tissues."[1] The rhythmic tug of a part of the diaphragm with each systole of the heart is distinctly visible in that clear space when the phrenum is fixed in inspiration because the visceral pericardium is adherent to the parietal pericardium even though in a small degree, and exerts a pull on it and through its insertion on the diaphragm with each cardiac contraction.

I observed the same tug in a young man whom I treated two years ago for a rheumatic endopericarditis.

The medical literature which I perused on the subject, while giving several radiologic signs of advanced and exten-

* Read before the Clinical Society of the Bronx Hospital, Oct. 8, 1923.

1. Vaquez, K., and Bordet, E.: The Heart and the Aorta, Yale University Press.

ive pericardial symphysis, fails to mention this evidence of recent and slight pericardial adhesion. Many cases of serofibrinous pericarditis clear up clinically, and it would seem desirable to examine these patients with the fluoroscope for evidence of pericardial adhesions, which, if present, of necessity offer a certain impediment to the heart's reserve.

Such cases need a more careful regimen than those in which the pericardial space remains entirely free, and may be easily determined through this fluoroscopic sign.

1437 Prospect Avenue.

A FATAL CASE OF MALTA FEVER

W. R. TYNDALE, M.D., AND L. E. VIKO, M.D., SALT LAKE CITY, UTAH

Malta fever is endemic in herds of goats in southern Utah. In 1922, two herders in this region died of a condition said to resemble this disease.

In May, 1923, the patient, W. A. S., aged 33, the state veterinarian, went to this section with Dr. L. L. Daines, the state bacteriologist, to investigate the disease in the goat herds. May 15, he handled placental tissue from an infected animal; at this time he had a small cut on one hand, which, however, healed without incident. May 27, he developed chilliness and cramping pains in the legs, and the next day fever, epigastric pain and a constant headache. A few days later an unproductive cough and general pains appeared. These symptoms, with marked insomnia, sweating and weakness, continued until June 6, when they gradually subsided.

The patient first consulted us for his present illness, June 9. At this time there were a few scattered râles in both lungs, epigastric tenderness and cardiac findings unchanged from those noted at an examination several years before. The temperature, pulse, white blood count, blood smear and urine were all normal. The diagnosis of Malta fever was considered, but could not be confirmed at this time by laboratory examinations.

Feeling much improved in a few days, the patient returned to his work against our advice. He was next seen by us, August 7, in another typical febrile attack, and gave the history of having had several in the interval, increasing in severity. August 10, he entered the Latter-Day Saints Hospital in Salt Lake City. No new physical findings were made out. The attack subsided, but was followed in a few days by another with fever, joint and muscle pains requiring morphin, sweating, cough, weakness and intractable insomnia. He became irrational and delirious, and died, August 16. While in the hospital, he showed a moderate leukocytosis, but all other laboratory examinations (including the Widal test and blood cultures) were negative except that *Micrococcus melitensis* was obtained by Dr. Daines from cultures of the urine.

Necropsy was performed, the day of death. Aside from old cardiac findings not significant to the present illness, it showed only chronic passive congestion of the lungs and liver (enlarged, firm "nutmeg" liver) and a firm, fibrous spleen. From the spleen Dr. Daines obtained cultures of *Micrococcus melitensis.*

1004 Deseret Bank Building.

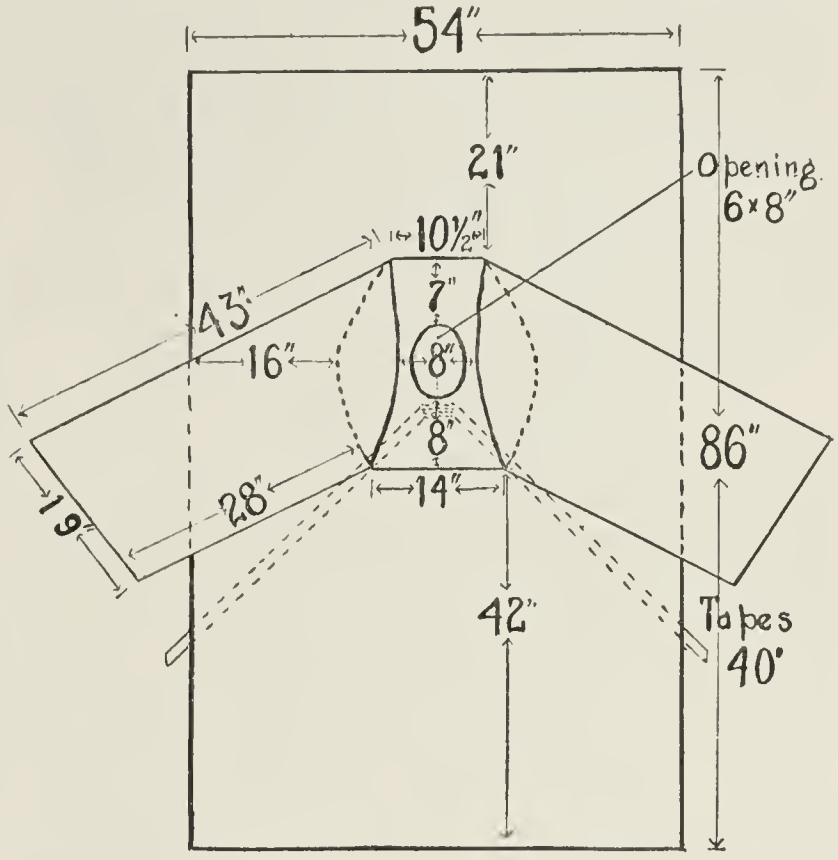
AN IMPROVED DELIVERY SHEET

WILLIAM BENBOW THOMPSON, M.D., DETROIT

This sheet was devised in an endeavor to develop a delivery drape that would permit the patient a moderate amount of freedom of motion without seriously disturbing delivery room technic. Sack-like leggings are sewed directly to elliptical openings in a sheet made of any heavy material, such as Indian Head. The central portion is reinforced with an extra thickness of the same material. Two tapes are sewed on the under side below the opening in the central section. All seams are double stitched.

When it is desired to drape the patient, the limbs are thrust into the leggings, and the central aperture is arranged over the vulva. The assisting nurse then pins the attached tapes to the patient's gown, so that the lower portion of the reinforced area is tucked under the buttocks, and holds the drape closely to the vulva. Added security of arrangement may be obtained by the use of a pair of metal sheet holders. In practice here, however, the arrangement described has remained satisfactorily fitted for several hours without disarrangment by the patient's movements.

The drape is equally suitable for forceps and other operative deliveries in the extreme lithotomy position, since the large leggings may easily be slipped over the stirrup-holders.



Dimensions of delivery sheet.

This is a considerable convenience in a busy service, since it obviates the use of a special type of sheet for this position.

The drape can be readily folded so that it may be put on quickly and without danger of contamination. When thus arranged, it can be sterilized with the package of routine delivery supplies.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

NATIONAL RADIUM EMANATOR.—A portable appliance for activating water with emanation; the emanation is emitted from a solution of radium chloride, barium chloride and sodium chloride. The emanations pass through a purifying chamber into a compartment containing the water to be drunk. The appliance is claimed to produce 40 microcuries (150,000 Mache units) of radium emanation to 1,000 Cc. of water daily.

Actions, Uses and Dosage.—See general article on Radium and Radium Salts, New and Nonofficial Remedies, 1923, p. 255.

Manufactured by the National Radium Products Company, New York. U. S. patent 1,452,709 (April 24, 1923; expires 1940). No U. S. trademark.

Physician as Advocate of Health.—The whole-time county health officer comes nearer giving the rural practitioner the same advantages that the city practitioner enjoys than anything else. Every physician should be an advocate of health. —Chichester, P. M.: *Virginia M. Monthly* **50**:469 (Oct.) 1923.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, DECEMBER 8, 1923

SECRETORY MANIFESTATIONS OF GASTRIC ULCER

The importance of accurate methods of examination applied to the problems of diagnosis and therapy has been well exemplified of late with regard to gastric ulcer, a subject in connection with which conjecture has vied with the scheme of trial and error to secure desired ends. Thus, hyperacidity has been described as a "classical symptom" of ulcer of the stomach;[1] and, consequently, the practitioner is taught that "the acid secretion should be reduced as a first step by regimen, diet and remedies,"[2] the latter being interpreted as alkalis. If one accepts Carlson's[3] judgment that "there is no disease known capable of inducing true gastric hyperacidity," and that "the pathologic deviations in acid and pepsin concentrations are invariably in the direction of decrease," the claim of hyperacidity can at best represent only hypersecretion, which has, in fact, been found to occur in some cases of demonstrable gastric ulcer. It has further been well established that in gastric and duodenal ulcer, uncomplicated by pyloric obstruction, there may be normal gastric acidity, so-called hyperacidity (that is, hypersecretion) or complete achylia—secretory conditions that are also found in normal persons.[3]

These conclusions are the rewards of the more recent methods of gastro-enterologic research; and they are bound to modify the management of cases of ulcer. Already there are evidences of an "awakening." Bell,[4] for example, has recently discovered among twenty-seven proved cases of chronic gastric ulcer no less than four showing complete achlorhydria, and in three there were extremely low gastric acidities. These seven cases were clinically indistinguishable from those associated with normal acidities. Neither the site nor the duration of the ulcer appeared to predispose to achlorhydria. Gastric ulcer is far more frequently associated with a diminished acidity than is duodenal ulcer, and it is exceptional to find complete achlorhydria with the latter. Bell recalls that modern medical treatment of peptic ulcer seeks, in general, to achieve a cure by neutralizing the acidity of the stomach contents as continuously as possible, and administering a physically non-irritating and chemically non-acid-provoking diet.

It is obvious that, however good the results may appear to be, the indiscriminate giving of alkalis cannot be regarded as rational when no acidity is present to be neutralized. Consequently, as Bell remarks, recognition of the wide variations of secretory activity occurring in gastric and duodenal ulcer is essential for the efficient treatment of these conditions. Significant in this connection is the growing record of untoward effects that may follow the indiscriminate alkaline treatment of peptic ulcer, the results simulating alkalosis.[5] Improved diagnostic skill permits greater discrimination in therapy; and the patient benefits from both.

1. Emerson, C. P.: Essentials of Medicine, Philadelphia, J. B. Lippincott Company, 1920.
2. Handbook of Therapy, Am. Med. Assn., Chicago, 1920, p. 293.
3. Carlson, A. J.: The Secretion of Gastric Juice in Health and Disease, Physiol. Rev. **3**: 1 (Jan.) 1923.
4. Bell, J. R.: Gastric Ulcer and Achlorhydria, Arch. Int. Med. **32**: 663 (Nov. 15) 1923.

THE ABSORPTION OF DRUGS THROUGH UNUSUAL CHANNELS

The barriers to absorption appear to be so perfect in certain parts of the body that we have become accustomed, either instinctively or deliberately, to discount the possibility of intoxication through them. Probably the best illustration of such disregard of potential danger applies to the every-day treatment of the skin. This surface, which, from a physiologic standpoint, is only a thick membrane, is repeatedly subjected to contact with toxic gases or poisons in solution without much fear of untoward consequences. The workman is often exposed in this way to products that would unquestionably be noxious if they were to penetrate as far as the subcutaneous tissues. With evident unconcern, the surgeon bathes his skin with poisonous antiseptics that he well knows would bring about violent reactions if they were in contact with the enteric rather than the cutaneous surfaces of his body.

In the skin and its appendages are found the extremes of protective safety, which leads man to indifference in regard to them. Even the epidermis, however, is not immune to harm from such poisonous irritants as the "mustard gas" of war time. There are regions of the body less perfectly protected than by the skin but which are trusted to permit only slight penetration. Macht[6] has given a suggestive indication of illustrative drugs that are employed therapeutically by the general practitioner as well as by various specialists, primarily for their local effect on a particular organ or tissue. Thus, ophthalmologists use atropin for its mydriatic effect, cocain for local anesthesia, and various antiseptics with the intent that these drugs shall exert their foremost action on the eye, penetrating, if

5. Hardt, L. J., and Rivers, A. B.: Toxic Manifestations Following the Alkaline Treatment of Peptic Ulcer, Arch. Int. Med. **31**: 171 (Feb.) 1923.
6. Macht, D. I.: Absorption of Drugs Through the Eye, Ear, Teeth and Esophagus, J. Pharmacol. & Exper. Therap. **22**: 123 (Sept.) 1923.

absorbed, only a short distance below the point of application, without entering the general circulation. Otologists introduce phenol (carbolic acid) into the ear canal, expecting the drug to exert a pharmacologic effect on the local structures. Again, dentists inject anesthetics into the gums or along nerve canals, also expecting the drugs to act locally; and gynecologists prescribe douches, suppositories and other local medicaments with the aim of restricting their therapeutic influence as far as possible to the organs to which they are applied.

Recent studies[6] at the Johns Hopkins University indicate that many of these seemingly out-of-the-way channels are, indeed, permeable in no small measure to potent drugs. Clinical experience has already incriminated the conjunctival sac; and Macht has now demonstrated that untoward results are not necessarily due to the penetration of the drugs used through the lacrimal duct into the nasal duct, thereby leading to absorption by the oral channels. For example, sufficient apomorphin to produce vomiting can be absorbed from the environment of the eye even when the tear ducts are not patent. Death has been produced experimentally in animals through absorption of poisons from the external ear cavity. Even the dental alveoli afford a possible pathway. Now and then all of these circumstances are realized through some untoward effect. They deserve, however, to be kept in mind more generally.

A VALUABLE CONTRIBUTION OF ANIMAL EXPERIMENTATION

The beneficent help that experimentation on animals has given to practical medicine in the past continues to be manifested in the current history of medical progress. If our citizens in scientific centers are to be encouraged, as was urged in a recent issue of THE JOURNAL,[1] to support the efforts of investigators to secure vagrant animals that may be devoted to the endeavor to lessen disease and prolong life, it will be advisable to keep some of the striking benefits clearly before physicians. In truth, scarcely a week goes by without registering in the domains of the experimental sciences some important finding through biologic methods that is likely to attain application in diagnosis or therapy. An instance of immediate significance has just been recorded by Warren and Whipple.[2] It is concerned with some of the unsuspected dangers of the roentgen ray.

Radiant energy of the type represented by radium is of interest because of its lethal influence on pathologic growths and on bacteria. The ultraviolet rays and lights that emit a large proportion of them have been employed as germicides in surface wounds. The penetrating power is slight, however, so that they can have little effect on deeper structures. The sufferings of the pioneers in the use of the roentgen rays indicate the severe disturbances which radiant energy of that type can produce. The skin burns resulting from exposure to the roentgen ray are particularly familiar; but the studies of Warren and Whipple seem to leave little doubt that the intestinal epithelium is at least as sensitive as the skin epithelium, and it may be more sensitive when we consider its increased distance from the roentgen-ray target and the intervening body tissues. Tests on animals show that the intestine can be so injured by the roentgen ray as to produce ulcers that are no less chronic than the familiar skin lesions.

There are scattered indications that the lessons learned through irradiation of the laboratory animals apply equally well to man. Erythema doses or larger doses given over the abdomen or the intestinal areas may cause injury to this sensitive intestinal epithelium. Particular care should be taken when "cross fire" is used over areas that include intestinal coils, as the loops may be seriously injured. As Warren and Whipple carefully point out, the sensitiveness of the intestine, in contrast to some of the other internal organs, to penetrating irradiation must not be interpreted as a contraindication to the use of hard or short wave length roentgen rays produced by the modern roentgen-ray tube and high power machines. Radium, they add, can produce serious injury, but this does not contraindicate its use in proper cases, with a clear understanding of all its effects. Their experiments indicate that these hard roentgen rays can injure intestinal cells deep in the abdomen, and this arouses hopes that similar influence may be exerted on deep lying tumors; but careful judgment is required when considerable doses of roentgen rays are to be given so as to involve intestinal areas. Thus the observation on the common laboratory animals indicating that irradiation over the abdomen can cause a common intestinal pathologic condition and clinical pictures gives, on the one hand, due warning to the radiologist who contemplates radiotherapy of abdominal areas; and, on the other, it points to new possibilities of progress through the use of potent radiations.

NEW APPOINTMENT AND PROMOTION POLICY FOR ARMY MEDICAL RESERVES

Elsewhere in this issue[1] are the new regulations of the War Department governing appointment and promotion in the medical sections of the Officers Reserve Corps. The evident purpose is to give to the medical profession a more satisfactory basis for appointment and promotion, and one free from the objectionable features of former requirements. Under these new regulations, promotion in the reserve is given on the impartial and incontrovertible basis of length of commission. A man who serves five years in one grade,

1. Impounded Animals for the Service of Medicine, editorial, J. A. M. A. **81**: 1611 (Nov. 10) 1923.
2. Warren, S. L., and Whipple, G. H.: Roentgen-Ray Intoxication, J. A. M. A. **81**: 1673 (Nov. 17) 1923.

1. New Regulations for Reserve Corps, Government Services, this issue, p. 1966.

and who has normally developed in his profession, is eligible for promotion to the grade above, provided he is physically qualified for a commission. Professional examination is waived for promotion from the lowest grade to the highest, with one notable exception. The reserve officer who passes from the grade of major to lieutenant colonel must be tested to determine his fitness for the administrative responsibilities of the higher grade. This is manifestly done to save the government as well as the individual from the injustice of incurring a responsibility for which the individual is not qualified or gifted. Even for this one examination, however, a distinct advance has been made, since the Surgeon General has differentiated between the character of service and responsibility that the citizen reservist will be called on to perform. Thus, this examination is divided into four broad types: for administrators, for sanitarians, for supply men and for the professional group. The last group includes consultants and chiefs of services and specialties in medicine and allied sciences.

It is evidently the desire of the Surgeon General to adapt the examination to the candidate's special field of endeavor, and by limiting the examination to one grade to avoid the unnecessary examination of busy professional men. The changes outlined have many advantages to the profession over prior rules, but none more acceptable than a clear, simple and fair rule of promotion which will apply equally and justly to all. The appointment features of the new regulations are also far superior to the former ones. Two groups are recognized. The first includes original appointees, who are given appointment by virtue of their established professional standing. The second includes former service men and men who, while not in the military service in the World War, were engaged in essential public service analogous to military service and necessary to functions of the government in the conduct of the war. There are many perplexing problems in adjusting the reappointment rank of the several classes in the latter group, but it is clear that the department has labored seriously to arrive at a just standard.

The organization of the reserve is a national responsibility which must be shared equally by the citizen and the professional soldier. The medical departments of the army and navy in a time of great national emergency come to include so great a majority of the active members of the medical profession that the responsibilities of these departments become that of the medical profession of America. The medical department of the army now calls for the cooperation of the body of the civil profession, and manifests a laudable spirit in offering appointment and promotion in the reserve under the most favorable possible terms consistent with the organization of a dependable agency. The defense plans for this country in a major emergency call for 45,000 medical, 8,000 dental, 3,000 veterinary, 700 sanitary and 4,000 medical administrative corps officers, while the present enrolment in these reserve corps is only 6,713 medical, 3,331 dental, 722 veterinary, 355 sanitary and 715 medical administrative corps officers.

The army medical department now seeks to enroll and classify personnel to fill places in prospective medicomilitary units, so that in a future emergency past errors may be avoided. The department has placed the reserve on a most favorable footing. It rests with the profession to come forward and, by joining hands, to establish a medical reserve system that will afford a protection for the present and guidance for the coming generation.

Current Comment

SCANDAL OF MEDICAL LICENSURE

The newspapers, and particularly those of the East, have been arousing considerable public interest by their discussions of the licensure scandal in Connecticut. The Connecticut investigation followed the recent exposé by the St. Louis *Star* of the ease with which a diploma was purchased in Missouri. This exposé directed the limelight on the serious conditions existing in other states, particularly Connecticut and Arkansas, which have been made the dumping ground of graduates of low-grade medical schools. For more than five years, The Journal has again and again warned these two states that their eclectic boards constituted a potential menace to their citizens. Moreover, provision for reciprocity between these and other states made these boards a menace to other states. Now that the scandal has burst upon the community, public interest has been aroused, and public officials have been encouraged to take action. The situation carries a lesson to every other state—a lesson that the Council on Medical Education and Hospitals and The Journal have been reiterating stedfastly and earnestly for more than twenty years. The only assurance for the people of any state that their physicians will be competent is a single standard of fundamental education for those who propose to treat the sick, and a single, nonpolitical examining board in each state to make sure that such persons meet the standard.

THE DISCOVERY OF HYDROCHLORIC ACID IN THE GASTRIC JUICE

One hundred years ago, this month, the English chemist William Prout [1] produced before the Royal Society of London his evidence showing that in the gastric juice "the acid in question is the muriatic acid and that the salts usually met with in the stomach are the alkaline muriates." The conclusive evidence was secured by skilful titration and distillation in the days when modern analytic chemistry was still in its infancy, and even the best of technic often encountered insurmountable obstacles when "organic" substances were involved. In the course of subsequent decades, the knowledge of the nature of the gastric acidity has become part and parcel of the current information of

1. Prout, William: Phil. Tr. Roy. Soc. London, 1824, p. 45, et seq.

very school child; yet it is not so long since the debate egarding the validity of Prout's assertion still went on. That there is acidity in the secretion of the stomach was dmitted, while the claims of muriatic, phosphoric, lac- ic and acetic acids were being pressed for recognition s the acid agent. Acidity of such strength as that of he gastric juice, Smith [2] has written in an illuminating eview of the unique discovery, occurring in any other lace in the body would occasion serious results. It is ot strange, then, that the announcement of Prout's liscovery of "free" hydrochloric acid in the gastric uice in December, 1823, caused a sensation among the cientific men of his day. And the vision of the English hemist receives this richly deserved commendation rom Smith:

> The chemical sense and clear line of reasoning which Prout howed in making his experiments were sound, and history as proved that his deductions were correct. Later, Prout oncluded that the source of the hydrochloric acid lay in he chlorides of the blood, from which the Cl^- (ion) is sepa- ated by vital or electrical action and passes into the stom- ch. Save for some new words given us by Arrhenius, how nuch farther have we advanced in these past hundred years n explaining the mechanism of formation of hydrochloric cid in the stomach?

ANOTHER VIEW OF THE DIPLOMA SCANDAL

The present diploma licensure scandal in Connecticut is fortunate in that it has turned attention to matters in which the public and public officials particularly have not taken sufficient interest. In the midst of all the tumult, the comment of the Marietta (Ohio) *Times* appears like a ray of light in an otherwise somber situation. The editor says:

> In a profession given to quackery, quacks would attract little attention. The counterfeiting of medical diplomas is in itself a tribute to the medical profession. Counterfeiting implies that the established currency is sound. So it is with this great profession. All the more reason, therefore, why the profession itself should make every effort to eliminate the quacks, and why the public should help by informing itself of every doctor's medical pedigree and ostracising the occasional pretender or crook.

AVITAMINOSIS AND STARVATION

Much of our knowledge of the significance of vitamins in nutrition and the possible bearing they may have on disease has been derived from investigations on birds. The classic experiments have consisted in feeding pigeons with highly milled rice, whereupon the animals presently show symptoms of nervous distress—polyneuritis gallinarum—which have been compared with the manifestations of human beriberi, a malady that may have somewhat similar genesis and neurologic signs. Administration of any of a large variety of foods brings prompt relief, and may initiate a return to health. One manifestation of a regimen deficient in vitamin B is the failure of appetite. Loss of weight inevitably attends such a situation, even in mammals.[3] Anorexia and consequent undernutrition are, however, manifestations of a diversity of disorders; consequently, the question has been raised as to whether the extreme results of so-called avitaminosis, particularly as it is observed in the animal experiments on which so much emphasis has been placed, are not in reality largely, if not entirely, a manifestation of inanition. To determine this, Terroine and Barthelemy [4] of Strasbourg have examined birds that have lost weight as the result of avitaminosis and of simple inanition, respectively. The analyses showed that nutritive decline and death ensue on the lack of vitamin B long before exhaustion of the body's reserve of fat such as invariably attends starvation. The conclusion seems warranted, therefore, that the manifestations of lack of vitamin B are not merely an expression of a lack of food. Whether the damage to the organism deprived of its vitamin supply is to be charged to upsets in the metabolic, digestive, secretory or nervous functions, for example, remains to be ascertained.

2. Smith, A. H.: The Centenary of a Unique Discovery, Sc. Month. **17**: 238 (Sept.) 1923.
3. Cowgill, G. R.: Am. J. Physiol. **57**: 420 (Oct.) 1921.

Association News

ANNUAL MEETING OF JUDICIAL COUNCIL

The regular annual meeting of the Judicial Council of the American Medical Association will be held at Chicago, Dec. 17, 1923. The members of this Council are: Dr. M. L. Harris, Chicago, chairman; Dr. W. S. Thayer, Baltimore; Dr. J. N. Hall, Denver; Dr. I. C. Chase, Fort Worth, Texas, and Dr. F. W. Cregor, Indianapolis.

ANNUAL CONFERENCE OF SECRETARIES OF CONSTITUENT STATE MEDICAL ASSOCIATIONS

The secretaries of thirty-six state medical associations were present at the annual conference held at Chicago, November 16-17. Four others sent in last minute notification of inability to attend by reason of unforeseen emergencies. Except for the four states represented by these, the unrepresented associations were practically the same that have been unrepresented at previous conferences.

Illinois, New Jersey and Wisconsin were also represented at the conference by the presidents of their state associations, and the president-elect of the Ohio State Medical Association was in attendance.

Editors of state journals not also secretaries of state associations were present from Iowa, Kansas, Massachusetts, Nebraska, New Jersey and Pennsylvania.

The President, President-Elect, Board of Trustees and heads of departments of the American Medical Association were present at all sessions of the conference.

The presiding officers at the various sessions were: Dr. E. L. Hunt, secretary of the Medical Society of the State of New York; Dr. C. B. Conklin, secretary of the Medical Society of the District of Columbia; Dr. Ray Lyman Wilbur, President of the American Medical Association, and Dr. G. E. Follansbee, President-Elect of the Ohio State Medical Association.

The sessions of the first day of the conference were given over to consideration of two general themes, the first dealing with measures for increasing the efficiency of medical organizations for promoting the professional and economic status of the physician, and the second pertaining to methods for enabling medical societies to disseminate information for the public to best advantage. The second day was devoted to discussion of periodic medical examinations, medical defense and indemnity, automobile liability insurance, and the work of the Bureau of Legal Medicine and Legislation of the American Medical Association.

4. Terroine, E. F., and Barthelemy, H.: Avitaminose et inanition, Trav. de l'Inst. de Physiol gén. Univ. de Strasbourg **1**, 1919-1922.

A round table conference of editors of state medical journals was held on the evening of the first day of the conference, at which various matters of especial interest to this important group were considered.

The papers read at the conference and the discussions thereon will appear in full in the *American Medical Association Bulletin,* beginning in the January number.

MEETING OF THE BOARD OF TRUSTEES

Abstract of Minutes of the Meeting of the Board Held at the Association Headquarters, Nov. 15, 16, and 17, 1923

The meeting was called to order at 10:20 a. m., November 15, by the Vice Chairman, Dr. McDavitt; Dr. Phillips, the Chairman, took the chair at 10:30 o'clock. All members of the Board were present, as well as the ex-officio members: President Wilbur, President-Elect Pusey, and Speaker Warnshuis; also Austin Hayden, Treasurer; Dr. Olin West, Secretary, and Dr. George H. Simmons, Editor and General Manager.

The minutes of the meeting of the Board held at the annual session of the Association at San Francisco were approved as read.

The Secretary announced that, in compliance with the instructions of the Board, he had written letters of appreciation to Dr. Sarles, who retired from the Board, and to Dr. Musgrave, the chairman of the local committee at San Francisco.

NEW PRINTING EQUIPMENT

The General Manager asked for authority to purchase certain machinery for the printing department—another book sewing machine, book trimmer and presses—the total cost of which, he estimated, would be $19,716. The Board authorized the purchase of such machinery.

ANNUAL TABLES

The International Research Council announced the publication of Annual Tables to supersede a list formerly published in Germany and discontinued during the Great War. The undertaking is to furnish an international, authoritative source of information for research workers. At the Aug. 3, 1923, meeting of the Executive Committee of the Board, it was recommended that the Association cooperate financially with the International Research Council in the publication of these annual tables. On motion, duly seconded, the Board authorized a subscription of $100 annually for five years in support of this undertaking.

DATE OF THE CHICAGO SESSION

The General Manager brought up the question of the date of the next session of the Association in Chicago, which had been fixed for May 19 to 23. He reported that through the courtesy of Professor Cox of the Weather Bureau, he had ascertained the temperature in Chicago, by hours, during the third week of May for the last five years, and that in only one of the five years had the weather been warm enough to insure comfort in an unheated building, such as the Municipal Pier, where all the meetings will be housed. It was also stated that the Association had an option on the Pier for the first and the fourth weeks in June. However, a change in the date for the meeting cannot be made until the Republican National Committee decides the time and place for the next national Republican convention.

LOCAL COMMITTEE OF ARRANGEMENTS

The Secretary of the Association reported that the Local Committee of Arrangements for the annual session of 1924, with Dr. J. W. Van Derslice as chairman, had been appointed with the approval of the Executive Committee and the General Manager. The Board unanimously approved of the personnel of the Local Committee of Arrangements thus far appointed.

PROPOSED AMENDMENT TO THE CONSTITUTION AND BY-LAWS

A resolution to disassociate the editorship and general management of the Association which had been presented to the House of Delegates at the San Francisco session and, after consideration, referred to the Board of Trustees, was read by the Secretary of the Board.

The Secretary of the Board also gave an abstract of a lengthy communication devoted, in part, to the subjects of the foregoing resolution, written by Dr. Eagleton and directed to each member of the Board of Trustees.

After thorough discussion of the two points involved in the resolution, it was decided by a unanimous vote of the Board to include in the next annual report of the Board to the House of Delegates the following statements:

1. There is no reason at the present time for any change in the present policy concerning the editorship and general management of the Association as provided by the Constitution and By-Laws.

2. The Constitution and By-Laws provide for an ad interim meeting of the House of Delegates when such a meeting is deemed necessary.

AMERICAN RED CROSS

The Secretary of the Board reported that, in accordance with the instructions of the House of Delegates, he had transmitted to Red Cross Headquarters at Washington copies of the resolutions adopted by the House at the San Francisco session.

BUREAU OF LEGAL MEDICINE AND LEGISLATION

The Executive Secretary of the Bureau, Dr. Woodward, presented a report on the activities of the Bureau since the San Francisco session. Among other subjects included in the report, the Board unanimously adopted the following resolutions:

1. That the Bureau on Legal Medicine and Legislation, in cooperation with the Committee on Legislation of the Section on Laryngology, Otology and Rhinology, be authorized to formulate and introduce a legislative bill regulating the labeling of lye and other caustic alkalis and acids manufactured for household use without further reference of the matter to the Board of Trustees.

2. That, as the American Medical Association held membership in the National Health Council through the Council on Health and Public Instruction and as the latter Council has been abolished, the affiliation of the Association with the National Health Council should be considered as terminated.

The Executive Secretary of the Bureau on Legal Medicine and Legislation stated that work has been begun on a model medical practice bill, which, when completed, will afford an opportunity for uniform laws on medical practice in the United States.

After luncheon, the Board reconvened at 1:45 p. m.

The resolution on public health presented to the House of Delegates, at San Francisco, by Dr. Leigh of Virginia, was considered, viz.:

Resolved, That the Council on Pharmacy and Chemistry of the American Medical Association be instructed to employ a trained publicity man, preferably a writer with an established reputation, whose duty it shall be to get into the lay press, daily papers, rural publications, magazines, etc., articles covering fully and accurately all of the activities of organized medicine.

On recommendation of the Reference Committee on Miscellaneous Business, the House of Delegates referred the resolution to the Board of Trustees for whatever action it deemed wise.

After extended discussion, the Board unanimously decided that it would be unwise to alter the present organization and plans of publicity utilized by the Council on Pharmacy and Chemistry through the Propaganda Department, which have proved very satisfactory in making known to the profession and the public the activities of the Council on Pharmacy and Chemistry and of organized medicine.

The Board also considered a second resolution presented by Dr. Leigh of Virginia, viz.:

Resolved, That the President and Secretary of the American Medical Association be instructed to confer with the medical directors of the larger life insurance companies which do preventive and educational health work with the object of securing their cooperation in educating the public about quacks and nostrums.

The Reference Committee on Medical Education recommended that this resolution be referred to the Board of Trustees, and the House of Delegates so ordered.

After discussion, the resolution was referred to the Bureau on Health and Public Instruction, with the recommendation that the Bureau act in accordance with its judgment in this matter.

UNITED STATES VETERANS' BUREAU

Dr. Charles W. Richardson, acting as a committee of the Board, made a report on the feasibility of the Board of Trustees taking the responsibility for a revision of the compensation rating tables of the United States Veterans' Bureau, as requested by the Director of the Bureau, Gen. Frank T. Hines. Dr. Richardson expressed the opinion that the proposed revision of the rating tables for compensation of disabled veterans would be a medical task; that the American Medical Association would be willing to aid the Veterans' Bureau in every way within its power; that the proposed work could probably be carried out by committees of qualified members of the profession in the larger cities of the country, but that it did not seem practicable for the Association, through its Board of Trustees, to assume such a responsibility.

After extended discussion, the final unanimous action of the Board was expressed in the following resolution, formulated by Dr. Richardson:

Resolved, That the Secretary of the Board inform the Director of the Veterans' Bureau that the Board of Trustees of the American Medical Association would be most willing to serve him in a survey of the rating for compensation of the Veterans' Bureau, had it the facilities at its headquarters to carry on the work. The Trustees would be willing to furnish the Director the names of a number of physicians who could make the resurvey, but that all arrangements to be made should be between the Director and those physicians whom he should select for this purpose; that the only relation which the Board would have with the resurvey would be in furnishing the list of available and desirable physicians.

ADVERTISEMENTS IN ASSOCIATION PUBLICATIONS

The subject of advertisements in the publications of the Association, and particularly in the *Archives of Internal Medicine,* was discussed by the members of the Board, by the President, the President-Elect, the Speaker, the Secretary, the Editor and General Manager, by Dr. J. L. Miller (Chairman of the Editorial Board of the *Archives of Internal Medicine*) and others. The following resolution was unanimously adopted:

Resolved, That the Board of Trustees authorize the Executive Committee to act with the General Manager and the Advertising Committee at headquarters in the formulation of principles and policies and the adoption of regulations as near as may be feasible, in the acceptance of advertisements of drugs and therapeutic products, infant foods, clinical laboratories, postgraduate schools or groups of individuals attempting postgraduate teaching in all of the publications of the Association, and to report to the Board at the annual meeting in 1924.

POSTGRADUATE EDUCATION

President Wilbur brought up the subject of postgraduate education, and related his experience as a participant in medical meetings at Des Moines, Cincinnati and Kansas City. He emphasized the need of diagnostic clinics and other forms of postgraduate instruction under the auspices of the Association.

The Secretary of the Board directed attention to the diagnostic clinics given on Monday and Tuesday of the session at San Francisco, and stated that the House of Delegates had adopted a resolution directing that diagnostic clinics on the first two days of the week of the annual session should be arranged for in the future. Arrangements have been made for the organization of diagnostic clinics on the first two days of the week of the Chicago session and, in conformity with the policy adopted at San Francisco, all of the clinics will be diagnostic and nonoperative, and not less than 50 per cent. of the clinics will be given by invited guests.

BUREAU ON HEALTH AND PUBLIC INSTRUCTION

The Executive Secretary, Dr. Dodson, made a report, in which he recommended, among other things, the making and accumulation at headquarters of lantern slides of illustrations which appear in *Hygeia* and selected illustrations from other publications, for use by medical speakers in public addresses and for other purposes. He also recommended that arrangements should be made for a public health exhibit during the next meeting of the Association in Chicago.

The General Manager stated that the policy at headquarters had been to make and accumulate desirable lantern slides and other illustrations, as indicated by Dr. Dodson. He called attention to and read the following letter from Dr. L. B. Mendel relative to a lecture given by Dr. Cramp in New Haven:

I cannot refrain from telling you how successful the New Haven address of Dr. A. J. Cramp was last evening. He had a very representative audience which comfortably filled one of the best lecture halls in the University, and he held the attention of his audience through an interesting recital of the nostrum problem. I myself was particularly impressed with the cogency of his presentation of the psychology of the situation, his reasonable exposition of the moral issues involved, and his constructive advice regarding the solution of the problem. The address proved to be unexpectedly timely in that the much discussed Eclectic Board of Connecticut was scheduled to meet on the same day and the "housecleaning" activities of the state government have been aired in our public press this week. Although I am probably as familiar with the printed propaganda work of the A. M. A. as most persons are, I could not help feel that the personal talk by Dr. Cramp carried a degree of conviction and a type of forcefulness to an extent that no other kind of publicity has equalled in my mind. I thought that you ought to know from an outside, open-minded observer, who lives in a lecture-ridden community, the impression that Dr. Cramp's presentation made here.

The Board reconvened at 9 a. m., November 16, all members being present.

Routine business matter was considered and, by unanimous action, the Board endorsed the present policy at headquarters of making lantern slides and other illustrations for use in lectures by members of the medical profession.

The Board then adjourned to attend the Conference of State Secretaries.

PUBLIC HEALTH EXHIBITS

The question of a public health exhibit during the next session of the Association in Chicago received extended discussion. By unanimous action of the Board, the Chairman appointed Drs. Dowling, Williamson and Upham a committee on Public Health Exhibits, and the committee was directed to make a report at the annual meeting of the Board in February, 1924.

REPORT OF THE SECRETARY OF THE ASSOCIATION

Dr. West made a verbal report, which included a statement of the increase of the Fellowship roster as of November 1, and the apparent success of the *Bulletin,* as indicated by favorable comment from Fellows throughout the country. In connection with the reappointment of Delegates, he requested the opinion of the Board as to the status of members of constituent associations who were recorded during the year but who may have died in the interim.

By unanimous action, it was the sense of the Board that any member of a state constituent association whose dues are paid for the year shall be regarded as a member for that period, whether or not he may have died, and that he be considered as a member in arranging for a reappointment of the delegates to the House of Delegates.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS

The Secretary, Dr. Colwell, presented a report mainly on graduate medical education. After discussion, the Board requested that the Council make a further and more extended report on the subject at the meeting of the Board in February, 1924.

The Board reconvened at 11:15 a. m., November 17. All members were present.

Drs. Richardson and Phillips brought up the subject of the appointment of the editorial board of the new special journal on otolaryngology, which will be published by the Association in the near future. The Board decided that the subject would be more definitely considered at the annual meeting in February.

FINANCE COMMITTEE

The chairman appointed Drs. McDavitt, Dowling and Williamson as the Finance Committee of the Board.

The Board made a final adjournment at 12 o'clock, noon.

FRANK BILLINGS, Secretary.

Qualifications of Health Officer.—A health officer should have two main qualities—leadership and technical ability. Of the two, possibly leadership is the more essential. He can gather about him, if needs be, skilled workers, but he must be able to lead these workers.—Chichester, P. M.: *Virginia M. Monthly* **50**:469 (Oct.) 1923.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest: such as relate to society activities, new hospitals, education, public health, etc.)

ALABAMA

Chiropractor Fined.—According to reports, U. G. Weidman, a chiropractor of Montgomery, was fined $50 and costs for practicing medicine without a license, by Judge McCord, November 13.

Proposed Food Ordinance.—Dr. Judson D. Dowling, health officer of Birmingham and Jefferson County, has prepared a pure food ordinance which will be submitted to the Birmingham commission with the endorsement of the Retail Grocers' and Butchers' Association.

Conference of County Health Officers.—Nineteen of the twenty-two county health officers were in attendance at the annual conference of the county health officers of Alabama, held in Montgomery, November 26-28. Among the topics discussed were: "Malaria Control in the Organized Counties," by Dr. S. W. Welch, state health officer, and "The State's Antituberculosis Program," by Mr. J. M. Graham.

ARKANSAS

Hospital News.—The new St. Edward's Hospital, Fort Smith, was opened, October 16. This building was erected at a cost of $200,000 and has a capacity of 125 beds. The old hospital building is now used for a nurse's home.——The Masons of the state will erect a building for tuberculous children at the State Tuberculosis Sanatorium, Booneville, at a cost of $50,000.——Ground was broken, November 29, for the new hospital of the Arkansas Children's Home, Little Rock.

CALIFORNIA

Personal.—Dr. Alonzo B. Eckerdt, Fresno, formerly with the State Insane Hospital, Warmsprings, Mont., has accepted a government position in Honolulu.——Dr. Frances L. Newton has been appointed city health officer of Woodland.——Dr. Frederick W. Lux, San Francisco, was the guest of honor at a meeting of the Sonoma County Medical Society at Cloverdale, November 8.——Dr. John W. Shuman, until recently professor of internal medicine at the Beirut (Syria) College of Medicine, will practice in Los Angeles.

COLORADO

Sutcliffe Charged with Perjury.—It is reported that the Colorado Board of Medical Examiners has instituted charges of perjury against Dr. George Sutcliffe, Farmington, Conn., involved in the Connecticut grand jury probe of alleged fake doctors who "graduated" from various questionable medical colleges. Sutcliffe is charged with having made false statements when he took the examination of the state medical board in Colorado in 1920.

CONNECTICUT

Maternity Building Opened.—The women's building at the Hartford Hospital, erected at a cost of $500,000, was formally opened, November 16. It is a seven-story structure with a capacity of 105 beds, primarily for maternity cases. The amphitheater will seat 275.

Eighteen Licenses Revoked.—According to the latest reports, eighteen physicians in Connecticut had their licenses to practice revoked, as the first concerted result of the special grand jury investigation of the diploma mill. Those who came under the ban were: "Dr." George M. Sutcliffe, Unionville, who is under arrest on a charge of manslaughter; "Dr." Arnold Brien of Waterbury; "Dr." Nathaniel McCarthy of New Canaan; "Dr." Ludolf N. Bollmeier of Westport; "Dr." George D. Noeling of Bridgeport; "Dr." Lamar K. Tuttle of Stamford and his wife, "Dr." Frances Axman Tuttle; "Dr." Howard M. Wheeler of Bridgeport; "Dr." Frederick Harrison Works, who has resigned as assistant surgeon of the U. S. Veterans' Bureau Hospital No. 44, Roxbury, Mass.; "Dr." Isador Yochelman of Bridgeport; "Dr." Donald W. Stewart of East Windsor; "Dr." Aaron Glass of New Haven; "Dr." James A. Christian of Fairfield; "Dr." Peter Koraitis of New Britain; "Dr." Frank M. Webb of Bridgeport; "Dr." Pasquale Romeo of Bridgeport; "Dr." Modestino Coppola of New Haven, and "Dr." John R. Brinkley of Stratford. All were eclectic "doctors," some of whom had practiced as long as nine years.

The Diploma Inquiry Continued.—Further ramifications of the alleged medical "diploma ring" extending to the U. S. Veterans' hospitals and transatlantic steamers, were indicated, November 6, when the special grand jury reconvened at Hartford. This angle of the investigation is believed now to have been responsible for the conference held, November 24, by President Coolidge and Governor Templeton of Connecticut and State's Attorney Hugh M. Alcorn of Hartford. Following their visit to Washington, D. C., Dr. Frederick H. Works, passed assistant surgeon, U. S. Public Health Service, stationed at U. S. Veterans' Hospital No. 44, Roxbury, Mass. (who also had a Sunday practice at Stonington, Conn.), was summoned to Hartford to testify before the grand jury. Dr. Works holds a diploma from the Eastern University School of Medicine of Baltimore, 1913 (Senior Surgeon Pierce has since announced that Dr. Works has sent in his resignation to the service). "Dr." George Sutcliffe, who could not be found, returned voluntarily from Canada, November 25, to give his testimony, and Raymond Prisque, Michael M. J. Anthony, Donald Stewart, Samuel Posner, James W. Bush, Isador Yochelman, Aaron J. Glass, Aurelius R. DeJanis and a few others who were called were on hand to testify; but many for whom subpenas had been issued were found to have fled the country, going to Europe, South America and Canada. Evidence revealed that hundreds of medical diplomas had been distributed throughout South America, especially Venezuela and Mexico, at low rates (records showed that some were sold for as little as $25). The name of President Obregon of Mexico was listed without his knowledge or consent as one of the vice presidents of the Oriental University, Washington, D. C., according to documentary evidence laid before the grand jury. Francisco S. La Madrid, said to be the son of a prominent Cuban health official, was revealed as a purchaser of a high school certificate from Professor Sachs and a diploma from Drs. Adcox and Voigt. La Madrid, the grand jury was informed, has spent three years in an unsuccessful effort to graduate from an American medical college. At the request of the state's attorney it is stated that the Eclectic Medical Examining Board held a special meeting in a room adjoining the grand jury quarters, November 28, to prepare immediately to revoke such licenses of holders of fake diplomas as the jury may direct. Under the Connecticut law, an order of revocation of license must be signed by each member of the board.

DELAWARE

New Hospital.—Plans have been completed for the construction of a $35,000 hospital at Wilmington.

DISTRICT OF COLUMBIA

A Definite Health Program for Schools.—A campaign to improve the health of school children has been outlined by the Washington Tuberculosis Association. The program provides for a medical inspection of every child on admission to school; a definite record of physical defects which will permit checking them up when corrected; provision for correction of defects through school nurses, family physician and dentists; a systematic course of health training, to begin in the elementary schools and continue through high school providing marks on health subjects, and insistence on the correction of remedial physical defects before graduation. Such program, according to Dr. Frank W. Ballou, superintendent of schools, would be recreational, remedial and progressive. Dr. George W. Kober is president of the association and Dr. Harvey W. Wiley, vice president.

GEORGIA

Child Health Demonstration.—Dr. Bernard W. Carey, director of the division of communicable diseases of the Massachusetts Department of Public Health, Boston, has resigned to become director of the Athens Child Health Demonstration, which appointment is for a five-year term (The Journal, September 29, p. 1118).

ILLINOIS

Hospital for State University.—Work will start in the ›ring on the McKinley Hospital on the campus of the Uni-ersity of Illinois, Champaign. This $150,000 building, a gift Senator William B. McKinley, will be one of a group hich will form the south quadrangle. It will be three stories gh and have a capacity of sixty beds.

Standards of Infectivity.—A set of standards known as Standards of Infectivity Pertaining to Venereal Disease" as been officially adopted as a part of the rules and regula-ons of the department of public health. The standards have een printed in pamphlet form and are available to physicians, ealth officers, social workers, lawyers and judges of the ›urts on request, addressed to the director of public health, pringfield.

Chicago

Society News.—At a joint meeting of the Chicago Neuro-›gical and the Chicago Laryngological and Otological socie-es, December 3, Dr. Wells P. Eagleton, Newark, N. J., gave n illustrated lecture on "Operative Treatment of Inflamma-on of Brain and Meninges of Oto-Rhinologic Origin."

Hospital News.—The contract has been let for the erection f a $30,000 convalescent home for the Chicago Home for Convalescent Women and Children, West Adams Street.—— The Franklin Hospital will erect a building at Franklin Boulevard and Sawyer Street at a cost of $350,000. It will ave a capacity of 200 beds.

Personal.—Dr. Noble S. Heaney, head of the department of bstetrics and gynecology, Rush Medical College, was guest f honor and principal speaker at the annual banquet of the Champaign County Medical Society, Champaign, November 15. ——Dr. Emil G. Beck, Chicago, has been awarded a medal y the Radiological Society of North America for his work n radiology.

INDIANA

Memorial to Physician.—A bronze tablet purchased by the ommunity of Rushville, in honor of the memory of Dr. William Laughlin, pioneer citizen of Rush County, was ecently unveiled.

Tuberculosis Organizations.—The tuberculosis death rate n Indiana has decreased 50 per cent. during the past six years, t was announced at a meeting of the Indiana Tuberculosis Association, recently. There were 3,980 deaths from the lisease in 1917 compared with 2,577 in 1922. Eighty-four of he ninety-two counties of the state now have active anti-uberculosis organizations.

Psychopathic Ward for City Hospital.—A campaign to ›ring about the establishment of a psychopathic division of he City Hospital, Indianapolis, has been started. An ordi-nance providing for a $300,000 bond issue to finance the project was presented to the city council, November 19. Under plans prepared by Judge Wilmeth the new ward would e situated in a new wing of the City Hospital to be erected n the west side of the present plant. The city's psychopathic ases are now held in the Marion County jail pending exami-nation by a lunacy commission which sometimes takes several days. With a psychopathic ward in the City Hospital, such persons would be admitted there for observation and treat-ment until admitted to the state institution for the insane at Indianapolis or dismissed.

IOWA

Iowa Clinical Medical Society.—At the autumn meeting of the society at Iowa City, November 17, the clinics were given at the State University College of Medicine and the chil-dren's hospital by members of the college faculty. Officers for the year are: president, Dr. William H. Rendleman, Davenport; vice president, Dr. Judd C. Shellito, Independence, and secretary-treasurer, Dr. Russell C. Doolittle, Des Moines.

KENTUCKY

Personal.—Dr. Arthur T. McCormack, state health officer of Kentucky, addressed the medical students at the University of Minnesota, Minneapolis, recently, on health problems.

LOUISIANA

Personal.—Dr. Robert W. O'Donnell, Monroe, has been appointed a member of the state board of medical examiners to succeed Dr. Thomas E. Wright, Monroe, whose term has expired.

Pullman Porter Arrested.—Dr. Oscar Dowling, president of the state board of health, had a T. & P. Pullman porter arrested for improperly heating a car, in violation of Article 313 of the Sanitary Code, State of Louisiana. The porter was fined $10.

Physicians Indicted.—An indictment charging Drs. John Dalton Young, Francis Fenwick Young and A. Laurie Young, proprietors of a sanatorium at Covington, with conspiring to violate the Harrison Narcotic Law was returned by the federal grand jury, November 23.

Joint State Health Conference.—A call for a conference of health officials of Louisiana and Mississippi to be held in New Orleans, December 14-15, was issued by Dr. Oscar Dowling, state health officer of Louisiana, November 24. Invitations have been sent to county and parish, municipal and state health officials and nurses of the two states. Public health measures will be discussed and plans made for exten-sive health work. The meeting was held last year in Jackson, Miss.

MARYLAND

Illegal Practitioners Arrested.—The state authorities of Maryland have started a campaign to prohibit the practice of medicine by persons who are not qualified. Several arrests have been made.

Patapsco Manor Sanitarium Burns.—Fire recently destroyed Patapsco Manor, a sanatorium for the treatment of nervous and mental diseases, at Ellicott City, causing a loss of $30,000. The patients were not injured. Plans are being prepared to rebuild the hospital on modern lines at the same location.

Cancer Committee Convenes.—At a meeting called by the Maryland Cancer Committee in Baltimore, November 18, methods for disseminating information concerning cancer were discussed. The speakers included: Drs. William H. Welch, director of the School of Hygiene and Public Health, Johns Hopkins University, Baltimore; Dr. C. Hampson Jones, health commissioner of Baltimore; Surg.-Gen. Hugh S. Cum-ming, U. S. Public Health Service; Dr. Joseph C. Bloodgood, Baltimore, and Dr. George A. Soper, new managing director of the American Society for the Control of Cancer.

MASSACHUSETTS

Public Health School Opened.—The Harvard School of Public Health formally opened its school building on Van Dyke Street, Boston, November 21. The faculty of the med-ical school, the superintendents of hospitals of the city, members of the city and state health departments, and repre-sentatives of public and private health organizations, and many foreign physicians attended the ceremony. The build-ing which was formerly the Boston Infants' Hospital was purchased by the School of Public Health and entirely renovated. It will permit establishing two new departments: vital statistics, and child hygiene. Dr. Eugene R. Kelley, state health commissioner, will have an office in the building and the editorial rooms of the *Journal of Industrial Hygiene* will be on the top floor.

MICHIGAN

Memorial to Dr. Vaughan, Jr.—The Clare Vaughan Infir-mary at the Detroit Tuberculosis Sanatorium, Northville, was dedicated, November 15, to the memory of Dr. Victor Clarence Vaughan, Jr., who died in service in France, June 4, 1919.

MINNESOTA

Southwestern Minnesota Medical Association.—At the annual fall meeting of the association in Worthington, November 17, Dr. George G. Balcom, Lake Wilson, was elected president. The next meeting place will be Luverne.

North Central Branch Urologists.—At the Rochester meet-ing of the American Urological Association, a charter was granted for the North Central Branch, comprising Minnesota, Wisconsin, Illinois, Michigan, Iowa, Indiana, Ohio, western Canada and North and South Dakota. Members residing in the Twin Cities have extended an invitation to the society to hold its first meeting in Minneapolis and St. Paul, December 17-18, at which time the organization of this branch will be completed.

MISSOURI

To Help the Blind.—The ways and means committee of the board of aldermen, at St. Louis, has approved a mea-sure permitting cigar stands to be installed in the lobbies of public buildings, and operated by blind persons selected by the Commission for the Blind.

Dr. Voigt's Liquor License Revoked.—The county court, Kansas City, October 17, "by reason of the scandal attached

to his office" in the light of the newspaper exposé regarding the "diploma mill," revoked the liquor permit held by Dr. Ralph A. Voigt, who it is reported is under arrest on a charge of selling to Harry T. Brundige a "diploma" for $1,200. The permit would have expired in June, 1924.

Illegal Practitioner Fined.—"Dr." Paul de Monte Leone, of St. Louis, was fined $100 in the Court of Criminal Correction for practicing medicine without a license. The fine was stayed on recommendation of the prosecuting attorney's office and Leone was allowed to depart after payment of costs and a promise to return money to patients who had invested in his enterprise, it is reported. On November 2, Leone was fined $50 and costs at Hermann for practicing medicine without a license. This time he was seeking members to "Leonic Brothers Club," who it is supposed would take up Leone's weird ideas about "astral self," "concentration" and "other ways of curing disease."

Society News.—At the recent annual meeting of the St. Louis Medical Society the following officers were elected for the ensuing year: president to succeed Dr. William H. Vogt, Dr. Roland Hill; first vice president, Dr. Edwin Schisler; second vice president, Dr. Hudson Talbott, and secretary, Dr. Thomas Noxon Toomey (reelected). At a meeting of the society, November 13, Dr. George W. Crile, Cleveland, spoke on "Problems of Hyperthyroidism."——The Clinton County Medical Society at its last meeting, October 26, passed resolutions commending the action of the state medical association, the state board of health and Governor Hyde for their efforts to purge Missouri of unlawful medical practitioners. A committee will be appointed to inspect the registration certificates and the records of the schools from which the diplomas of those practicing medicine in Clinton County have been issued.

Reclaiming First Offenders.—A colony for "first offenders" under workhouse sentence has been established in St. Louis on the recommendation of the director of public welfare, Nelson Cunliff. A frame dormitory with accommodations for fifty has been erected, and will be enlarged when necessary. The tract on which the colony is established was given to St. Louis by former Gov. David R. Francis and will eventually be made into a park; when that is done, the colony will be moved to another suitable place. If these men are kept away from the degrading influences of the hardened criminal they may become useful citizens again. Their offenses are often minor ones. The colonists will be selected by the workhouse superintendent on the basis of offenses and their conduct and general demeanor. These men are to be self-supporting by means of work done on the farm adjoining the colony where they will be placed on their honor.

School for Crippled Children at St. Louis.—St. Louis is to have a school for crippled children. The arrangements have progressed as far as the purchasing of the land and the naming of the approximate cost of the building. A survey of the number of crippled children who would avail themselves of such an opportunity is being made. The size of the building will depend largely on these figures. The site chosen is centrally located near the Shriners' Hospital for Crippled Children and the Barnes Hospital orthopedic clinic. The movement to discover and aid crippled children was started two years ago by the St. Louis Medical Society, aided by the St. Louis *Post-Dispatch*. It has become statewide and is now supported by the Missouri Federation of Women's Clubs. Through the cooperation of the women and with the assistance of the county medical societies it is expected that every crippled child in Missouri, whose parents or guardians are unable to provide treatment, will be brought to the attention of the proper authorities.

NEW JERSEY

Hospital News.—An addition will be erected to the Greenville Hospital, Jersey City, at a cost of $90,000.——Plans have been completed for a $200,000 convalescent hospital at South Orange.

NEW YORK

Pediatrics Endowment Fund.—Cornell University announced, November 27, a gift of $200,000 from an anonymous donor for an endowment fund for research work in the department of pediatrics.

Personal.—Dr. Matthias Nicoll, Jr., Albany, state health commissioner, was the guest of the state organization for public health nursing at its annual convention in Buffalo, October 23-25.——Dr. Roy B. Dudley was recently elected president of the board of health of Clinton.

Graduate Clinic Course.—Welfare Commissioner Bird S. Coler announces a course of clinical instruction for Brooklyn and Long Island physicians at Kings County Hospital, Brooklyn, under the supervision of the medical board and committee. The medical board consists of Dr. Calvin F. Barber, president; Dr. William Browning, vice president, and Dr. George A. Merrill, secretary-treasurer. Course 1 is an intensive course of twelve conferences from December 3-28; Course 2, Jan. 2-25, 1924, and Course 3, Feb. 1-27, 1924. Attention will be given to diagnosis, treatment and prognosis with opportunity for bedside instruction. The courses are limited to ten and the registration fee is $20.

Hospital News.—St. Mary's Hospital, Amsterdam, obtained $106,000 in its recent drive for funds for a new building.——St. Joseph's Hospital, Syracuse, exceeded its $500,000 mark by $6,000 in the recent campaign.——Contracts have been awarded for a county home and infirmary at Wende to be erected at a cost of $1,600,000. These buildings will be started next spring.——Mary Immaculate Hospital, Jamaica, L. I., is to be enlarged by the addition of a new six story building.——A new wing is being erected at Trinity Hospital, Brooklyn. The total cost of the remodeling work at this institution will be about $200,000.——The Tarrytown Hospital recently opened a nurses' home in memory of Dr. Richard B. Coutant, its first president and chief of staff. A new children's ward has also been opened and a campaign will be conducted in the spring to raise $50,000 for a new wing. Dr. Joseph A. Blake has been elected president of the hospital to succeed Dr. Charles C. Brace, resigned.

County Society Elections.—At the annual meeting of the Medical Society of the County of New York held, November 26, at the Academy of Medicine, the following officers were elected for the ensuing year: president, Dr. Eugene H. Pool; vice presidents, Drs. Samuel J. Kopetsky and William P. Healy; secretary, Dr. Daniel Dougherty, and treasurer, Dr. James Pedersen. The assistant district attorney of New York City spoke on "The Medical Witness"; other speakers were Drs. S. Philip Goodhart, William S. Thomas and M. D. Touart.——Nassau County Medical Society elected the following officers at the annual meeting in Minneola, L. I., November 28: president, Dr. Richard Derby, Oyster Bay; vice president, Dr. Guy F. Cleghorn, Mineola, and secretary-treasurer, Dr. Arthur D. Jacques, Lynbrook.——Dr. Carl Boettiger, Astoria, was elected president; Dr. Henry C. Courten, Richard Hill, vice president, and Dr. Joseph S. Thomas, Flushing, secretary-treasurer, of the Queen's County Medical Society at the annual meeting in Forest Hills, L. I., recently.

New York City

Physicians' Building.—Near the new home of the New York Academy of Medicine on Sixtieth Street an eleven story office building for the exclusive use of the medical profession will be erected at a cost of $850,000.

Columbia's Gifts.—President Butler of Columbia University announced in his annual report to the trustees that the university had received gifts amounting to $12,728,021, during the year ending June 30, 1923. This, it is stated, is the largest annual total received by the university in its history. Among the contributions for the medical school was nearly $3,500,000 donated by the Harkness family; the $325,000 estate of Joseph R. DeLamar; $20,000 for tuberculosis research by the East River Homes and $15,000 for research by Borden's Condensed Milk Company.

Prize for Charity Plan.—The December issue of *Better Times* announces the conditions for a contest for the best plan for further coordination of the work of 2,000 different charitable and welfare organizations in New York City. Dr. Robert W. De Forest will head the committee of judges which will award the prizes. Instead of a single prize of $1,000, as first announced, there will be three: one of $1,000, one of $500 and one of $250. Information regarding the contest will be furnished on aplication to the office of *Better Times,* 100 Gold Street, New York City.

Typhoid Fever Traced to Carrier.—Between October 19 and 31, ten cases of typhoid fever occurred in a Manhattan hospital among employees of the institution, six nurses, an intern, the matron, a table helper and a porter being the victims. Not a case occurred among patients in the hospital, who numbered about 100. Investigation by the health department revealed that the outbreak was due to a typhoid carrier, who had been about the institution for twelve years and when discovered was working as a kitchen helper. Health Commissioner Frank J. Monaghan has issued a statement urging hospital authorities to exercise every precaution in the exami-

nation of persons employed in preparing or serving food; he points out that an institution which fails in this respect makes itself liable to legal suits and is culpable in failing to properly protect its patients.

Personal.—Dr. Hideyo Noguchi, Rockefeller Institute for Medical Research, has been elected to membership in the Imperial Academy of Japan.——Dr. Louis W. Hackett, New York City, International Health Board, will go to Italy to carry on malaria control work there.——Dr. George David Stewart, president of the New York Academy of Medicine, returned from a European trip, November 21.——Dr. Abraham Ginsburg, chief of the respiratory disease section of the U. S. Veterans' Bureau, New York City, has resigned to accept the superintendency of the Mount Sinai Hospital, Philadelphia. ——J. F. Gudernatsch, Ph.D., for twelve years a member of the faculty of Cornell University Medical College, has joined the scientific staff of the Hoffman-La Roche Chemical Works. ——Dr. James P. Hunt, examining physician for the board of education, has been appointed honorary police surgeon and consulting physician of the police department.——Dr. Helen A. Moore, recently chief of the division of child hygiene of the state department of health, Kansas, has accepted a position in New York City to form the field service staff of the American Child Health Association.——Dr. Benjamin Schwartz and Dr. Maurice Packard have been appointed directors of the medical service of the Gouverneur Hospital by the board of trustees of Bellevue and the Allied hospitals.——Dr. Bela Schick, author of the Schick test, has accepted an appointment as head of the children's service division of Mount Sinai Hospital. A special license to practice has been awarded to Dr. Schick by the New York State Board of Regents.——Dr. S. Josephine Baker, who resigned last spring as director of the bureau of child hygiene of the New York City Health Department, has been appointed consulting director in maternity and infancy and child hygiene of the Children's Bureau, U. S. Department of Labor, Washington, D. C.

NORTH CAROLINA

Hospital Destroyed.—Fire destroyed the Gaston County Sanatorium, Gastonia, November 16. The loss is estimated at $50,000. All of the patients were saved and sheltered in nearby homes and the City Hospital.

Warning.—Dr. W. S. Rankin, state health officer, gives warning that J. W. Little, who claims to be an employee of the state board of health and has signed worthless checks as "N. C. State Health Officer," is not connected in any way with the state health department. Bad checks have been passed by this man in several towns of North Carolina and Virginia.

Personal.—Dr. Everett S. Barr has resigned as medical director of the Philadelphia Hospital for Mental Diseases at Byberry, Pa., and has associated himself with Dr. Robert S. Carroll, in the management of the Highland Hospital, Asheville.——Dr. Robert S. Carroll, medical director of the Highland Hospital, Asheville, has gone for a year's travel and study in Europe and the Orient.——Dr. James H. Wheeler, Henderson, for the past three years county coroner, has been sworn in as sheriff of Vance County, temporarily.

OHIO

The Ohio State Medical Board Acts on Abrams' Method.—The following preambles and resolution were introduced at the October meeting of the Ohio State Medical Board, according to a communication from the secretary of the board, in the *Ohio State Medical Journal* for December:

WHEREAS, Numerous complaints are being received concerning the use of the Abrams' treatment in the diagnosis and treatment of disease, and

WHEREAS, The investigations of scientific men in the medical and allied professions agree that the diagnosis and treatment of disease by the so-called Abrams' method or electronic medicine is wholly unscientific and without value, therefore, be it

Resolved, That the Ohio State Medical Board is of the opinion that its employment in diagnosis and treatment of disease should be suppressed.

Further, the secretary of the State Medical Board is directed to cite all practitioners who continue to employ this method in the diagnosis and treatment of disease to show cause why their certificates to practice in the State of Ohio should not be revoked.

The matter will be acted on by the board at its meeting on January 8.

PENNSYLVANIA

Grange to Study Mental Diseases.—At the National Grange convention, which met in Pittsburgh, November 21, a resolution was adopted for immediate inquiry into the cause of the growing menace of feeblemindedness and idiocy in the United States with a view of recommending state and federal legislation to effect a remedy. The resolution called on the masters of the state granges to visit institutions for the insane within their jurisdiction to investigate the cause of the growing number of patients.

Opinion on Osteopaths' Reports.—In an opinion rendered to Dr. C. H. Miner, secretary of the state board of health, the deputy attorney general stated that according to Section 11 of an act of June 14, 1923, licenses issued by the state board of osteopathic examiners authorize the holder thereof to practice osteopathy in all its branches, including minor surgery, and that all corporations, persons, officers, boards, bureaus and departments to which births and deaths, and contagious diseases are reported must accept as valid reports issued by osteopaths.

Philadelphia

Officers Elected.—At the business meeting of the Philadelphia County Medical Society held on November 21, the following officers were elected: president, Dr. F. Hurst Maier; vice president, Dr. Barton C. Hirst; secretary, Dr. Henry G. Munson, and treasurer, Dr. Edward A. Shumway.

Public Health Lectures.—A series of ten lectures on timely phases of public health will be given under the auspices of the School of Hygiene and Public Health in the lecture room of the laboratory of public health, University of Pennsylvania, Saturday mornings at 11 o'clock, beginning December 8.

Distribution of Garments to Hospitals.—Preparations have been made by the Philadelphia branch of the Needlework Guild for the distribution of 32,000 garments among the poor and needy. The garments, made and presented by the eighty branches of the organization in this city, will be distributed among 210 hospitals and charitable institutions.

Drug Addict Sues Physician.—In a suit for $100,000 filed in the court of common pleas, November 22, a former patient of Dr. John Clinton Boyer of Philadelphia charges that Dr. Boyer made him a narcotic drug addict. According to reports, Dr. Boyer is under indictment charged with the illegal possession of habit-forming drugs following arrest in September on complaint of the plaintiff, who claims he was given narcotics for stomach trouble and thus became addicted to them.

Intensive Tuberculosis Campaign.—In taking over the ten tuberculosis clinics for the state department of health and adding two others, the city department of health is prepared to fight tuberculosis: first, by locating every case of the disease; second, by treating those affected; third, by an educational campaign along lines of prevention. Dr. Blair Spencer, director of the department of health, in a special bulletin issued November 29, called attention to the fact that ten years ago pulmonary tuberculosis was the most frequent cause of death in this city, while at the present time it ranks low among the principal causes of death. Last year the death rate from tuberculosis of the lungs was 99.92 per hundred thousand population, which is the lowest record in the history of the city.

Joseph Leidy Centenary.—The centenary celebration of the birth of Joseph Leidy was held at the Academy of Natural Sciences of Philadelphia, December 6. The organizations represented were: The Academy of Natural Sciences, the American Association of Anatomists, the American Entomological Society, the American Philosophical Society, the American Society of Naturalists, Boston Society of Natural History, the College of Physicians of Philadelphia, the National Academy of Sciences, the Smithsonian Institution, Swarthmore College, the University of Pennsylvania, the Wagner Free Institute of Science, Wister Institute of Anatomy and the Zoological Society of Philadelphia. Prof. Henry Fairfield Osborn delivered the Joseph Leidy lecture in science under the University of Pennsylvania Foundation. Dr. George E. de Schweinitz spoke on "Personal Recollections and Appreciation of His Work as an Anatomist." Other speakers were Richard A. F. Penrose, Jr., Ph.D.; Edward S. Morse, Ph.D.; Herbert S. Jennings, Ph.D.; William B. Scott, Ph.D., Witmer Stone, A.M.; Frank W. Clarke, LL.D., and Dr. Hobart A. Hare.

Personal.—Dr. Jose Ducci, professor of medicine in the National University of Chile, South America, who is traveling in this country under the auspices of the Pan-American Union and the United States Public Health Association, was the principal speaker at the meeting of the Philadelphia County Medical Society, November 28.——Dr. William S. Wadsworth, coroner's physician, was the guest of honor at a testimonial dinner, arranged by his friends, December 4,

at the Ritz-Carlton Hotel.——Drs. Emanuel Libman and Benjamin Sacks of New York City, were guest speakers of the section on general medicine of the College of Physicians, November 26.——Dr. Victor C. Rambo, Philadelphia, has gone to Damoh, India, to do medical missionary work.——Dr. F. Hirst Maier has been made chief of the gynecological department of the Philadelphia Hospital.——Dr. Arthur P. Keegan has been appointed chief surgeon of St. Mary's Hospital, Philadelphia, to succeed Dr. Joseph H. Ross, and will take up his duties January 1.——Dr. J. Edwin Sweet, professor of surgical research in the University of Pennsylvania, delivered the Mütter lecture of the College of Physicians, December 7. His subject was "The Gallbladder: Its Past, Present and Future."——Dr. George E. Vincent, president of the Rockefeller Foundation, New York City, will be the guest speaker of the Philadelphia County Medical Society, December 12. His subject will be "An Adventure in Public Health." There will be a reception and supper at the Hotel Rittenhouse following the meeting.

RHODE ISLAND

Herbalist Arrested.—According to reports Robert Smith, Pawtucket, charged with practicing medicine without a license, was given a deferred sentence by Judge Hahn in the Superior Court, Providence, November 21. Dr. Richards of the state department of health stated that if Smith made no more diagnoses and collected no fees he would be allowed to continue to sell herbs.

SOUTH CAROLINA

Personal.—Dr. John M. Green has been reappointed city health officer of Charleston. Dr. Green has served almost continuously as city health officer for twenty-two years.——Dr. L. Rosa H. Gantt, Spartansburg, has been appointed a member of the state board of public welfare to succeed former Gov. Wilson G. Harvey, resigned.——Drs. James C. Harper, Greenwood, and John H. Power, Abbeville, were elected president and secretary-treasurer, respectively, of the Third District Medical Association at the meeting in Greenwood, October 11.

TEXAS

Philanthropy.—William Buchanan of Texarkana has given the state of Texas $1,000,000 to be used to alleviate suffering and distress in charitable and benevolent institutions.

Personal.—Dr. John W. Torbett, Marlin, has been appointed by Governor Neff as a member of the state board of health to succeed Dr. Albert F. Beverly, Austin, who resigned to become physician to the Texas State School for the Deaf, Austin.——Dr. Holman Taylor, Fort Worth, was elected president of the Conference of Secretaries of State Medical Associations and State Health Officers at the annual meeting in Washington, D. C., recently.

PORTO RICO

New York University May Establish Branch.—A commission comprising Drs. Bailey K. Ashford, Octavio Jordan and Guillermo G. Ortiz, head of the health service of Porto Rico, and two senators, sailed for New York, November 28, to discuss with the officials of Columbia University College of Physicians and Surgeons, New York City, the establishment of a school of tropical medicine in Porto Rico by the New York institution.

GENERAL

New Sections of Public Health Association.—The American Public Health Association announces that a section on health education and publicity, and a section on public health nursing have been established. These sections have been functioning for the last two years as provisional groups. All public health nurses, publicity workers and health educators are offered the opportunity to affiliate with either of these sections.

Deaths from Automobiles.—According to the U. S. Census Bureau 11,666 persons lost their lives in automobile accidents last year in the death registration area of the United States which area comprises 85 per cent. of the total population. This is an increase of 1,498 over the previous year, and represents a death rate of 12.5 per 100,000 population. California has the highest rate of the thirty-seven states in the registration area, its total representing 26.0 per 100,000 population, and Mississippi had the lowest rate with 3.4 per 100,000. Los Angeles had the highest rate in the sixty-seven cities reporting, showing 29.5 per 100,000.

American Aid for German Medical Science.—Dr. William F. Peterson, secretary-treasurer of the committee established to secure American aid for German medical science, writes that the first shipment of collected money to Germany, amounting to $10,000, has just been forwarded. Information received through Dr. Graham Lusk indicates that Rubner's laboratory has been closed by the state on account of lack of funds, and that Professor Rubner has been deprived of his position as professor of physiology, but retains control of the nutrition laboratory. It is also stated that five small German universities have been closed, possibly including the University of Tübingen.

American Child Health Association Elects Directors.—The association announced the election of seven new members to the board of directors, November 25, as follows: Dr. Albert J. Chesley, Minneapolis, secretary of the state department of health; Dr. Louis I. Dublin, statistician for the Metropolitan Life Insurance Company, New York; Dr. Henry F. Helmholz, professor of pediatrics for the Mayo Foundation at the University of Minnesota; Dr. E. L. Thorndike, professor of psychology, Columbia University, New York; Henry F. Vaughan, health commissioner of Detroit; C. Ormond Williams, National Education Association, and Christian A. Herter, assistant to Herbert Hoover, Department of Commerce, Washington, D. C.

Dinner to Visiting Health Officers.—A dinner was given at the Hotel Commodore, New York City, December 4, by the Rockefeller Foundation in honor of the group of health officers representing eighteen foreign governments, who for the past three months have been in the United States under the auspices of the health section of the League of Nations for the study and observation of various types of public health organizations (The Journal, September 22, p. 1032). Dr. George E. Vincent, president of the foundation, presided. Other speakers were John D. Rockefeller, Jr., Dr. William H. Welch, Baltimore; Surg.-Gen. Hugh S. Cumming, Washington, D. C.; Dr. Linsly R. Williams, New York City; Dr. W. S. Rankin, state health officer of North Carolina, and Dr. Norman V. Lothian, of the health section, League of Nations, Glasgow, Scotland.

Bacteriologic Stains Imported.—The department of commerce, bureau of foreign and domestic commerce and the U. S. Tariff Commission, Washington, D. C., announces the imports for consumption, through the port of New York, August, September and October, of bacteriologic stains, reagents and fine organic chemicals of coal-tar origin, dutiable under paragraphs 27 and 28, tariff act of 1922. The imports of bacteriologic stains for the three months totaled 16,870 grams, with an invoice value of $1,272. The imports of reagents and chemicals totaled 13,176 grams, with an invoice value of $155. Of the total quantity of bacteriologic stains imported for the three months, 95 per cent. came from Germany and 5 per cent. from England. Of the total quantity of reagents and chemicals imported for the three months the entire quantity came from Germany.

New Narcotic Order Forms Necessary.—Physicians desiring to buy morphin, cocain, or any other drug covered by the Harrison Narcotic Law, on and after Jan. 1, 1924, for their own professional use, must execute their orders on official order forms of the series of 1923. After the date named, orders on forms of earlier series cannot lawfully be filled. Up to December 31, order forms of either the series of 1923 or prior series may be used. One book containing ten original and ten duplicate forms of the new series will be furnished to every person who is qualified under the Harrison Narcotic Law to purchase taxable narcotic products, on requisition to the Collector of Internal Revenue for his district, using for that purpose form 679, as revised November, 1922. Remittance in the form of currency, or money-order or certified check made payable to the collector, must accompany each requisition, except that unused forms of prior series will be accepted in lieu of remittance, in equal exchange for the new forms. Forms of prior series, however, cannot be otherwise redeemed. All order forms must be used in strict accordance with the instructions accompanying them.

Shortage of Negro Physicians.—In a recent report, the Secretary of the Interior, Dr. Hubert Work, draws attention to the shortage of physicians and dentists of the colored race in the United States and urgently requests that Congress increase the facilities of the Howard University medical and dental schools at Washington. Secretary Work states:

"At the present time there are only two educational institutions in the country where colored physicians and dentists are graduated annually and qualified to practice medicine and dentistry among their people. One of them is the Howard University, located in the city of Washing-

on, and supported in part by government appropriations and in part by outside donations. Recent investigations show that the colored population of the nation has increased to nearly 12,000,000, and that there is only one colored physician to 3,914 members of this race, while there is only one colored dentist to every 20,500 colored persons. As a matter of public welfare, it is of paramount importance that the government takes steps to wipe out this discrepancy and increase the number of colored graduating physicians and dentists. This can be done only through adding to the facilities of the Howard University medical and dental schools where many applicants for entrance are being turned away and are being denied the opportunity to prepare themselves for professional careers. I respectfully present this problem for the consideration of the President and Congress in the hope that at least an initial step will be taken to provide a future safeguard for the health of the colored race."

The Situation on Medical Licensure.—Reports from Missouri indicate that the survey of medical schools of that state made by Dr. F. C. Waite of Western Reserve University, Cleveland, at the request of the Missouri State Board of Health is to have prompt results. In his report, Dr. Waite stated that the records of Class C institutions in Missouri—the Kansas City University of Physicians and Surgeons, Kansas City College of Medicine and Surgery and the St. Louis College of Physicians and Surgeons—were so incomplete and carelessly kept that no graduate would be able to ascertain what his standing had been at the time of graduation. The report also asserted that it was not the policy of these colleges to investigate thoroughly the credentials of students as to their credits for entry, and consequently most students entered who would not have been accepted by a reputable school, or one making a serious endeavor to comply with the law or the demands of public welfare.

The state board of health promptly made charges against these schools, and stated that it would not recognize diplomas issued by them. It also asked the attorney general of the state to initiate action to revoke their charters. The attorney general, Jesse W. Barrett, has said:

> The State Board of Health has made charges against certain medical schools which are of a most serious nature. If even half of the state board's allegations can be proved, the schools ought to be put out of business. The practices which are alleged are intolerable.
>
> In order to give both the State Board of Health and the defendants an opportunity for placing their evidence fully before the court, I shall probably file quo warranto proceedings asking the forfeiture of the corporate charters, that form of action being the quickest and most direct. Our action, of course, will be taken promptly.

Meanwhile, in Connecticut the grand jury is continuing its investigations of physicians' licenses in that state by the eclectic board, and the eclectic board is asked simultaneously to revoke licenses at the request of the grand jury.

Dr. W. P. Sachs, under indictment in Missouri, is reported to have testified that he secured credentials for fifty-four men licensed by the eclectic board, and has furnished the names to the grand jury.

CANADA

Typhoid in Quebec.—Health authorities announced, November 28, that more than 100 people are ill, and that two have died in a typhoid fever epidemic caused by drinking polluted river water at St. Jerome, Quebec.

Public Health News.—An investigation of the financial affairs of the city board of health of Halifax, Nova Scotia, has disclosed a shortage in the accounts of the secretary it is reported. He has been dismissed and the department will be reorganized.

Insulin to Be Taxed.—The dominion government of Canada has issued a ruling that insulin will have to pay a sales tax in common with other articles of commerce. Authorities of the Province of Ontario have sent protests to Ottawa against this ruling inferring that a gift of such worth to the public is not a laboratory product manufactured for profit. The tax is 2¼ per cent.

Society News.—The Ontario and Quebec Section of the American College of Surgeons met in Ottawa, November 22-23. Among the speakers were Drs. George W. Crile, Cleveland; Walter W. Chipman, McGill University, Montreal, and Delmer A. Craig, Halifax, N. S.——At the annual meeting of the Prince Edward Island Medical Society at Summerside, recently, Dr. R. F. Seaman, Charlottetown, was elected president for the ensuing year.——Drs. Robert C. Redmond, Wingham, Ont., and Robert Stewart, Wingham, were elected president and secretary-treasurer, respectively, of the Huron Medical Association at the meeting in Goderich, October 5.——The annual Medical Day, held under the auspices of the Hamilton Medical Society took place, October 10. Drs. John H. Gibbon and Thomas Macrae, professor of surgery and professor of medicine, respectively, of Jefferson Medical College of Philadelphia, gave demonstrations.

University News.—Additions to the faculty of medicine at Dalhousie University, Halifax, N. S., have recently been announced as follows: Clyde Holland and Margaret Chase have been appointed to full-time positions in the departments of anatomy and pathology, respectively; R. J. Bean, formerly on the staff of Western Reserve University, has been appointed associate professor of histology and embryology; Prof. E. Gordon Young, associate professor of biochemistry at Western Ontario University, has been made head of the department of biochemistry; Prof. J. N. Gowanloch has been appointed to succeed Prof. J. A. Dawson in the department of biology. The recent affiliation of King's and Dalhousie has combined the teaching force of the two universities and Prof. N. J. Symons of King's will become instructor in psychology to the medical classes, while Prof. A. S. Walker, also of King's foundation, will lecture to the first year medical students on the "History of Thought"; a new subject.

LATIN AMERICA

Personal.—Dr. A. C. da Silva Castro, who died recently at S. Paulo, Brazil, bequeathed 900 contos, about $9,000, to be divided between the medical faculty at Rio de Janeiro and at S. Paulo.——The Gaffrée-Guinle Foundation at Rio de Janeiro has been endowed for the purpose of founding an institute for study, prophylaxis and treatment of venereal diseases. As planned, with the aid of the national public health service, it is to be unique, in its line, in the world. The work is already under way.——Dr. Juan B. Montoya y Florez, who has been appointed secretary of the Colombian legation at Paris, has left Medellín for Europe.

FOREIGN

The Septicentennial of the University of Naples.—The celebration of the seven hundredth anniversary of the foundation of the University of Naples is scheduled for May, 1924. The invitation sent to the other universities of Italy is accompanied by a photographic reproduction of the code of Frederick of Suabia, who founded the nucleus of the university in the thirteenth century.

Medical Insurance Society in Belgium. — The *Scalpel* describes the ceremony organized by the "Médicale," the insurance society founded by the profession in Belgium, in honor of the completion of its first million of policies paid in. This society is financed by physicians, managed by physicians, and all the profits remain in the profession. It was founded several years ago and has made steady gains.

Cancer in Italy.—Professor Foà stated not long before his death that at the necropsies during his experience at Turin, cancer had been found in one in every twenty-four cadavers during the first twenty-four years, but during the last few years cancer was found in one of every twelve cadavers. At Genoa and Padua, the proportion has been one in eleven, at Pisa one in fifteen, and at Milan one in twelve.

Swedish Prize to Be Awarded to Fåhræus. — Among the twenty-nine works offered in competition for the jubilee prize of the Swedish Medical Association, Dr. R. Fåhræus' report on the speed of sedimentation of erythrocytes, entitled "The Suspension Stability of the Blood," was selected as the work of the greatest interest to the greatest number. The Lennmalm prize is to be awarded to Dr. Sven Ingvar for his series of works on the cerebellum.

Alienists and Neurologists' Congress in 1924.—The twenty-eighth Congrès des médecins aliénistes et neurologistes of France and French-speaking countries is to be held at Brussels in August, 1924, with Professors Glorieux of Brussels and de Massary of Paris presiding. The secretary is Prof. A. Ley of Brussels. The questions appointed for discussion are "Mental Debility in Children"; "How to Study Disturbances in Speech," and "Adaptation of the Mentally Diseased to Their Environment."

The Domus Medica at Copenhagen.—The profession has now its own home in Denmark. A large mansion has been remodeled for the headquarters and club of the Danish Medical Association and the Copenhagen Medical Society. On Thursday afternoons and evenings the latter with its guests has the exclusive right to the assembly rooms. The upper story is arranged for a hotel for members. The Domus Medica, as it is called, was inaugurated recently as the realization of a long cherished ideal.

The Medical Salon at Paris.—The *Paris médical* states that the fourth *Salon des médecins* is to open March 2, 1924. The

former ones were held in 1909, 1911 and 1912. This Salon is to include painting, sculpture and the decorative arts, and is exclusively for physicians and pharmacists and their families. Besides original works, articles from collections are to be exhibited, medals, portraits and ex libris connected with them. Our exchange adds that cartoonists have been invited to exhibit works dealing in any way with medicine or the profession. There is to be a section devoted to artistic mediconpharmaceutic advertising, domestic and foreign. Dr. Paul Rabier, 84 rue Lecourbe, Paris, is secretary.

Conference of Cremation Authorities.—At a conference at Liverpool, October 25, under the auspices of the Cremation Society of England, propaganda advocating cremation was discussed in the way of advertising, encouraging the public to visit crematories, lectures, and obtaining signatures to the form "requesting cremation at death." A letter from the International Conference on Cremation, held at Gothenburg in August and September, suggested that a representative cremation exhibition be given at the exposition to be held in London in 1924, similar to those given at Maleno in 1914 and at Gothenburg this year; and that the sixth World Conference for Cremation should take place in London in 1924. The Cremation Society of England distributed 60,000 books and leaflets during the last year.

Society News.—The fourth congress of the Surgical Society of Central Germany was held at Brunswick, November 11. Prof. Felix Franke spoke on "Surgical Treatment of Epilepsy" and Professor Wrede on "Surgical Treatment of Hydrocephalus."——At a joint conference between the National Council for Combating Venereal Disease and the Society for the Prevention of Venereal Disease, in London, October 30, fusion of the two societies was advocated.——At the first meeting of the Ulster (Ireland) Medical Society for the session, October 25, at Belfast, Mr. R. J. Johnstone, M.P., F.R.C.S., introduced the incoming president, Dr. W. St. C. Symmers, professor of pathology at Queen's University, Belfast, who gave an address on "Melanosis Derived from the Eye."

Personal.—Sir Jagadis Bose, director of the Bose Institute, Calcutta, India, delivered a lecture before the Royal Society of Medicine in London, December 6.——Prof. D. C. Winkler of the Psychiatric-Neurological Clinic, Utrecht, delivered a lecture before the Medico-Psychological Association of Great Britain and Ireland, November 22.——Professor and Senator E. Maragliano, Genoa, has been given an honorary degree by the University of Lyons. This is said to be the first time that an Italian has been thus honored by a French university. ——The Bréant prize has been awarded by the Académie des sciences, at Paris, to Drs. Sazerac and Levaditi, of the Pasteur Institute, for introducing bismuth into the treatment of syphilis.——The tribute to Prof. Leonardo Bianchi on the occasion of his last lecture was imposing. The neurologists and alienists of Italy, and representatives of the government and of scientific societies came to join in a tribute. Bianchi retires at the age of 75, both from the chair and the clinic of nervous and mental disease.——Dr. G. Heuyer, 74, boul. Raspail, Paris, is in charge of the collection for presenting a souvenir to Dr. Prosper Merklen as he leaves Paris to take the chair of medicine at Strasbourg.

Deaths in Other Countries

Dr. **E. Meyer**, dean of the medical faculty at Nancy, professor of physiology.——Col. **James Lane Notter**, M.D., professor of hygiene, Army Medical School, Netley, England; British delegate to the International Medical Congress at Chicago in 1893; formerly examiner in public health at the universities of Leeds, Cambridge, Liverpool, Manchester and Wales and for the Conjoint Board of the Royal Colleges of England; president of the Epidemiological Society, and author of works on public health; died, October 24, at Southampton, aged 80.——Dr. **David White Finlay**, emeritus professor of medicine and dean at Aberdeen (Scotland) University, November 4, aged 83.——Dr. **Wallace Beatty**, honorary professor of dermatology at the University of Dublin, Ireland, aged 69.——Dr. **Peter W. Lathan**, formerly Downing professor of medicine at the University of Cambridge, England, aged 91.——Dr. **Thomas Henry Green**, consulting physician to the Charing Cross and Brompton hospitals, London, and author of the well known manual on pathology, November 5, aged 85.——Dr. **V. Fisichella**, professor of dermatology and syphilology, at Catania.——Dr. **F. Frank**, emeritus professor of obstetrics, at Cologne, aged 67.——Dr. **Victor Surbek**, Berne, chief of staff of one of the largest hospitals in Switzerland, president of the medical licensing board and also of the board in charge of asylums for the insane, aged 70.

Government Services

New Regulations for Reserve Corps

The new regulations governing appointment and promotion in the Officers Reserve Corps of the medical department have been made public by the Adjutant General of the army. These regulations permit physicians, with or without previous military service, who are graduates of recognized medical schools, to enter the Medical Reserve Corps. Eligibility for promotion is based entirely on length of service. Examination, other than physical, may be waived for all grades, with the exception of promotion from the grade of major to that of lieutenant colonel.

A study of the regulations shows that the War Department has arranged the scope of the one professional examination so that a candidate may be examined in the line of special endeavor for which his services would be desired. For original appointees, no other examination, aside from the physical one, is required.

These regulations have been formulated after careful and thorough consideration, and are believed by officials of the War Department to form just and equitable standards for determining the rank of former service men in reentering the Medical Reserve Corps.

The new regulations are set out in a general letter dated Nov. 17, 1923, from the Adjutant General of the army, and a supplement from the Surgeon General of the army fixing the scope of the examination for promotion to the grade of lieutenant colonel. The regulations and the Surgeon General's supplement follows:

APPOINTMENT

Of Persons Without Prior Commissioned Service.—1. Original appointments in the medical, dental and veterinary sections of the Officers' Reserve Corps will be made in the lowest grade without examination of: (*a*) Graduates of medical, dental and veterinary schools who have completed successfully the R. O. T. C. courses and who have been recommended by the professor of military science and tactics. (*b*) Graduates of recognized medical, dental and veterinary schools who have passed the national or state board examinations necessary to qualify them to practice medicine or surgery.

2. Original appointment in the medical administrative and sanitary sections of the Officers' Reserve Corps may be made as follows:

(*a*) Second Lieutenants: Applicants under 31 years of age who have had more than two and less than five years' experience in the army, or in civil life in duties analogous to the medical service of the army.

(*b*) First Lieutenants: (1) Applicants under 31 years of age who have had more than five years' and less than ten years' experience in the army or in civil life in duties analogous to the medical service of the army. (2) Applicants over 31 years of age who have had more than two years' experience in the army, or in civil life in duties analogous to the medical service of the army.

(*c*) Captains: (1) Applicants who have had more than ten years' experience in the army, or in civil life in duties analogous to the medical service of the army. (2) Applicants over 36 years of age who have had more than five years' experience in the army, or in civil life in duties analogous to the medical service of the army.

3. Original appointments in all sections of the medical department in higher grades may be made in the grades which their records of professional attainments warrant in cases of:

(*a*) Those who have a record of service during the World War which, while not in the military establishment, contributed to the successful prosecution of the war, such as service on the Council of National Defense, long service as an examiner of officer candidates or men of the draft, as members of draft or advisory boards, former officers of the navy and allied armies, and

(*b*) Those of eminent general or special qualifications barred from appointment during the World War by circumstances connected with the maintenance of essential public institutions, such as service as essential teachers, public health and other public administrative officers. Candidates falling under the foregoing exceptional circumstances may be appointed in a grade commensurate with their age and standing in civil life.

Of Former Officers.—The following requirements determine the grade for which former officers are eligible for appointment:

1. Second Lieutenants: Those officers who served satisfactorily on active duty as Second Lieutenant for less than six months.

2. First Lieutenants: (*a*) Those officers who served satisfactorily on active duty in the grade of second lieutenant for more than six months. (*b*) Those officers under 31 years of age who served satisfactorily on active duty in the grade of first lieutenant for less than six months.

3. Captains: (*a*) Those officers who served satisfactorily on active duty in the grade of first lieutenant for more than six months. (*b*) Those officers over 31 years of age who served satisfactorily on active duty in the grade of first lieutenant for less than six months. (*c*) Those officers who served satisfactorily on active duty in the grade of captain for less than six months.

4. Majors: (*a*) Those officers who served satisfactorily on active duty for at least one year, held the grade of captain for at least three months, and whose records indicate that they possess the necessary qualifications

for field grade. (*b*) Those officers not otherwise provided for, holding the grade of major at time of discharge.

5. Lieutenant Colonels: (*a*) Those officers who served satisfactorily on active duty for at least one year, held the grade of major for at least three months, and whose records indicate that they possess the necessary qualifications for the higher grade. (*b*) Those officers not otherwise provided for, holding the grade of lieutenant colonel at time of discharge.

6. Colonels: (*a*) Those officers who served satisfactorily on active duty for at least one year, held the grade of lieutenant colonel for at least six months, and whose records indicate that they possess the necessary qualifications for the higher grade. (*b*) Those officers who served satisfactorily on active duty in the grade of colonel.

PROMOTION

For the Medical and Dental Officers' Reserve Corps.—To the grade of captain on completion of five years in the grade of first lieutenant.

To the grade of major on completion of five years as captain.

To the grade of lieutenant colonel on completion of five years as major.

To the grade of colonel on completion of five years as lieutenant colonel.

For the Medical Administrative Officers' Reserve Corps.—To the grade of first lieutenant on completion of five years as second lieutenant.

To the grade of captain on completion of five years as first lieutenant.

GENERAL INSTRUCTIONS

1. The time necessary for promotion will be counted from date of appointment as regards current appointment. Commissioned service in grade from which promotion is sought, or any higher grade, prior to current appointment, will be computed and credited as provided for in Par. 150, S. R. 43, W. D., 1921. In computing inactive service in the Officers' Reserve Corps prior to current appointment, credit will be given only from date of acceptance.

2. For promotion to the grade of lieutenant colonel, the examination, the scope of which will be prescribed by the surgeon general, shall be such as to demonstrate the applicant's capacity to perform the duties and assume the responsibilities of the grade and class of service sought.

3. For all other grades, no examination other than physical will be required when in the opinion of the board the civil or military experience of the candidate justifies belief in his qualifications for the grade and class of service sought.

4. It will be noted that a reserve officer covered in these instructions, if he has had no commissioned service in his present or any higher grade prior to his current appointment, will become eligible for promotion on the day his current appointment expires, except for promotion to first lieutenant and captain in the Veterinary Officers' Reserve Corps and Sanitary Officers' Reserve Corps. In order to avoid a duplication of work, it is desired that reserve officers covered in these instructions be examined within a reasonable time prior to the date on which they become eligible for promotion and that the board report, with the corps area or department commander's recommendation be transmitted to this office so as to reach here prior to the date on which the officer becomes eligible for promotion. In that class of cases in which the reserve officer becomes eligible for promotion on the day his current appointment expires, it is desired that the board's report and recommendation be forwarded so as to reach the Adjutant General's Office forty-five days before the date of expiration of current commission.

SUPPLEMENT BY SURGEON GENERAL

SCOPE OF EXAMINATION FOR PROMOTION TO LIEUTENANT COLONEL IN ALL SECTIONS OF MEDICAL DEPARTMENT RESERVE CORPS

I. *For All Applicants.*—1. Organization and major functions of: (*a*) Army of the United States. (*b*) Component units of the combined arms. (*c*) Medical Department units of the army.

2. Principles of military discipline and military command.

II. *For Command—Administrative.*—1. Organization and technic of operation of divisional units of the medical department.

2. Hygiene and sanitation of large commands.

3. Scheme of military hospitalization: (*a*) Divisional. (*b*) Communication zone.

4. Scheme of military evacuation: (*a*) Divisional. (*b*) Corps. (*c*) Army.

5. Solution of a problem involving knowledge of administration of major medical department units in war.

III. *For Sanitation.*—1. Organization and technic of operation of divisional units of the medical department.

2. Hygiene and sanitation of large commands.

3. Solution of a problem involving application of the knowledge of the special field of sanitation of applicant to a major problem of army sanitation under war conditions.

IV. *For Supply—Administrative.*—1. Scheme of military hospitalization: (*a*) Divisional. (*b*) Communication zone.

2. Scheme of military evacuation: (*a*) Divisional. (*b*) Corps. (*c*) Army.

3. Solution of a problem involving knowledge of principles of procurement, storage and issue of medical department supplies for major military situation.

V. *For Professional or Technical Services*, including consultants, chiefs of professional services and other officers whose functions are chiefly in a professional or technical nonmilitary relation.—1. Scheme of military hospitalization: (*a*) Divisional. (*b*) Communication zone.

2. Scheme of military evacuation: (*a*) Divisional. (*b*) Corps. (*c*) Army.

3. Solution of a problem pertaining to the special service in which the candidate is technically qualified.

All applicants will be examined in Section I and in the additional subjects of one of the Sections II, II, IV or V which particularly applies to the special duties for which the applicant is intended in a military unit.

Since this is the only examination required for promotion to higher grades in the medical department reserve, it is intended that it shall be searching and exhaustive with the view to demonstrate conclusively the capacity of the officer to act independently in the organization and operation of units for which the grade and specific duty calls.

Public Health Service to Investigate Officers' Credentials

Surg.-Gen. Hugh S. Cumming of the U. S. Public Health Service, according to reports from Washington, D. C., has ordered an investigation of the record of every physician in the service to determine whether any are holders of bogus diplomas or are without proper medical qualifications. This inquiry was instigated when it was learned that Dr. Fred Harrison Works, passed assistant surgeon at the U. S. Veterans' Hospital, Roxbury, Mass., had received a diploma from the Eastern University School of Medicine of Baltimore without, it is alleged, proper qualifications, and following reports that many fake physicians were treating ex-service men, as in the case of Albert Hoody, an ex-service man who died, it is reported, under an anesthetic administered by "Dr." George Sutcliffe, Unionville, Conn.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 19, 1923.

Settlement of the Panel Question

The special conference of representatives of the local medical and panel committees called by the Insurance Acts Committee of the British Medical Association, as anticipated in my last letter, has accepted the terms there given as offered by the minister of health. These terms are regarded as equivalent to nearly all that has been demanded by the profession. After a certain amount of argument a vote was taken, and the offer was accepted by a majority of 141 votes against 29. A debate then took place as to which of the alternatives offered by the minister should be accepted. These are a capitation fee of $2 for five years, and a court of inquiry to determine the terms. A motion in favor of the latter was carried by 123 votes to 49.

The London School of Dermatology

The lack of centralized teaching of the various special branches into which medicine is divided, such as can be obtained in Berlin or Vienna, where the work of the leaders of the day can be followed, is a long standing complaint of those who come to London for postgraduate study. The twelve medical schools are scattered over the metropolis and are as independent of one another as if they were hundreds of miles apart. The various special hospitals are equally independent of one another and only increase the difficulty. So far, the only subjects that have a single hospital sufficiently preeminent to be regarded as the school of the metropolis are neurology (at Queen's Square) and ophthalmology (at City Road). Now dermatology has been added to the list. St. John's Hospital for Skin Diseases, Leicester Square, has been organized as a central school of dermatology, in which the teachers comprise not only the staff but also the heads of the dermatologic departments of the twelve London medical schools. The staff of the hospital has been augmented by the election to the consulting staff of Sir Malcolm Morris and Dr. J. H. Stowers, and of Dr. Wilfrid Fox and Dr. Henry MacCormac to the visiting staff. Dr. J. M. H. Macleod has been appointed director of the pathologic department. A program of lectures for the first six months of the present medical session has been drawn up. It is felt that this step will lead to a great improvement in the position of London as a teaching center in dermatology. Visitors to this country have often complained of the time they had to spend in going from one hospital to another, whereas in Paris or Vienna they could obtain continuous instruction at one central clinic.

Vital Statistics: Decline in the Birth Rate

The registrar-general's statistical review of England and Wales for 1922, which has just been published, shows the lowest birth rate recorded in any year, save the war years 1917-1919; the lowest death rate, except in 1920 and 1921, and the lowest infant mortality ever recorded.

BIRTHS

Births numbered 780,124, equivalent to a rate of 20.4 per thousand living, and were fewer by 68,690 than in 1921. Excluding the three years mentioned, we have to go back as far as 1869 to find a year in which the births reached so low a figure, and at that date the population was only 22,000,000, against 38,000,000 in the year under review. Before the war, the male births were in proportion of 1,038 to 1,000 female births. From 1916 onward, however, the plurality of males showed a decided increase, the average for the five years from 1916 to 1920 being as high as 1,051, at which figure it remained in 1921. Last year the proportion fell slightly, to 1,049, but it is still, as will be seen, considerably in excess of the prewar figure. The proportion of illegitimate to total births fell slightly, from 45 per thousand in 1921 to 44 in 1922.

DEATHS

Deaths numbered 486,229, equivalent to a rate of 12.8 per thousand living, and were 27,600 more than in 1921, when the lowest death rate (12.1) was recorded. If the population is standardized to the sex and age constitution of 1901, the rate is reduced to 11.9. As usual, the male deaths exceeded the female; the numbers were: males, 246,670; females, 239,559, so that the ratio of deaths was 1,029 males to 1,000 females. As, however, there is a large excess of females over males in our population, this ratio does not give a true idea of the proportion of male to female deaths in terms of equal numbers. The death rate for males was 13.6 per thousand living, that for females 12.0. A notable feature of the death rates (standardized) is that for ages 0-5 and 5-10 years the rates are the lowest ever recorded—that for 0-5 being 1.6 and that for 5-10 being 0.2 per thousand living at those ages below the record of the year 1921. For ages 10-15 the rate remained unchanged, but from that point onward the rates show increases over 1921, growing more pronounced at the higher ages. Indeed, the rate at ages over 85 is in excess of any since 1915. The most important cause of the rise in the death rate over that of 1921 was influenza, which claimed 21,498 victims, as against only 8,995 in the preceding year. Thus, this one disease alone was responsible for nearly half the increase in deaths recorded. Diseases of the heart caused 59,837 deaths, an increase of 6,127 over the number for 1921; bronchitis claimed 40,912 victims, as compared with 33,684 in 1921, and pneumonia 40,930, as compared with 34,708.

INFANT MORTALITY

With an infant mortality rate of 77 per thousand births, 1922 beat all records, the lowest rate heretofore recorded being 80 in 1920. The progress made in the saving of infant life is shown by going back only to the beginning of the present century. In 1901 the rate was 151, nearly double that of 1922. How important this saving of infant life is, in view of the declining birth rate, may be appreciated from the fact that, while in 1901 the births were nearly 150,000 more than in 1922, the survivors in the latter year were only 60,000 fewer. Thus, by the improvement in our infant death rate, more than half the decline in the numbers of births has been made up. The number of deaths of infants under 1 year of age in 1922 was 60,121; had the infant mortality rate been equal to that of 1901, the number would have been nearly 118,000.

Commercial Influences in Therapeutics

Dr. A. J. Clark, professor of pharmacology, University College, London, on taking the chair as president of the Section of Pharmacology and Therapeutics of the Royal Society of Medicine, delivered an address on commercial influences in therapeutics. He criticized the light-hearted manner in which certain firms made sweeping therapeutic claims for their products, for which there was little or no evidence. When evidence had been laboriously collected showing that these claims were erroneous, it usually made no difference in the advertisements. On inquiry, he found that there are no safeguards in England against claims made in advertisements that are demonstrably false. It was estimated in 1913 that more than $20,000,000 was spent on secret remedies and that the trade spent half of this on advertisements. Dr. Clark pointed out that it was impossible to draw the line where blatant frauds advertised in the lay press ended and proprietary preparations of high therapeutic value began, as every possible intermediate grade existed. It might be said that secret remedies required no discussion, because the professional tradition was that a physician should not recommend a remedy of whose composition he was ignorant. But a secret remedy only showed a lack of ingenuity on the part of the manufacturer, as nothing was simpler than to give a formula and to claim that one of the ingredients was obtainable only by the manufacturer, or that the value of the remedy depended on the exquisite skill of preparation. He gave as an example an alleged remedy for tuberculosis sold by C. H. Stevens under the name of "Sacco" and "Lungsava." Stevens said that this contained the root of "Umckaloabo," an African plant. But careful inquiry by the British Medical Association expert in South Africa failed to reveal the existence of such a plant, and analysis of the preparation showed that it was essentially a mixture of wine and glycerol. An action by Stevens against the British Medical Association failed. In 1915 this "cure" appeared in the United States as the "U. P. Extract" exploited by the Umckaloabo Chemical Company of New York City. During the past three years, strange to say, articles have appeared in the well known *Revue médical de la Suisse romande* by a Dr. Sechehaye, stating that he has treated numerous cases of tuberculosis with Umckaloabo and found it a specific. Reprints of these articles have been broadcast to the profession in this country. So far this action of a leading Swiss journal in publishing the articles has excited no comment in our medical press. Dr. Clark pointed out that the fact that an article was advertised only to the medical profession was no guarantee whatever, and quoted Dr. G. H. Simmons on this point (The Journal, May 18, 1907, p. 1645). He commended the work of the Council on Pharmacy and Chemistry of the American Medical Association as affording the American physician complete protection against worthless preparations.

A Stimulus Necessary for Growth

Dr. F. Gowland Hopkins, F.R.S., the discoverer of vitamins, has been presented with the gold medal of the Royal Society of Medicine. In connection with the presentation, he discussed some of the mysteries of growth. Growth, he said, was the predominant attribute of life, and though little was known of its inner meaning, there were a number of points connected with it of practical importance. He was of opinion that, like the contraction of muscle, it occurred only in response to a stimulus. There was, for instance, the stimulus of the pituitary secretion, and if this was overactive, gigantism resulted. Lower organisms, such as yeasts, grew vigorously and normally as the result of a special stimulus, and the same thing occurred with bacteria. The behavior of protozoa was peculiar. A single individual would not multiply unless the medium in which it was grown was of very small bulk. But if a pair of protozoa were placed in the medium, they multiplied, not twice as fast but twenty times as fast. Mutiplication was solely by division, and each indi-

vidual, while dividing, secreted into the medium a material that stimulated growth. Consequently, if two individuals were present, they stimulated each other. In recent years the cultivation of living animal tissues outside the body had become much more common. It had been found that they, too, would grow only if there was some substance in the medium to act as a stimulus. Lastly, the work on vitamins had shown that some external matter was necessary for growth. In every case the amount required was infinitesimal. He considered that these facts had an important bearing on the study of certain diseases, which should be studied from the standpoint of biochemistry.

PARIS

(From Our Regular Correspondent)

Nov. 16, 1923.

Weak Points in Medical Education

Under the caption "Weak Points in Medical Education," the *Journal des praticiens* publishes an editorial in which it points out, among other weaknesses, the abnormal position of the chair of history of medicine at the Faculté de médecine of Paris. This chair is generally delegated to the professor last promoted, who loses no time in giving it up as soon as he can obtain another chair that has more practical interest. Yet, nothing is more instructive than the history of medicine. It affords the professor an opportunity of making incursions into the widest realms of thought, and the *Journal des praticiens* would seem to be justified in its contention that the chair of history of medicine, instead of being entrusted to the youngest professor, should be regarded as the crowning honor of a long professional career. Long life, mature reflection and an opportunity to witness the overthrow of many doctrines are needed to permit appreciation of the significance of the past.

The history of medicine teaches modesty, and, if it taught nothing else, it would deserve a place in the curriculum. The ancients appear to have imagined that their scientific speculations were deciding problems for all time to come and at times it seems as if we moderns shared the same delusion. How many of the conceptions of today will be accepted tomorrow? With improved technic, doubt may be cast on doctrines that seemed the best established. What greater progress might have been made in medicine if the leaders had not been too confident of their knowledge. Entirely different horizons would have opened to them if they had not been permeated with the belief that these horizons did not exist since they had not discovered them, and that it was madness to suppose that others would reach shores whose existence they did not even suspect.

Employment for Crippled and Disabled Soldiers

M. Albert Peyronnet, minister of labor, has been conducting an inquiry into the conditions under which war pensioners are working in the various industrial and commercial establishments. The inquiry covered more than 4,500 large establishments employing 1,527,000 workmen, 935,000 being adult men. There were, in all, 47,500 pensioners working in these establishments, 16,000 of whom were employed by the same firms as before the war.

The proportion of war pensioners to the total number of employees in a given establishment varied greatly, depending on the character of the industry. The percentage is high in establishments in which the number of office workers and supervisors is relatively large (commercial establishments, shipping firms, financial institutions and insurance companies). In the metal industries, out of 550,000 workmen and employees, there were 18,500 pensioners, or more than one third of the total number of pensioners registered by the inquiry. Among these were 1,500 who had suffered amputations of various kinds, 586 having lost a leg; 6,800 had suffered wounds of the extremities; 890 had received eye injuries; 3,000 had suffered other wounds, and 4,400 were ill, 2,500 having affections of the respiratory organs.

This inquiry reveals the fact that pensioners who, owing to wounds or disease, found their handicap too great to justify continuance in the work in which they were engaged before the war, have, for the most part, changed their trade or profession, or have at least taken up a different branch of work. The crippled and disabled soldiers, particularly those who have lost a limb—especially an arm—have selected office work or supervising jobs. More than four fifths of the pensioners employed at present as foremen, warehousemen, watchmen and inspectors were engaged in other work before the war. Cases in which former factory workmen have become inspectors or foremen have been especially frequent. Factory workmen who have been able to continue in the same line of work in which they were engaged before the war have often received special training in order to minimize their disability.

Most manufacturers who were consulted held that the output of the war pensioners was essentially the same as that of workmen who are sound. In three fourths of the cases investigated, the output or productivity of the pensioners was normal; in scarcely 10 per cent. was it reduced more than 25 per cent.

Chimpanzees in French West Africa Reserved for Scientific Research

In order to preserve for laboratory use the chimpanzee, which was captured in too large numbers by fur hunters, the governor general of French West Africa has issued an order prohibiting the capture, detention, sale or exportation of living chimpanzees throughout his territorial jurisdiction. Special permits to capture, hold in captivity and to export these anthropoids for scientific purposes may be secured by scientists, medical investigators or other qualified persons. These permits are made out to individuals and are nontransferable. They remain in force for a limited time, and the number of chimpanzees that may be captured is definitely stated. The hunters may be accompanied by native guides, but the animals may be captured only with nets or traps; no methods may be employed that will wound them.

International Cooperation in Intellectual Work

The national committees on international cooperation in intellectual work, which have now been appointed in seventeen countries of Europe, have been invited to send delegates to the next meeting of the International Committee on Intellectual Cooperation, which has been organized by the League of Nations and is to be held at Paris, Nov. 28, 1923. These national committees are to serve as correspondents and collaborators to the international committee in encouraging and facilitating intellectual cooperation among the nations.

Since the last meeting of the League of Nations, national committees have been created or are in process of formation in Belgium, France, Latvia, Norway, the Netherlands and Switzerland. Similar committees were already in existence in Austria, Bulgaria, Esthonia, Finland, Greece, Hungary, Lithuania, Poland, Roumania, Czechoslovakia, and in the kingdom of the Serbs, Croatians and Slovenians.

New Regulations Governing the Shipment of Milk

With a view to prevent the alteration of milk during transport, the prefect of police of Paris has issued an order requiring that milk consigned to wholesale or retail dealers, or to establishments supplied directly by wholesale milk dealers (municipal shelters, hospitals, etc.), must be shipped in sealed containers. No transferring of the contents of the vessels en route is permitted, either on the trains or in the trucks.

PRAGUE

(From Our Regular Correspondent)

Nov. 3, 1923.

Czechoslovak Watering Places

The ministry of health made public the data on the number of visitors to the Czechoslovak watering places during the season of 1923. The total number was 96,360, as compared with 68,709 for the previous year. This increase is largely due to the influx of Czechoslovak guests; the number of foreign guests shows a decrease. There were 3,200 guests at Franzensbad, with 710 foreigners; 29,036 persons visited Karlsbad this year, as compared with 26,104 last year, and of these 15,588 were from foreign countries. Marienbad shows also a considerable increase, with 15,023 guests this year, including 7,737 foreigners. These data reflect clearly the situation in the Czechoslovak watering places at the present time and show that, while the country has returned to normal prewar conditions, political and economic conditions in most of the surrounding countries has discouraged many foreigners from visiting the watering places.

Congress of Surgery and Gynecology

The second congress of the Czechoslovak Society of Surgery and Gynecology was held in Prague from September 28 to October 3, under the presidency of Dr. O. Kukula, professor of surgery at the Prague medical school, who also read a paper on the surgical treatment of gastric ulcers. About 150 papers were presented in the different sections of the congress. Special sections were devoted to the question of the surgical treatment of tuberculosis, to puerperal septicemia and to the treatment of inflammatory conditions of the ovaries. The congress was also attended by a group of Jugoslav physicians.

Old Age and Sickness Insurance

The Czechoslovak parliament, which opened its fall session, October 30, included in its program a bill providing for old age and sickness insurance that has been in preparation since the beginning of the current year. The present coalition government has agreed that the law shall be enacted at the beginning of next year. In the original outline of the bill it was planned to set aside annually a certain sum of money for the prevention of disease among the insured, but it was not specified how this money should be used. Recently an open letter was addressed to the parliamentary committee that is working on the bill, which was signed by many prominent workers in social hygiene and public health; in this letter a definite plan was suggested for the disbursement of the appropriations for preventive work. According to this plan, health centers, dispensaries and allied institutions, such as preventoriums and summer camps for children, which have been created mostly by private organizations with the help of the public health service, should be used to benefit the insured, and these institutions should receive annual grants for maintenance from the insurance service. There is no question that, if this scheme can be realized, there will be an enormous saving of funds; heretofore the insurance institutions and the general welfare institutions have been operated independently. It is generally assumed that the parliamentary committee will seriously consider the plan proposed, because the document is signed by some influential politicians and even by members of the committee itself.

Health Budget

The budget for the year 1924 was submitted to the same session of the Czechoslovak parliament. The total state expenditures in the proposed budget were cut down from twenty to seventeen milliards of Czechoslovak crowns (approximately $600,000,000). The appropriation for the ministry of health amounts to 159,842,893 Czechoslovak crowns (about $5,000,000). This means that the state appropriation for health purposes is 33 American cents per capita. The appropriation for the last year was 207 million crowns (about $6,210,000). On the other hand, the general decline in prices, which began in 1922 and is still continuing, will partly compensate for the loss which the public health service suffers by the reduction of its appropriations.

Radium Production

The state institute for the production of radium, in Jáchymov Bohemia, is undergoing important reorganization as to the methods of extraction employed. The institute was purchased by the state in 1922. Jáchymov is one of the most important sources of radium in the world market. Of the total amount of 204 gm. of radium now available in the world, 24 gm., or 12 per cent., was produced in Jáchymov. The yearly output of the Jáchymov institute before the reorganization ranged from 2.2 to 3.3 gm. of radium. It is hoped that the new methods will greatly increase production. In connection with the institute, the state acquired also a hotel and sanatorium for patients undergoing radium therapy in Jáchymov.

BELGIUM

(From Our Regular Correspondent)

Oct. 25, 1923.

School of Puericulture

Under the direction of a committee of physicians, a school of puericulture has been established at Brussels to give instruction in the hygienic care of young children. The school is planned more particularly for persons whose duties are concerned with the training of children, such as school teachers, supervisors of crèches, midwives, mothers with children, and young women. The courses cover a period of two years, at the conclusion of which final examinations are held. After the second year, during which short periods are spent in children's hospitals, crèches and consultation services on infant care, a diploma as a "maternal assistant," is given, which is indorsed by the government.

Antityphoid Vaccination

Before the Société belge de biologie, Drs. Van Boeckel and Geens presented recently a practical discussion of antityphoid vaccination. The number of injections necessary to produce good immunity must be established definitely before reliance is placed on any form of vaccination. The authors have verified in man the observations of Maisin on animals; namely, that a subject who receives divided injections of typhoid bacilli produces more antibodies than one who receives the same quantity of bacilli at one injection. Therefore, when it is important to establish a prolonged immunity of high degree—in soldiers, physicians and nurses, for example—it is best to vaccinate with three or four doses. When, on the other hand, it is desired to secure immunity rapidly, the vaccine should be given in one or two injections. The latter method will be employed also in persons who refuse a larger number of injections.

Device for Calculating Diets

An interesting communication was presented recently by Dr. Gallemaerts before the Société clinique des hôpitaux of Brussels. The selection of a diabetic dietary requires careful computation. Gallemaerts secured from a mathematician (Professor De Buyl) a device with which to perform the calculations. With this instrument one can determine rapidly the quantities of carbohydrates, proteins and fats necessary to secure the requisite number of calories. Then with the aid of calory tables and this device it is possible to select the foodstuffs best adapted to furnish a sufficiently varied and a quantitatively correct regimen. This medical application of

mathematical procedures is clinically practical. Graphs can be prepared of the different regimens to which the patient is subjected, and present in an objective manner the relation between certain dietaries and the appearance of various symptoms.

An Appointment

Prof. Carlos Chagas, director of the Institut Osvaldo Cruz in Rio de Janeiro, has been appointed foreign correspondent of the Royal Academy of Medicine in Belgium.

Automobile Ambulances

A number of physicians have formed in Brussels a joint-stock company, with a view to operating a line of automobile ambulances. This service is meeting with great success and is heartily supported by physicians and directors of hospitals, because the special equipment of the vehicles assures easy transportation of patients. The company plans, in accordance with the terms of its franchise, to establish a similar transport service in other large cities and industrial centers, favoring medical groups whenever feasible.

The Pathogenic Flora of the Intestine

In connection with the publication of the researches of Lomry and Gillet, Gengou recently presented to the Royal Academy of Medicine a communication on the identification of pathogenic bacilli in the intestine. This method of identification affords an opportunity of differentiating the various strains of paratyphoid bacilli; more particularly, paratyphoid B. In comparison with typhoid strains, the latter show a higher degree of uniformity. Paratyphoid B bacilli may be divided into three groups: paratyphoid B 1, a homogeneous strain, the ordinary type described by Schottmüller; paratyphoid B 2, a collection of less homogeneous strains, for the most part flagellate bacilli, the Aertrycke group of Van Ermengen, which is closely allied to paratyphoid B 1 and is quite distinct from paratyphoid B 3; paratyphoid B 3, a strain equally homogeneous and uniform as paratyphoid B 1 and resembling the type described by Gärtner; it is a flagellate bacillus like the strain paratyphoid B 2.

Lomry and Gillet claim to have shown that from the point of view of agglutinations there is just as much heterology between the types of paratyphoid B as there is between the various species of dothienenteric bacilli: typhoid bacilli and paratyphoid A and B bacilli. Since fermentation of sugars lies at the base of the differentiation in the species of pathogenic bacilli in the intestine, agglutination, as controlled by the Castellani test, is an efficient means of determining the different species.

HOLLAND

(From Our Regular Correspondent)

Oct. 26, 1923.

Campaign Against Tuberculosis

In a previous letter (THE JOURNAL, April 7, 1923, p. 1020), I referred to the activities of the government commission for the prevention of tuberculosis. This commission, which was appointed in July, 1918, to advise the government in regard to legislative and other means of combating the spread of tuberculosis, has just completed its investigations. Certain points are worthy of note, especially in connection with compulsory notification, and treatment in dispensaries.

A campaign for the prevention of tuberculosis should aim not only to diminish the causes of infection (direct measures) but also to increase the resistance of patients (treatment) and of healthy subjects (indirect measures). In addition, measures of a general nature should be employed. More particularly, students should be instructed on tuberculosis and its prevention. Physicians in practice should be made familiar with organizations and means for prevention now available. The question of compulsory notification has been much debated, and the balance of opinion favors "compulsory notification of cases with clinical symptoms"; but it is held that "this cannot be introduced until provisions are made for thorough treatment and compensation for loss of income." The dispensary, or "bureau of consultation," should be the center or clearing house of the local campaign against tuberculosis—the place where everything that the patient needs may be secured. It is on the firing line and is the essential executive body. Closest relations must be maintained between practitioners and the dispensary.

Congress of Hygiene

The Netherlandic Congress of Hygiene has just met in Amsterdam under the presidency of Dr. Josephus Jitta, who, in his opening address, reviewed the immense progress that had been made in Holland in matters of public health. He referred especially to the results accomplished during the last twenty-five years, a summary of which was published in the memorial to the queen on the occasion of the twenty-fifth anniversary of her coronation. During the period from 1893 to 1923, the mortality rate has dropped from 17 to 11.43; the infant mortality rate from 15.6 to 6.3. These figures speak eloquently of progress, as do similar figures concerning infectious diseases, and the organization of social welfare societies.

At the congress, the question of the best method of furnishing large cities with milk, especially the feasibility of establishing a monopoly, communal or municipal, for the distribution and sale of milk, was discussed. Dr. Van Roolte opposed the monopoly, contending that it would not only increase the price to the consumer but also tend to diminish the supply of milk. He held that milk plays only a small part in typhoid infection. Other speakers pointed to the good results secured through the cooperative milk associations and recommended a further extension of the system.

The second question, which had been discussed last year at Haarlem and had been continued without any definite conclusions being reached, concerned the advisability of organizing special aids for promoting social medicine. The feasibility of recruiting a specially trained type of nurses was discussed. Drs. Eykel and Heyermans emphasized the need of organizing special courses of study and special examinations for the various types of nurses (nurses for the care of the sick, psychiatric nurses, nurses for public health service, etc.); but to the majority of those attending the congress such a degree of specialization seemed inopportune.

Typhoid Fever

At the request of the International Commission on Public Health, Dr. Ricardo Jorge has drawn up a preliminary report on typhoid in the various European countries. The statistics for Holland by Dr. Josephus Jitta are comprehensive. During the last thirty years, the morbidity has decreased from 48.2 to 16.0 per hundred thousand inhabitants. There have been, however, several periods of recrudescence; notably in 1898, 1901, 1903, 1904 and, more particularly, in 1918-1919, when the morbidity rate reached 62.5. The mortality rate, following a more regularly falling curve, decreased from 1.5 per 10,000 inhabitants in 1892 to 0.18 in 1922, except for a temporary rise to 0.9 in 1918-1919.

The factors affecting this decrease are, mainly, more exact knowledge concerning the disease and its etiology. During the last thirty years, the quality of the drinking water in almost all parts of the country has been much improved. Supervision of the milk supply has also exerted a favorable influence. Antityphoid vaccination is not compulsory either in the army or among civilians. When an outbreak of typhoid occurs in any community, the health commissioner urges the inhabitants to be vaccinated; he ordinarily attends to the

work himself, in collaboration with the local physicians. In the army, antityphoid vaccination is performed whenever it is needed, but no one is compelled to submit to the procedure. Several thousand in the army have been vaccinated, usually soldiers who had been exposed to the infection.

BERLIN

(From Our Regular Correspondent)

Nov. 10, 1923.

Changes in the Social Insurance Law

The long expected legislation in support of the social insurance law was promulgated, October 30. The two regulations pertaining to health insurance deal with the relations between the physicians and the health insurance societies or sick benefit associations, which has been, for many years, the subject of much controversy. These new regulations follow essentially the proposals of the joint committee appointed by the physicians and the health insurance societies. They conform, too, closely with the so-called Berlin agreement of Dec. 23, 1913, which was drawn up with the cooperation of the federal bureau of the interior. A new feature consists in the creation of a federal commission to represent the physicians and the health insurance societies, to be composed of five representatives of the physicians, five members appointed by the health insurance societies and three impartial outsiders. The duty of this commission is to draw up rules and regulations to promote amicable relations between the health insurance societies and the physicians. It will deal with such questions as the admission of physicians to the panel, the general agreements between the two parties, capitation fees, regulations to prevent overburdening of any society, protection of weaker societies, and systematic distribution of physicians throughout the cities and the rural districts. Provincial committees may be formed to supplement locally the regulations of the federal commission. The existing provisions for the settlement of misunderstandings and for the arbitration of more serious difficulties will be further developed. For each administrative insurance district a subcommission is to be created in the same manner as the federal and the provincial commissions. For every larger administrative district an arbitration board will be created, with the chairman of the district or his representative serving as president, and consisting of two representatives of the physicians, two delegates from the health insurance societies and two impartial outsiders. As the court of last resort, a federal arbitration board will be created. It will decide appeals from the lower arbitration courts in matters of disputes with reference to the panel system in general or the manner of admitting physicians to the panel; departure by the lower arbitration courts from the fundamental principles established by the federal or provincial commissions; or questions with regard to capitation fees.

The most marked changes are found in the regulations pertaining to the benefits to be given by the health insurance societies to the insured. Although, as just stated, the federal commission will adopt such means as seem necessary to protect the health insurance societies against unnecessary and immoderate requests for help, the provision dealing especially with sick benefits states: Physicians who are engaged to care for the members of a health insurance society must refuse to treat applicants when they deem treatment is unnecessary; and when treatment is needed it must be restricted, as far as possible, to essentials, especially as regards the application of special treatments, and the prescribing of medicines and other therapeutic agents; in the performance of their duties, physicians must avoid everything that may give rise to unnecessary or immoderate demands for sick benefits. Important from the panel physician's standpoint is the provision that the executive committee of a health insurance society has the right to call a physician's attention to violations of the regulations, and on repeated violation of the requirements has the right to dispense with his services without further notice, notwithstanding provisions in the contract to the contrary, and may, for the space of two years, prohibit him from serving on the panel. The physician, to be sure, must first be given an opportunity to state his side of the case. Within a month, he may also appeal to an impartial committee of control as provided by law, which renders the final decision, the case not being further justiciable. An appeal, however, does not effect a stay of execution, so it is quite possible for a physician to be wrongfully disciplined and for his means of livelihood to be destroyed before he can show that he is being unjustly treated. A further provision is directed against the unrestricted free choice of physician. If a health insurance society has more than one physician for every 1,350 insured persons (or, in the case of families, for every thousand insured persons), the executive committee of a health insurance society may refuse to admit further physicians to the panel. The principle of free choice of physician is preserved, therefore, only with respect to physicians already on the panel. The health insurance societies may, if they see fit, exclude any or all physicians who may have applied for admission to the panel and who, according to the general agreement, thought they could count on being admitted to the panel within a reasonable time. In order to lessen transportation charges in the case of health insurance societies whose membership is scattered over a wide territory, the executive committee may assign certain districts to certain physicians. When employers have suitable vehicles of their own, they can be called on to furnish a vehicle for a physician summoned to treat their employees. A number of further provisions give the health insurance societies additional rights, over the physicians, in case, through failure to agree, either the health insurance societies or the physicians cancel the contract. In that case, the insured lose their right to demand free medical treatment and are compelled to accept cash benefits instead. The executive committee of a health insurance society may also, contrary to previously existing rules, send an insured person to a hospital for treatment.

Druggists and pharmacists are especially hard hit by the revisions in the law. If, in a given place, a pharmacist granted special rates or prices to a health insurance society, Section 375 of the old law required that any other pharmacists who accepted those rates and prices should be allowed to furnish supplies to the health insurance societies; this provision has been canceled by the new law. Again, in case the pharmacists combine, refuse to extend credit to the health insurance societies, or take other drastic action, these societies may cease to furnish medicines to the insured and may give their members cash benefits instead. The insured are also required by the new law to pay 10 per cent. of the cost of medicines and other therapeutic agents, including cordials. If occasion seems to require it, the executive committee may raise this percentage to 20 per cent. However, on the request of a majority of the insured members committee, such an order must be rescinded. The executive committee may make exceptional rulings in urgent cases and in especially severe affections.

The most sweeping change is the reference to accident insurance contained in Section 1: The federal minister of labor shall have the right, if such action is necessary for the maintenance or carrying out of accident insurance or for the preservation of the working capacity of the insured, (1) to make changes in the constituency of the health insurance societies composed of industrial workers. He may, more particularly, combine one or more such societies or dissolve others; he may exclude certain branches of an industry or, for local reasons, certain portions of such branches, from the

nstituency of an industrial health insurance society; or) he may turn over the field of accident insurance in certain ctions to the provincial insurance boards. Certain other ovisions aim to simplify methods and thus work toward onomy in administration. Other changes concern a new stem of controlling accident insurance in industrial plants the federal government, the several states and the mmunes.

Whether the new law will accomplish better results than e old, and whether it will put new life into our social surance administration, can be known only when it has en given a practical trial.

Roentgenographic Study of the Blood Vessels

At the session of the Frankfort Medical Association, held, ct. 15, 1923, Berberich and Hirsch presented a communica- on on the roentgenography of living arteries and veins. For is purpose, the temporary arrest of the rapid circulation of e blood stream by means of stasis is required. The best ntrast medium was found to be strontium bromid in from a to a 20 per cent. solution, since it is entirely harmless even hen used in large quantities. If from 10 to 15 per cent. of ch a solution is injected into the blood stream and the ckward flow is prevented by central stasis, a roentgeno- am can be made of the corresponding vascular area. As e character of the stasis is modified, various isolated vascu- r areas can be photographed. In the roentgenograms, the lves of the veins, the collateral circulation and the network the arteries appeared clear and distinct. Also the results injections of brominized oil in experiments on animals ere interesting. The passage of drops of oil through the dy and from the right side of the heart into the lungs uld be observed. By dissolving contrast mediums in oil, became possible to study the spinal cord. Berberich and irsch were of the opinion that this procedure would prove great value for the study of physical and pathologic nditions affecting the circulation in the human organism.

An Attempt to Explain the Origin of Sultry Weather

Professor Kestner, director of the physiologic institute in amburg, has an article in the *Klinische Wochenschrift* tting forth the results of his experimental endeavors to iscover an explanation for the sultriness that we feel at mes during murky weather. He established that air that as been acted on by an arc lamp lowers the blood pressure f the arteries, and that the substance which causes this is itrous oxid. Also all other light sources which emit ultra- iolet rays produce in their vicinity nitrous oxid. He also bserved that on sultry days blood pressure in human beings lowered, and by comparison of the wind and the blood essure he discovered that a relationship exists between the vo phenomena. On the days on which Kestner observed a ll of blood pressure in his human experimental subjects, ie prevailing wind moved downward toward the earth—was so-called *Fallwind*. Under these atmospheric conditions, itrous oxid could be noted in the air. The feeling of sultri- ess, the peculiar sensations associated with the Föhn wind, ie storm breeder of Switzerland, and with the sultry sirocco f Italy, are due, according to Kestner, to the nitrous oxid the air. It has often been maintained that the feeling of ltriness was due to a high temperature associated with igh humidity, whereby the heat regulatory mechanism of ie body was disturbed. That cannot be correct, Kestner ntends, since the so-called *Fallwinde* are dry winds; these inds have a high content of nitrous oxid. The reason the igh content of nitrous oxid has been overlooked heretofore ay doubtless be found in the facts that nitrous oxid is not ery reactive, that the reactions it has are not very charac- eristic, and that it cannot be separated by absorption.

Marriages

HENRY GORDON JACKSON, Chicago, to Miss Mae Walker Robinson of New York, November 24.

WETHERBEE FORT, Baltimore, to Miss Katherine Goll Helfrich of Catonsville, Md., November 14.

ARCHIBALD F. MACCAULEY, Ottawa, Ont., to Miss Laura McFadden of Renfrew, November 28.

RONALD LEROY ROSS, Akron, Ohio, to Miss Hazel Cleveland of Louisville, Ky., October 17.

CHARLES WENTWORTH DE WOLF to Miss Lucie C. Brueggemann, both of Boston, October 23.

SVEN RICHARD LOKRANTZ to Miss Caroline Winston, both of Los Angeles, November 28.

PAUL H. MOORE, Toledo, to Miss Lucille M. Munn of Portage, Ohio, in November.

LAWRENCE JAMES LAWSON to Miss Ruth Watson, both of Chicago, December 8.

HERSCHEL P. BOWSER to Miss Ina Gortner, both of Goshen, Ind., September 12.

HARRY LEIGH, El Paso, to Miss Mary Neighbors of San Marcos, October 8.

Deaths

Alfred Curtis Rice, McSherrystown, Pa.; College of Physicians and Surgeons, Baltimore, 1897; member of the Medical Society of the State of Pennsylvania; member of the town council and president of the school board; on the staff of the Annie M. Warner Hospital, Gettysburg; aged 47; died, November 16, of pneumonia.

William Landram McFarland ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1901; member of the Medical Association of the Isthmian Canal Zone; clinical professor of pathology and bacteriology at the New York Polyclinic Medical School; aged 48; died, November 14.

Joseph Ignatius Callanan, San Francisco; Stanford University (Calif.) School of Medicine, 1916; served in the M. C., U. S. Army, during the World War; on the staff of the Emergency Hospital; aged 33; was found dead in his automobile, November 20.

Ross R. Anderson ⊕ Salt Lake City, Utah; College of Physicians and Surgeons, Baltimore, 1905; at one time health officer of Mount Pleasant, and on the staff of the Hollywood (Calif.) Community Hospital; aged 44; died, November 9, of pneumonia.

Oliver B. Bush, Pelham, Ga.; University of Georgia Medical Department, Augusta, 1891; member of the Medical Association of Georgia; formerly member of the state legislature; aged 52; died, November 13, following a long illness.

Robert L. McMahon ⊕ Lieutenant, M. C., U. S. Navy, Plainfield, N. J.; University of Texas Department of Medicine, Galveston, 1896; aged 48; died at the U. S. Naval Hospital, Brooklyn, November 15, of carcinoma.

Albert Virgil Franklin ⊕ New York; Cornell University Medical College, New York, 1911; assistant urologist to Sing-Sing Prison; aged 39; died, November 16, of an overdose of chloral, presumably self-administered.

Robert Vance Stewart ⊕ Monongahela, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1905; aged 43; on the staff of the Memorial Hospital, where he died, November 12, of cardiorenal disease.

John Duncan Emmet, Morristown, N. J.; University of Virginia Department of Medicine, Charlottesville, 1880; Medical Department of Columbia College, New York, 1882; aged 66; died, November 15, of pneumonia.

John P. Campbell, Fort Garland, Colo.; American Medical College, St. Louis, 1878; member of the Illinois State Medical Society; formerly member of the state legislature; aged 76; died, November 3, of senility.

Emma Chambers Clark ⊕ Dover, N. J.; Syracuse (N. Y.) University College of Medicine, 1902; member of the school board; pathologist to the Dover General Hospital; aged 57; died, November 17.

August Fehlen, San Francisco; Cooper Medical College, San Francisco, 1894; member of the California Medical Association; aged 63; died, November 13, of myocarditis and arteriosclerosis.

John Wanamaker III, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1899; for thirteen years police surgeon; aged 48; died, November 17, of pneumonia.

Moses Hudfred Eades, Sweeny, Texas; St. Joseph (Mo.) Hospital Medical College, 1881; member of the State Medical Association of Texas; aged 72; died, November 7, of senility.

John Walters ⊕ Wharton, N. J.; Medical Department of Columbia College, New York, 1890; aged 59; died, November 9, at the Paterson (N. J.) General Hospital, of septicemia.

Charles W. Johnson, Jacksonville, Fla.; Homeopathic Hospital College, Cleveland, 1881; on the staff of St. Luke's Hospital; aged 66; died, November 7, of angina pectoris.

Laurence D. Grenier, Cheboygan, Mich.; University of Montreal Medical Faculty, Montreal, Que., Canada, 1871; aged 68; died, November 11, of cerebral hemorrhage.

Luke P. V. Williams, Whiteland, Ind.; Kentucky School of Medicine, Louisville, 1889; member of the Indiana State Medical Association; aged 61; died, September 30.

John Purves, Oakland, Calif.; College of Physicians and Surgeons of San Francisco, 1899; member of the California Medical Association; aged 56; died recently.

Elizabeth N. Told, Chicago College of Medicine and Surgery, 1909; aged 36; died, November 23, at the Mary Thompson Hospital, following an appendectomy.

William Clark Robinson, De Witt, Iowa; Missouri Medical College, St. Louis, 1880; also a druggist; aged 72; died suddenly, November 26, of heart disease.

Andrew Barrisdale Riddell, Bayham, Ont., Canada; Victoria University Medical Department, Toronto, 1886; aged 64; died recently, at Richmond, Ont.

Charles Carpenter Wiggins ⊕ Osage, Iowa; Chicago (Ill.) Homeopathic Medical College, 1889; aged 58; died, November 17, of ulcer of the stomach.

George Milo Russell, Massena, N. Y.; Long Island College Hospital, Brooklyn, 1880; formerly county coroner; aged 70; died, October 16, of septicemia.

Alfred H. Hinde, Ocean Beach, Calif.; Rush Medical College, Chicago, 1878; formerly a practitioner in Chicago; aged 71; died, November 14.

John Alexander Leeper, Columbus, Ohio; Medical College of Ohio, Cincinnati, 1887; Civil War veteran; aged 80; died, November 13, of senility.

David L. Corbin, Van Wert, Ohio; Eclectic Medical Institute, Cincinnati, 1868; Civil War veteran; aged 82; died, November 8, of senility.

George W. Wishard, Minneapolis; Medical College of Indiana, Indianapolis, 1880; aged 58; died, November 19, of cerebral hemorrhage.

Leo Dow Rose, Utica, Neb.; University of Nebraska College of Medicine, Omaha, 1921; aged 28; died, November 13, of ptomaine poisoning.

Henry Stephen Canavan, New Bedford, Mass.; Tufts College Medical School, Boston, 1923; aged 29; died, November 15, of pneumonia.

William W. Bowling, Canmer, Ky.; University of Louisville (Ky.) Medical Department, 1871; aged 86; died, November 20, of senility.

David Edward Broderick, Wichita, Kan.; Rush Medical College, Chicago, 1901; aged 43; died, November 14, following a long illness.

Neil D. McVicar ⊕ Imlay City, Mich.; Saginaw (Mich.) Valley Medical College, 1903; aged 45; died, November 10.

Elliot H. Marsh, Mansfield Center, Conn.; Eclectic Medical Institute, Cincinnati, 1881; aged 77; died recently, of senility.

Robert B. Stapleton, Tunica, Miss.; Memphis (Tenn.) Medical College, 1885; aged 71; died, November 14, of senility.

Charles G. Schmidt ⊕ St. Jacob, Ill.; Marion-Sims College of Medicine, St. Louis, 1897; aged 51; died, November 25.

William Alfred Wood, Kansas City, Mo.; Barnes Medical College, St. Louis, 1894; aged 64; died, November 13.

Balthasar Firsich, North Vernon, Ind. (licensed, Indiana, 1898); aged 77; died, November 8, of senility.

John F. Abrams, Wellsville, Mo. (years of practice); aged 83; died, October 15, of senility.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

THE GALVANO NECKLACE FOR GOITER

Another Piece of Pseudo-Science Given Recognition by the United States Patent Office

In the cheap and not-too-particular rural weeklies there have been running for a few years past advertisements of the "Galvano Necklace," said to be "the latest discovery for the relief or cure of goiter by mild electrical treatment." Like another widely advertised nostrum it is said to "Work while you sleep." The device is advertised by the Cosmas Pharmacal Company of Watertown, Wis. The officers and directors of the Cosmas Pharmacal Company are said to be:

FREDERICK, C. WERNER, M.D., President, Manager and Director.
ELEANORA WERNER, Vice-Presideent and Director.
MARGARET WERNER, Secretary, Treasurer and Director.

F. C. Werner is also named on the Cosmas Pharmacal Company's stationery as "Consulting Physician" and in the company's advertising matter is described as the inventor of the Galvano Necklace. Altogether, F. C. Werner seems to be a veritable Pooh-Bah.

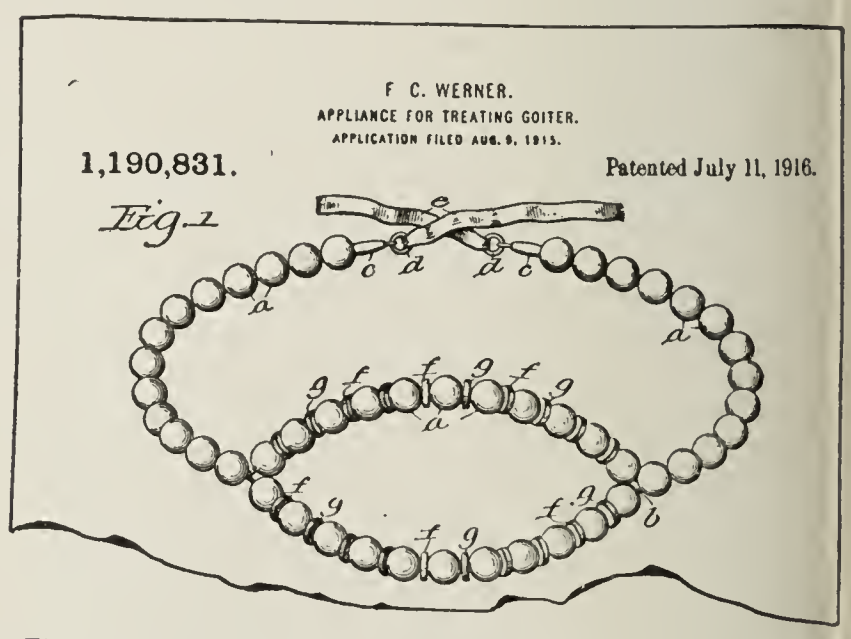
For some time THE JOURNAL has been receiving inquiries from physicians and laymen regarding the Galvano Necklace.

A county health commissioner in Ohio writes:

"I am mailing you today an advertised treatment for goiter, Cosmas Pharmacal Company of Watertown, Wis. I am also enclosing a letter from this company to the patient who took the treatment. The package was brought to our attention for investigation. Will you please take the matter up in the Propaganda Department?"

While from Montana a physician writes:

"Enclosed find an advertised goiter cure. You have probably seen same before but if not I thought it might be of interest in connection with the Propaganda for Reform Department of THE JOURNAL."



The "Galvano Necklace" as illustrated in specifications of Patent No. 1190831 issued by the United States government on an alleged "new and useful improvement in appliances for treating goiter."

Those who answer the Cosmas Pharmacal Company's advertisements receive a letter signed "F. C. Werner, M.D., Consulting Physician," stating that the letter had been referred to Werner by the company. One likes to visualize F. C. Werner receiving a letter in his capacity of President and Manager of the company and gravely referring the letter to himself in his capacity of "Consulting Physician." Mr. Werner goes on to state that he is sending a booklet giving full information about the necklace and adds that he "can sincerely recommend the necklace to you for your goiter." All

asks is that it be used faithfully "and you will soon get d of your goiter." There is enclosed the usual diagnosis art of the mail-order quack which the prospective victim urged to fill out. Werner declares that he will give it his rsonal attention.

The booklet referred to in the letter bears on the outside ver a highly imaginative picture of the Galvano Necklace. rom part of the necklace there emanate what at first sight ems to be cats' whiskers but what, presumably, is supposed to present electrical radiations. Inside the front cover is a cture of F. C. Werner, the inventor.



Photographic reproduction of a typical "Galvano Necklace" advertisement such as appear in rural weeklies with low advertising standards.

According to this booklet: "Of the many remedies tried far to cure goiter, the galvanic current has been the most ccessful. It is . . . much more reliable than any of e other remedies used heretofore." The sufferer is then ld that it is the galvanic current that is used when one rchases the Galvano Necklace.

THE UNITED STATES GRANTS A PATENT

There is stressed the fact that the United States has anted a patent on this device. The public, of course, does ot know that the United States Patent Office has granted atents on many preposterous pieces of medical pseudocience, some of them so ridiculous that other departments f the government have declared them frauds and debarred eir exploiters from the use of the United States mails.

On July 11, 1916, the United States Patent Office granted atent No. 1,190,831 to Frederick Werner of Watertown, Vis., on an "Appliance for Treating Goiter." According to e patent specifications, the Galvano Necklace consists of eads made of glass or other insulating material between hich are placed, alternately, small zinc and copper discs. hrough the discs and beads runs a metallic wire. The lleged purpose of the invention is that of "generating galanic currents in contact with the skin in the presence of ercurous iodid and calcium chlorid." In use an ointment ontaining mercurous iodid and calcium chlorid is applied to e skin of the neck and the necklace is then hung so that at part containing the zinc and copper discs will come in conct with the anointed skin. On the basis of this fantastic eory the Patent Office at Washington granted to Werner a atent on this alleged "new and useful improvement in applinces for treating goiter."

When this device was first put on the market Werner harged $3.50 for it. Then in 1916 the price was raised to 5.00 and in 1917 it was $7.50, the present charge made for he device. The necklace itself is a cheap and tawdry lookng affair of greenish-yellow and terra cotta colored beads. s an adornment it would fail to find a purchaser if offered competition with the "jewelry" of the Five-and-Ten-Cent tores. As a therapeutic device it ranks with a string of ampum. That it has the slightest value in the treatment f goiter is, of course, unthinkable. Young women with hysiologic enlargement of the thyroid will, doubtless, conmue to purchase the device and as the enlargement disapears, as it normally does, will furnish Werner with all the estimonials that he can use.

Correspondence

"PROTEIN AND PELLAGRA"

To the Editor:—In his reply, last week, to my comment on his article, Professor Hindhede first considers a point which I referred to as of no vital importance, and, secondly, states that "Dr. Goldberger has changed his mind," without really making clear about what "Dr. Goldberger has changed his mind," assuming (what is not a fact) that he changed his mind, and without showing what relation, if any, this has to the major issues raised by him on which I commented.

In my comments, if I may be permitted to recall, I addressed myself to three or four points, of which only two were regarded as of real importance. These were: 1. The charge that Goldberger and associates were reprehensible advocates of the view that pellagra is caused by lack of animal protein. 2. The argument in support of Hindhede's view that "the question of pellagra is not a question of protein but of vitamin."

With respect to the first of these, evidence was adduced showing clearly that the charge was entirely without warrant. With regard to the second, I endeavored to make clear that the evidence advanced in support of his view (which might or might not be proved to be correct but was not an issue under discussion) that pellagra is a question of vitamin and not of protein, was inconclusive.

By his silence on these two major questions it would seem that Professor Hindhede accepts my criticisms as sound.

JOSEPH GOLDBERGER, M.D., Washington, D. C.

THE ABRAMS CULT AGAIN

To the Editor:—For the benefit of the profession and the public, I am sending you the following information:

One A. Campbell, a reputed osteopath and a follower of Albert Abrams, recently brought suit in a Tulsa County court against Mr. Earl W. Deputy of this city. The suit was for the collection of a bill of $130 for alleged "services rendered" Mr. Deputy's wife. In defense, Mr. Deputy charged that Campbell treated his wife by fradulent methods and infected her eyes by putting over them a pad used (without sterilizing) on all his patients. Campbell, it seems, diagnosed Mrs. Deputy's case as one of cancer of the colon and "lues," but evidence was introduced from reputable laboratory men disproving the presence either of malignancy or syphilis. As a result, Campbell lost his suit.

Mr. Deputy has now brought suit against Campbell for $25,000 damages for the injury to his wife's eyes and for the false diagnosis of syphilis—a diagnosis which Campbell attempted to report to this health office, but the report was not accepted on the grounds that fradulent and incompetent means of diagnosis had been employed.

G. E. HARTSHORNE, M.D., Tulsa, Okla.
County Superintendent of Health.

A NOTE ON THE "NAVEL BUTTON"

To the Editor:—The general belief of the layman that any protrusion in the umbilical region of a baby is a hernia, we know, of course, to be wrong. A real hernia is rare, and demands, generally, surgical intervention. It is probably well for the baby that parents do take notice of unnatural protrusions; by replacing and retaining, a real hernia may be prevented. My purpose, however, is to speak against the use of wedge-shaped buttons made in any of the numerous forms now common on the market. One needs to think only for a moment to realize that their use defeats the end for which

they are intended. It is a simple fact in physics that if it is desired to keep an opening open, a wedge, for instance, inserted and retained will accomplish that end. Why is this reasoning not applicable to the use of a wedge-shaped button strapped tight over the opening in the abdominal wall between the edges of the rectus muscles? To be sure, the wedge of these buttons is low and the opening it makes shallow, but most certainly its use must delay Nature's efforts for repair, if not unduly hinder them.

Another objection to their use is that, to keep the button in place over the navel, tight bandages or belts are worn about the abdomen. In a very young baby, such an appliance is conducive of vomiting, and is uncomfortable.

Adhesive plaster strapping is cheaper, cleaner, and more satisfactorily retains the variety of protrusions we so commonly meet.

H. MERRIMAN STEELE, M.D., New Haven, Conn.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF TETANUS

To the Editor:—In my practice I saw recently a boy, about 6 years old, suffering from tetanus infection, caused by a large splinter in the thenar eminence of the right hand. He had fever, opisthotonos, complete trismus and constant convulsions. His right arm was held stiff; his fingers were rigidly bent into a fist, and the fist was pronated outward and bent on the forearm. He was given 3,000 units of antitetanic serum intraspinally (with great difficulty), and 10,000, intravenously at once. The following day the same dose was administered intravenously, and this was repeated again the third day. A large piece of splinter was removed from the hand on the day of entrance. He was supposed to have received the injury five or six days previously. On the fourth day a tourniquet was applied after the manner of Bier's hyperemia technic, to the upper third of the arm, and 10,000 units of the serum was injected subcutaneously in the region of the injury. In about ten minutes, the arm that had been held rigidly became normally lax and free from all spasm, and continued so till the hour had passed in which the hyperemia and supposed retention of serum lasted. Of course, a slight relaxation of the tourniquet was from time to time permitted to prevent pain and too great congestion. This was repeated again in two days, and the child received no further treatment, recovering in about ten or twelve days from onset. Is it possible that a tourniquet can shut tetanic toxin off from the brain? What can serum so administered do in the matter of diluting or neutralizing such toxin? Please omit my name.

M.D., Nebraska.

ANSWER.—Tetanus toxin reaches the central nervous system by way of the nerves, and the remarkable course in the case described may have been due in part to the effects of the passive hyperemia and the action of the antitoxin. Possibly the passive hyperemia favored the direct action of the antitoxin on the toxin in the nerves of the arm and at the site of the infection; but it must not be overlooked that removal of the part of the splinter in the hypothenar eminence may have removed also the major source of the toxin, and that the effects of the passive hyperemia and local injections of antitoxin played a more subordinate part.

SPECIAL TRAFFIC REGULATIONS FOR PHYSICIANS

To the Editor:—Our city is about to pass a traffic ordinance limiting possibly the parking of cars to sixty minutes. This time limit would be a hardship to physicians, and our county society has delegated me to make inquiries about the custom in other cities. Our city attorney claims that an exception for physicians would be class legislation and, therefore, unconstitutional. It has been intimated that if we could show that any city gives preference to physicians, it would establish a precedent, and our council would grant us equal privileges. What is the status in Chicago or any other cities that you may know of? Any information you can give us would be greatly appreciated.

J. B. BERTELING, M.D., South Bend, Ind.

ANSWER.—A large number of cities give official regulation in various ways to physicians' cars. In some places the ordinances merely state that physicians' cars are exempt; others require some definite marking, while many specially mention the physician's automobile emblem as furnished by the American Medical Association.

The cities of Chicago, New York, New Orleans, Wheeling, W. Va., Oklahoma, Boston and Pittsburgh are some of the larger places that have regulations providing for special plates to designate physicians' cars. The physician's automobile emblem is mentioned by name in police regulations of Erie, Pa.; Denver; Pittsburgh; Raleigh, N. C.; Little Rock, Ark.; Buffalo; Washington, D. C.; Duluth, Minn.; Bay City, Mich., and Peoria, Ill.

Extracts from letters of the chiefs of police of Pittsburgh and Buffalo give a clear idea of action taken in the various places. The chief of police of Pittsburgh writes:

A city ordinance authorizes the department of public safety to issue to physicians who reside in the city of Pittsburgh a red Maltese cross, numbered consecutively. Traffic officers have instructions to expedite the passage of these automobiles bearing red cross tags when physicians are on urgent calls. If a physician violates the traffic regulations, his number is taken, but only in extreme cases is he arrested on view; but if the violation is flagrant, he is called on to explain in writing. These red cross tags are issued on a deposit of 50 cents. They do not include dentists, chiropractors, etc., but are confined solely to doctors of medicine.

The chief of police of Buffalo writes:

Send to headquarters this evening for a card on which is printed an emblem usually known as "the physician's emblem." You will make sure that every member of your command is shown this card. Hereafter members of the force, when regulating traffic, who observe an auto having "the physician's emblem" on front of radiator will give it the right of way over all ordinary traffic. Do everything possible to give it free and easy movement through the streets. When a car with this emblem is found parked in a space usually limited as to time, it will not be ordered removed to auto pound, but allowed to remain until physician is ready to move it.

State legislation tending specially to designate the physician's automobile emblem is being considered in Massachusetts, Rhode Island and Wisconsin. The Massachusetts State Medical Society has just adopted the Physician's Automobile Emblem for its Fellows.

OPERATION FOR CLUBFOOT

To the Editor:—What is the preferable age for operating on a child for clubfoot? Please do not mention my name.

R. G. M. P. M.

ANSWER.—The treatment of congenital clubfoot should begin in the first month of life. Early treatment consists of simple, painless, daily manual corrective manipulation by the nurse or mother under the physician's directions. At 2 or 3 months, many of these feet will accept a carefully applied plaster cast, maintaining the slightly corrected varus and equinus and extending from the toes to the trochanter over the knee bent at right angles. Only moderate pressure should be exerted to obtain this partial correction. In two weeks, another cast may be applied; more correction will be easily obtained. In this way, with repeated casts, each securing additional correction a congenital clubfoot is, in skilful hands, frequently entirely overcorrected in both its equinus and varus without any operation. The tediousness of the method should not exclude it. Some surgeons prefer to wait until the child is older, say, when attempts at walking are made, and then correct by operation under anesthesia. The best foot architecture and the nearest approach to normal foot tissues, however, are obtained when the foot begins to approach a natural walking position at the earliest possible age.

ARE THE KIDNEYS IN THE ABDOMINAL CAVITY?

To the Editor:—I have a health and accident insurance policy which entitles me to an indemnity of $200 if I am subjected to a laparotomy, which the policy defines as the "opening of the abdominal cavity for an operation on any organ contained therein." An abscess in my right kidney was drained by a posterior incision through the loin. The insurance company claims that since the kidneys are outside the peritoneal lining of the abdominal cavity, they are outside the cavity, and that the operation was not a laparotomy within the meaning of the policy. Which marks the outside limit of the abdominal cavity, the peritoneal lining or the walls of the abdomen?

J. S.

ANSWER.—All writers on anatomy describe the kidney as being within the abdominal cavity; in fact, there is no embryologic, anatomic or surgical basis for locating the kidneys elsewhere than in the abdominal cavity. "Laparotomy" means simply an incision through the abdominal wall at any point, and need not involve opening the peritoneal cavity. Subperitoneal laparotomies are well known and frequently described in surgery.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, January 8. Chairman, Dr. Samuel W. Welch, ontgomery.
COLORADO: Denver, January 8. Sec., Dr. David A. Strickler, 612 mpire Bldg., Denver.
DELAWARE: Wilmington, December 11-13. Sec., Reg. Bd., Dr. P. S. wns, Dover; Sec., Homeo. Bd., Dr. H. W. Howell, 824 Washington ., Wilmington.
INDIANA: Indianapolis, January 8. Sec., Dr. W. T. Gott, State House, dianapolis.
KENTUCKY: Louisville, December 11. Sec., Dr. A. T. McCormack, ate Board of Health Bldg., Louisville.
LOUISIANA: New Orleans, December 13-15. Sec., Dr. Roy B. arrison, 1507 Hibernia Bank Bldg., New Orleans.
MARYLAND: Baltimore, December 11-14. Sec., Dr. J. McP. Scott, 1 W. Washington St., Hagerstown.
NORTH DAKOTA: Grand Forks, January 1-4. Sec., Dr. G. M. illiamson, 860 Belmont Ave., Grand Forks.
OREGON: Portland, January 2-4. Sec., Dr. Urling C. Coe, Stevens dg., Portland.
SOUTH DAKOTA: Pierre, January 15. Dir., Dr. H. R. Kenaston, nesteel.
VIRGINIA: Richmond, December 11-14. Sec., Dr. J. W. Preston, cBain Bldg., Roanoke.
WASHINGTON: Olympia, January 8. Sec., Mr. William Melville, ympia.
WISCONSIN: Madison, January 8-10. Sec., Dr. J. M. Dodd, 220 E. cond St., Ashland.

INVESTIGATION OF MEDICAL LICENSEES IN CONNECTICUT

Two weeks ago, we published the record of one of the en whose medical qualifications are under investigation in onnecticut. Records of others will be published as space ermits. This week, the report concerns the record of:

Frank Edward Gavlas

According to records which have been accumulated at the eadquarters of the American Medical Association, for many ears, Frank Edward Gavlas was born at Wilkes Barre, ennsylvania, September 12, 1889; graduated from the Wilkes arre High School in 1909; attended Jefferson Medical Colge for one year, 1909-10; took his second and third years the University of Maryland, 1910-12; and took his fourth ear in, and was graduated by the Eastern University School Medicine, Maryland, 1913. Gavlas was licensed by the lorida Eclectic Board of Medical Examiners December 2, 913. The Atlanta, Georgia, *Journal* on October 13, 1916, aid that the Georgia Board of Medical Examiners revoked ie licenses of six physicians on the grounds of fraud, involvg the Southern School (College) of Medicine and Surgery. ne of the six physicians named was "Dr. F. E. Gavlas, elieved to be in Florida." Records show that in 1916 Gavlas as a member and president of the Florida Eclectic Board Medical Examiners and, according to reports, was removed om office by order of the Governor as an alleged recipient bribes. Frank E. Gavlas was reported as having been censed by the Eclectic Medical Examining Board of Conecticut July 10, 1917, as a graduate of the Kansas City ollege of Medicine and Surgery. He is reported as having een licensed also in Arkansas in 1917. Apparently the ecords of Frank Edward Gavlas and Frank E. Gavlas oncern the same individual, which would indicate that he olds diplomas from the Eastern University School of Medine, and from the Kansas City College of Medicine and urgery.

A word concerning the Eastern University School of Medine from which he holds his original diploma: This school as organized in 1912 as the Eclectic School of Milton niversity, but shortly thereafter assumed the title of Eastern niversity School of Medicine. In 1914, the name was hanged to the Maryland College of Eclectic Medicine and urgery. Its dean, who was also one of its incorporators, as Frank J. Kenney. Kenney was reported as not licensed Maryland, having failed to pass the state board examinaon. The college was never recognized by the Maryland tate Board of Registration in Medicine. The corporation as dissolved in 1915. During the latter part of 1917, however, Kenney and others were reported to have been involved in the sale of diplomas from the Maryland College of Medicine and Surgery for two of which, it is alleged, Kenney received $135 and $1,100 respectively.

To summarize, Frank E. Gavlas holds diplomas from two schools; one thoroughly discredited formerly, and the other under suspicion in the present investigation. He had been involved in licensing scandals in Georgia and in Florida before the present investigation in Connecticut.

Colorado July Examination

Dr. David A. Strickler, secretary, Colorado Board of Medical Examiners, reports the written examination held at Denver, July 3, 1923. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 41 who took the physician's and surgeon's examination, 35 passed, including 6 osteopaths; and 6 failed, including 4 osteopaths. Twelve candidates were licensed by reciprocity. The following colleges were represented:

College — PASSED	Year Grad.	Per Cent.
University of Colorado School of Medicine	(1923, 21)	78.3, 79.6, 82, 83.5, 83.6, 84.6, 85, 85, 85.6, 86.5, 86.5, 86.5, 87.1, 87.3, 87.6, 87.8, 89.7, 90, 90, 90, 92.3
Rush Medical College	(1923)*	78
Kansas City Univ. Phys. and Surgs., Mo.	(1923, 4)	75, 75.2, 77.8, 88.2
St. Louis College of Physicians and Surgeons	(1923)	80.6
University of Oklahoma	(1922)	78.4
University of West Tennessee	(1921)	76.2
Osteopaths		75, 75, 75.4, 76.3, 77.5, 87.2

College — FAILED	Year Grad.	Per Cent.
Kansas City College of Medicine and Surgery	(1923)	70.2
University of West Tennessee	(1922)	67.6
Osteopaths		67.1, 67.4, 70.6, 70.8

College — LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas	(1912)	Texas
University of Kansas School of Medicine	(1921) (1922)	Kansas
University of Louisville Medical Department	(1921)	Ohio
University of Michigan	(1911)	S. Dakota
University of Minnesota	(1920)	Minnesota
Kansas City Medical College	(1891)	Kansas
Washington University Medical Department	(1922)	Illinois
University of Nebraska	(1922)	Nebraska
University of Pennsylvania	(1918)	Minnesota
Vanderbilt University Medical Department	(1907)	Tennessee
University of Virginia	(1913)	Mississippi

* This candidate has finished his medical course, and will receive his M.D. degree on completion of one year's internship in a hospital.

Connecticut July Examination

Dr. Robert L. Rowley, secretary Connecticut Board of Medical Examiners, reports the written examination held at Hartford, July 10-11, 1923. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 34 candidates examined, 28 passed and 6 failed. Five candidates were licensed by endorsement of their credentials. The following colleges were represented:

College — PASSED	Year Grad.	Per Cent.
Yale University	(1922, 3)	78.2, 87.4, 89.1, (1923, 7) 76.2, 76.5, 80.5, 81.1, 84.3, 81.9, 81.9
Johns Hopkins University	(1920)	78.7
University of Maryland	(1923)	82.9
Harvard University	(1921)	81.6, (1922) 85.7, (1923) 88.9
Tufts College Medical School	(1922)	81.9, (1923) 78.4
Columbia University	(1920)	77.3
Cornell University	(1923, 2)	81.2, 85.8
Jefferson Medical College	(1922)	82, (1923, 2) 79.2, 82.6
University of Vermont	(1920)	78, (1921) 75.2
National University, Athens, Greece	(1918)*	76.9
University of Naples, Italy	(1920)*	75
University of Moscow, Russia	(1917)*	75.4

College — FAILED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Los Angeles	(1920)	51.8
Grand Rapids Medical College	(1906)	61.8
Fordham University School of Medicine	(1916)	72.7
Jefferson Medical College	(1912)	71
University of Budapest, Hungary	(1912)*	70
University of Naples, Italy	(1922)*	61.1

College — LICENSED BY ENDORSEMENT	Year Grad.	Number Licensed
Harvard University	(1914)	1
University Medical College of Kansas City	(1896)	1
Dartmouth Medical College	(1914)	1
Albany Medical College	(1904)	1
Woman's Medical College of the New York Infirmary of Women and Children	(1898)	1

* Graduation not verified.

Book Notices

Pediatrics. By Various Authors. Edited by Isaac A. Abt, M.D., Professor of Diseases of Children, Northwestern University Medical School. In eight volumes. Cloth. Price, $10 per volume. Volume I: pp. 1240, with 284 illustrations. Volume II: pp. 1025, with 180 illustrations. Philadelphia: W. B. Saunders Company, 1923.

The first two volumes of Abt's system of pediatrics, preparations for which were made in 1914, have now appeared. Authors were selected and topics assigned, but the beginning of the World War threw the work into confusion; when America entered the conflict in 1917, it was completely interrupted. With the coming of peace, it was found necessary, before proceeding further, to revise, and in some instances, to rewrite wholly such articles as had already been prepared. As Dr. Abt states in the preface, no extensive compilation of pediatric knowledge has been published since Keating's encyclopedia in 1889.

The Abt system is composed essentially of monographs of considerable length written by men who have contributed largely to the literature of the subjects they discuss. The first volume contains a "History of Encyclopedias" by Dr. Abt, "A History of Pediatrics" by Fielding H. Garrison, "Congenital and Acquired Predisposition and Heredity" by Clarence C. Little, "Anatomy" by Richard E. Scammon, "Growth and Development" by T. Brailsford Robertson, "Physiology of Metabolism" by John R. Murlin, "Physical Chemistry in the Physiology of Childhood" by J. F. McClendon, "Hygiene of the Home and of Infancy" by Walter R. Ramsey, "Hygiene of the School Age" by Josephine Young, "Climatotherapy" by F. L. Wakeham, and "Hygiene of Crippled Children" by H. Winnett Orr.

The article by Garrison is marked by the learned atmosphere and sense of interest and romance that is characteristic of his work. Beginning with the earliest times, he has collected a vast amount of ancient literature for the selection of references and quotations on the diseases of childhood. His article is beautifully illustrated with portraits and reproductions of paintings, and concludes with an excellent bibliography of periodical publications devoted to pediatrics. He traces the trend toward preventive medicine in pediatrics, which has paralleled a similar trend in all branches of medical science. This important contribution occupies 170 pages.

There are perhaps few subjects on which physicians are less well informed than on the influences of heredity in health and disease. The article by Clarence C. Little is a carefully prepared statement based largely on experimental investigations. It is perhaps somewhat too technical a contribution for a work addressed, particularly to practicing physicians. The influence of heredity in cancer, in chorea, in multiple births and in mental traits are some of the points that will be of particular interest to the general reader. The section on anatomy is thoroughly illustrated, and contains numerous tabular statements of great value for reference purposes. The article by T. Brailsford Robertson on "Growth and Development" is perhaps the most complete and carefully worked out statement of its kind available in the English language. It should be of great service in studies as to development in accordance with normal standards.

Murlin's article is well up to the standard of the rest of the work, the chief emphasis being placed on infant metabolism, and the manner in which it varies from that of the adult. The article on the "Hygiene of the Home" is merely a brief consideration of ventilation. On the other hand, that on "Hygiene of the School Age" by Josephine Young is a complete and valuable analysis of progress in this field, supplying a large amount of important data not heretofore collected under one cover. Practically every phase of the child's activities related to health is here thoroughly discussed, including child play, posture, instruction in sex hygiene, mental hygiene and school architecture. In the section on school architecture appears a more elaborate discussion of heating and ventilation than the original contribution by Ramsey, previously mentioned. The second article by Ramsey on "Hygiene of Infants in General" contains numerous practical hints. "Climatotherapy" is too briefly discussed and the article too generalized to be of very much service. The final article in the first volume, on the "Hygiene of Crippled Children," is a brief consideration of the statistics as to the number of cripples in various cities, and the desirability of planning special institutions for their care.

Space does not permit a complete list of the articles which appear in the second volume, but special attention may be called to a valuable consideration of infant mortality by Richard A. Bolt. The statistics quoted are up to date. The section on roentgenology in pediatrics by Frederick C. Rodda is complete and thoroughly illustrated. Of special interest also is the article by Dr. J. Diven on the "Peculiarities of Disease in Childhood." It is full of concentrated information which must be constantly borne in mind by those who attempt to diagnose and treat disease as it affects the child. The chapter on "Prophylaxis and Treatment," by L. R. DuBuys, unfortunately includes brief discussions on climatotherapy and ventilation, already considered twice in the previous volume. The section on heliotherapy is especially complete, so far as it concerns the Rollier method, but fails to mention more recent researches and the modern application of this method in diseases other than tuberculosis.

Two of the most valuable articles in this volume are those on "Diseases of the New-Born," by N. O. Pearce, and on "Premature Infants," by Julius Hess. These are thorough, and represent the study of a vast amount of material. The remainder of the second volume deals largely with the feeding of infants and with diseases related to feeding problems. The section on rickets supplies information on light therapy not included in the special article on the latter subject.

The criticisms usually made of systems of medicine apply to only a minor extent to these two volumes. On the whole, there is little repetition, and the articles are in general of high caliber. The very method by which such systems are created makes it difficult for the editor to reject material once it has been requested, and the irregular manner in which the material is assembled makes it almost impossible to obtain a perfect and logical arrangement. Dr. Abt is to be congratulated on the steady devotion of purpose over almost a decade, which has resulted in the compilation and publication of this excellent work.

Anaesthetics in Practice and Theory. A Text-Book for Practitioners and Students. By J. Blomfield, O.B.E., M.D., Senior Anaesthetist to St. George's Hospital. Cloth. Price, $7.50. Pp. 424, with 48 illustrations. Chicago: Chicago Medical Book Co., 1923.

In this volume the author has quite completely covered the theory and practice of anesthesia. The book presents the subjects in a practical manner and is designed for medical students and anesthetists. The author states in the introductory chapter that "the advantage of combining local and general methods is becoming more and more apparent. The anesthetist today has many methods at his disposal. No little part of his success depends upon his choosing for each case not only the right anesthetic agent, but also the right mode of administering it. As the art of giving anesthetics has advanced from those crude methods when, assisted by a strong porter or efficient straps, the administrator drenched a struggling patient with ether vapor from an unwashed cone, to the practice of today, so the professional status has improved of those who devote themselves entirely to the practice of anesthetics. The administration of anesthetics by trained nurses cannot be regarded as an arrangement likely to lead to improvement in practice. Only a fully trained medical man or women should be entrusted with the care of the narcotized patient, and only such persons are capable of advancing the science and art of anesthesia." A chapter is devoted to the physical and chemical nature of general anesthetic agents, and several simple tests for their purity are given. The three chapters devoted to the physiologic action of general anesthetics will be read with interest by physiologists and the anesthetist possessing an investigative mind. Experimental laboratory results reached by competent investigators are cited and compared with clinical manifestations. The various methods of administration and the clinical effects of different agents during and after anesthesia are well dis-

issed. The chapter dealing with the choice of the anesthetic ust receive unfavorable criticism because of the continual ecommendation of chloroform not only for operations but lso for labor, although the author fully recognizes its dangers. o the anesthetist who never under any circumstances admin- ters chloroform, the question naturally presents itself why is necessary to resort to this dangerous anesthetic. Is it ue to faulty technic of administration or to the product of ther or nitrous oxid supplied? Two chapters are devoted to ocal analgesia, and the final chapter deals with fatalities nder anesthesia. There are complete author and subject ndexes. The volume should be received favorably by those nterested in anesthetics and their administration.

Diseases of the Gums and Oral Mucous Membrane. By Sir Kenneth Goadby, K.B.E., M.R.C.S., L.R.C.P., Lecturer on Bacteriology f the Mouth, Dental Department, University College Hospital. Cloth. Price, $14. Pp. 383, with illustrations. New York: Oxford University Press, 1923.

This is an unusually comprehensive treatise on mouth dis- ases, finely illustrated by eight plates in color and 106 in lack and white. It is a compilation, largely from the author's wn writings, together with extensive borrowed material from lmost all fields of medical and dental science. The title ives only a slight idea of the scope of the work. Much space s given to syphilis, infection with *Actinomyces*, neuralgias, lveolar abscesses, sprue, tumors, pyorrhea alveolaris, roent- enography, vaccines, histology and bacteriology. Without letracting in the least from the worth of the book, it may e said that there is little in it that is new, its principal value eing due to the fact that the author has presented in con- enient form most of the diseases of the mouth, both primary nd secondary; also the causative relation of oral infection o disease elsewhere in the body. While the author has generously quoted Black, Rosenow, D. J. Davis, Talbot and a few other noted American authors, he has not discriminated o wisely in the choice of some others to whom he has given greater preference. Billings' writings on secondary infections re not mentioned. Noyes' work on histology also is not mentioned and this omission seems strange, since Noyes demonstrated that the chain of lymphatics in the peridental membrane. The author strangely speaks of Vincent's angina of the gums. Vincent's angina is not a disease of the gums. Angina is from angio, a prefix indicating a relation with a vessel, usually a blood vessel. Vincent's angina, in medical and other dictionaries, is defined as "a disease of the throat similar to diphtheria but occasioned by a different microbe." Although much space is given to "trench mouth" (Vincent's angina, used synonymously), no mention is made of the fact that in an article published in the *Dental Review* (Chicago), 1906, this disease was first described and there named "acute ulcerous gingivitis." Later, Tunnicliff demonstrated that the fusiform bacillus and spirillum was the organism that causes the disease. The author condemns hydrogen peroxid in the treatment of "trench mouth." Since the organism causing this disease is an anaerobe, it seems that the free oxygen liberated by the application of hydrogen peroxid would make it the medicament of choice, and its value, in this connection, has been positively demonstrated. On page 18 the author says, "Films made from the interdental spaces . . . show no signs of pus cells." This statement will confuse the American reader who thinks of films as dental roentgenograms. What the writer means is smears for microscopic examination. Favorable mention is made of the use of vaccines in the treatment of primary oral infections and secondary diseases in other parts due to these infections. Their use for such conditions was generally abandoned in America some years ago, since they proved to be unsatisfactory. Neoplasms of the mouth are treated in the conventional manner; early recognition and surgical removal are very properly recommended. The more modern treatment of pyorrhea alveolaris, or, as the author prefers to name this disease, "periodontitis," is not included; that is, the elimination of the pockets by cutting back the gums to the bottom of the pockets. The book is recommended to those who do not possess an extensive library and to those who need a ready reference work to oral diseases.

Outlines of Medical Zoölogy, with Special Reference to Laboratory and Field Diagnosis. By Robert W. Hegner, Professor of Protozoölogy, Department of Medical Zoölogy, School of Hygiene and Public Health, the Johns Hopkins University; William W. Cort, Associate Professor of Helminthology, Department of Medical Zoölogy, School of Hygiene and Public Health, the Johns Hopkins University, and Francis M. Root, Associate in Medical Entomology, Department of Medical Zoölogy, School of Hygiene and Public Health, the Johns Hopkins University. Cloth. Price, $2.40. Pp. 175, with illustrations. New York: The Macmillan Company, 1923.

This book is the result of the revision and enlargement of a previous bulletin of the same authors entitled "Diagnosis of Protozoa and Worms Parasitic in Man." The material is admirably selected, and the book bears on every page the impress of personal knowledge of the methods described. It is intended to be of use to public health officers, students and physicians, especially those in tropical or semitropical countries. It will undoubtedly fulfil this purpose better than any other book of its size in existence. The descriptions are clear and concise, and the illustrations really illustrative. On page 129 the authors appear to take a position regarding the transmission of disease by so-called "filth flies" that is, perhaps, ultraconservative, but it is better so than to endorse the extravagant statements one sometimes finds in works of this sort. The value of the work for physicians would be somewhat increased by the inclusion of a little more material and additional references on the pathogenic relations of certain forms. The paragraphs on *Balantidium* (page 52), for example, leave one up in the air as to the significance of this form. A reference or two would help. It is refreshing to take up a book that is not padded, and is both clear and accurate.

Lehrbuch der Nervenkrankheiten für Aerzte und Studierende. Von H. Oppenheim. Bearbeitet von R. Cassirer, K. Goldstein, M. Nonne und B. Pfeifer. Seventh edition. Paper. Volume 1, pp. 923, with 323 illustrations. Volume 2, pp. 927-2316. Berlin: S. Karger, 1923.

Hermann Oppenheim died, May 23, 1919. The sixth edition of his justly celebrated textbook appeared in 1913. During the last decade, neurology has made notable advances in many directions, some of them almost epochal in character. The task of bringing this book up to date has been undertaken by Cassirer, a pupil and colleague of Oppenheim, with the assistance of Goldstein, Nonne and Pfeifer. The new edition is materially larger, and has been modified both by correction of older views and by the addition of much that is new. The enlargements are especially noticeable in the articles that deal with war injuries, epidemic encephalitis and the extrapyramidal syndromes. The references to current literature, as in earlier editions, are exhaustive. The original style and wording have been preserved wherever possible, and the success of the revision can probably be stated no more appreciatively than by saying that the original standards have been fully maintained. Even more than before, the book is a monumental work of reference that will be welcomed by every neurologist. Its size and thoroughness, unfortunately, preclude it from consideration as a textbook for students or general physicians.

Laboratory Manual of Biological Chemistry, with Supplement. By Otto Folin, Hamilton Kuhn Professor of Biological Chemistry in Harvard Medical School. Third edition. Cloth. Price, $3. Pp. 301. New York: D. Appleton & Co., 1922.

This book needs no introduction to the medical profession. The analytic methods described in some instances not only bear the author's name but have come into general use. New methods are given in this edition for phosphates, sulphates, total base, sugar and amino-acids in urine, and for chlorids and amino-acids in blood. The methods for lipoids, uric acid and for sugar in blood have been improved. The even pages of this book are blank pages for notes. There are few illustrations. The discussions are short and pointed. The diction is clear. The author "rings out" the old Trommer and Fehling tests for sugar. They are only of historical interest, he says. Benedict's reagent is more sensitive to dextrose than Fehling's. It is not reduced by creatinin or uric acid, and little if at all by chloroform, which is often added as a preservative to urine. The analytic methods for blood chemistry through which this book is best known have been noted repeatedly in The Journal.

Medicolegal

Physicians Competent to Give Opinions on Insanity

(Eckert v. State (Texas), 251 S. W. R. 804)

The Court of Criminal Appeals of Texas says that, on his trial for alleged homicide, defendant Eckert introduced as witnesses several physicians who had been practitioners of medicine for many years and who had had occasion to treat mental diseases, and who were familiar from reading and study with the rules and principles governing diseases of the mind. His counsel asked each of these physicians a hypothetic question or questions, in which he attempted to state to them the facts as testified to by the defense witnesses showing the acts, conduct and condition of the defendant for three days preceding the shooting, as reflected by the testimony for the defendant, and sought to elicit from each of the physicians his opinion, based on the assumption that the facts stated in the hypothetic question were true, as to whether or not the defendant was insane at the time he fired the fatal shot. On objection by the state, the trial court declined to permit the physicians to answer the question. In that this court thinks that the trial judge was in error.

This court has no desire to attempt to lay down rules for determining when a physician is an expert alienist and when not. This court does not think it possible to lay down hard and fast rules in such cases. Manifestly it would be difficult, and probably impossible, to procure physicians who spend all of their time in studying mental diseases, in every case in which the issue might be raised by testimony. The weight of such testimony is always for the jury, and it occurs to this court that the state may protect itself by cross-examination against immature or unsupported opinions given on such hypothetic cases.

In this court's opinion, one who has been a practitioner of medicine, is a graduate of recognized schools, and has had occasion in the course of his practice to observe and treat cases of mental disorders, should be permitted to give his opinion based on a hypothetic statement of the facts in testimony in a given case, as to the mental soundness of the accused at the time of the commision of the crime. Of course, if this may be done by one side, it may be done by the other; and, if the facts stated in such a question do not support the conclusion announced by such a witness, in this court's opinion the juries of the country may be trusted to understand that the final solution of the matter is for them. This court does not intend by what it has said to broaden the rules governing the admission of nonexpert opinions as to insanity, but it does believe it a safe rule to permit physicians such as those mentioned above to answer questions fairly embracing the testimony relied on as showing insanity.

Timeliness of Action on Warranty Against Scar from Treatment with Radium

(Crowford v. Duncan (Calif.), 215 Pac. R. 573)

The District Court of Appeal of California, Second District Division 2, says that this was not an action of tort; that is, it was not action for malpractice based on negligence. It was an action against a physician for the breach of an alleged oral agreement whereby he warranted that his radium treatments would not leave a permanent scar on the plaintiff's neck, she having consulted him with reference to swollen glands on the right side of her neck. At the close of her evidence the plaintiff was nonsuited on the ground that the statute of limitations of California barring in two years an action on an oral contract had run. On a motion for nonsuit, that view of the evidence must be taken which is most favorable to the plaintiff. Not only must all the evidence in favor of the plaintiff be taken as true, and all contradictory evidence, if any has been given, be disregarded, but, if either of several inferences may reasonably be made, that one must be adopted which is most favorable to the plaintiff. The evidence adduced in this case by the plaintiff, considered, as it must be, in the light most favorable to her, was sufficient to make out a case for the jury as to the existence of an oral contract of warranty.

The only serious question in the case was that which was concerned with the time when the plaintiff's cause of action accrued and the statute of limitations began to run. The general rule is that in all personal actions for the violation of an express or implied contract the statute begins to run from the date of the wrong—the breach of the contract. The question therefore was: When was the contract of warranty broken? The warranty related to a future event—the possible future development of a permanent scar—and the contract of warranty was broken when a reasonable person, circumstanced in all respects as the plaintiff was, and who had received such warranty as was given here could know with a reasonable degree of certainty that a permanent scar had developed as a result of the treatments. Throughout the treatments, and even after they had ceased, the defendant frequently assured the plaintiff that any disfigurement which might result from his use of the radium would disappear with the lapse of time. It might be that nothing which was said by the parties after the termination of the treatments could alter the terms of the contract of warranty which had been made in the course of their first conversation; but statements made by the defendant in subsequent conversations might be considered so far as they threw light on the original understanding and intention of the parties.

The treatments began in May or June, and ended about Sept. 1, 1917. When they came to an end, the plaintiff had a deep running sore on her neck, caused by the treatment, and the defendant told her that she need not worry; that her neck was going to be all right, although it might take a year or so for it to heal; just give it time. It did not appear in the case when the sore healed. This action was commenced July 8, 1920; and the defendant, assuming that the sore had completely healed more than two years before the action was commenced, and further assuming that the plaintiff necessarily must have been aware as soon as the sore healed that her neck was permanently scarred, insisted that the cause of action must have arisen more than two years before the action was commenced. But the plaintiff, who presumably had no more knowledge of such matters than the ordinary layman possesses, and who had entrusted herself to the defendant's care, doubtless deferred to the physician's judgment, based on his years of professional experience in the use of radium as a therapeutic agent. She was justified in assuming that his judgment on such matters was probably correct if not infallible. There was justification for the inference that the contract which the defendant led the plaintiff to understand was the measure of her rights and of his obligations was a contract to the effect that if a scar made its appearance, time should be allowed to pass in order to ascertain whether or not it was to be permanent disfigurement. Whether such reasonable time as was contemplated by the warranty had elapsed more than two years before the commencement of the action was a question which should have been submitted to the jury, guided by proper instructions from the court. Wherefore it is held that the nonsuit was improperly granted. Hearing denied by the Supreme Court of California.

Society Proceedings

COMING MEETINGS

American Pathological Society, St. Louis, Dec. 27-29. Dr. Wade H. Brown, Rockefeller Institute for Medical Research, New York, Sec'y.

American Physiological Society, St. Louis, Dec. 27-29. Dr. Charles W. Greene, University of Missouri, Columbia, Mo., Secretary.

American Society of Biological Chemistry, St. Louis, Dec. 27-29. Dr. V. C. Myers, New York Post-Graduate Medical School, New York, Sec'y.

Association for Research in Nervous and Mental Diseases, New York, Dec. 27-28. Dr. Sanger Brown, 2d, 173 E. 70th St., New York, Sec'y.

District of Columbia, Medical Society of, Washington, Jan. 2. Dr. C. B. Conklin, Medical Science Bldg., Washington, Secretary.

Isthmian Canal Zone, Medical Association of, Ancon, Dec. 21. Dr. J. J. Moore, Ancon Hospital, Ancon, Secretary.

Porto Rico, Medical Association of, San Juan, Dec. 14-16. Dr. Augustin R. Laugier, Box 1117, San Juan, Secretary.

Sioux Valley Medical Association, Sioux City, Iowa, Jan. 22-24. Dr. Ralph M. Waters, 107 Gilman Terrace, Sioux City, Iowa, Secretary.

Society of American Bacteriologists, New Haven, Conn., Dec. 27-29. Dr. J. M. Sherman, Box 184, Washington, D. C., Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., Dec. 11-13. Dr. H. A. Royster, 423 Fayetteville Street, Raleigh, N. C., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

3: 487-597 (Sept.) 1923

Micro-Organisms Suggesting Bacillus Pneumosintes from Mouths of Man and Laboratory Animals. W. L. Holman and F. H. Krock, Stanford University, Calif.—p. 487.
Identification of Blood Meal of Mosquitoes by Means of Precipitin Test. G. C. Bull and W. V. King, Baltimore.—p. 491.
Blood Feeding Habits of Malaria Carrying Mosquitoes. W. V. King and G. G. Bull, Baltimore.—p. 497.
Preferential Feeding Experiments with Anopheline Mosquitoes. G. G. Bull and F. M. Root, Baltimore.—p. 514.
Effect of Different Temperatures and Humidities on Resistance of Rats to Pneumococcus Infection. C. McDowell, Baltimore.—p. 521.
Control of Hookworm Disease. XXX. Factors Involved in Migration of Hookworm Larvae in Soil. F. K. Payne, Baltimore.—p. 547.
The Relation of Physiologic Age of Hookworm Larvae to Their Ability to Infect Human Host. F. K. Payne, Baltimore.—p. 584.

Feeding Experiments with Mosquitoes.—The strain of *Anopheles quadrimaculatus* with which Bull and Root experimented manifested no decided preference for man, horse or cow as hosts.

Effect of Temperature and Humidity on Resistance of Rats to Infection.—McDowell found that rats exposed for two weeks to a high temperature (83 F.) combined with a relative humidity between 44 and 72 per cent. are more resistant to an intraperitoneal injection of pneumococcus than are rats kept at medium temperatures. Compared with this optimum condition, high and probably low humidity and medium temperature are unfavorable conditions. Animals accustomed to a medium temperature (67-71 F.) showed a lowered resistance when changed to a high temperature (83 F.) immediately after a pneumococcus injection.

Age of Hookworm Larvae Affects Power to Infect.—Experimental infestations were produced by Payne in three human subjects with *Necator americanus* larvae and in six dogs with *A. caninum* larvae, in order to test the ability of larvae that had utilized nearly all of their nutritive material to infest the host as compared with the ability of young and well nourished larvae. Larvae were artificially aged by migrations under laboratory conditions. The experiments with *N. americanus* indicate that even the oldest larvae obtainable retained some power to infest, but this power was not so great as that possessed by the young larvae. The experiments with *A. caninum* confirmed the results of the experiments with *N. Americanus*. Evidence was obtained that a prior infestation may have some influence in rendering the establishment of a new infestation more difficult.

American Journal of Ophthalmology, Chicago

6: 805-880 (Oct.) 1923

Case of Chloroma. W. H. Roberts, Pasadena, Calif.—p. 805.
Eclipse Amblyopia. R. E. Wright and T. V. Maidu, Madras, India.—p. 812.
Congenital Total Bilateral Ophthalmoplegia. T. M. Li, Peking, China.—p. 816.
Visibility of Corpuscular Elements within Aqueous. R. Von Der Heydt, Chicago.—p. 822.
Better Surgery of Cataract Extraction. C. B. Meding, New York.—p. 825.
Relation of Focal Infections in Production of Ocular Disease. H. M. Langdon, Philadelphia.—p. 829.
Study of Ocular Movements in Horizontal Plane. E. J. George, J. A. Toren and J. W. Lowell, Chicago.—p. 833.
Measuring Deviation of Strabismic Eye on Stereoscopic Campimeter. R. I. Lloyd, Brooklyn.—p. 839.
Divulsion of Optic Nerve Due to Projectiles Passing Through Orbit Behind Globe. H. V. Würdemann, Seattle.—p. 842.

American Journal of Public Health, Detroit

13: 807-895 (Oct.) 1923

*Does Commercial Pasteurization Destroy Tubercle Bacilli in Milk? C. J. Bartlett, New Haven, Conn.—p. 807.
Regulation of Nuisances in American Colonies. E. C. Tandy, New York.—p. 810.
Simple Modification of Högyes Dilution Method of Preparing Antirabic Treatment. T. F. Sellers, Atlanta, Ga.—p. 813.
Relation of Midwife to Obstetric Mortality with Especial Reference to New Jersey. M. P. Rucker, Richmond, Va.—p. 816.
Distribution of Bacterium Coli in Feces. C. A. Darling, Medville, Pa.—p. 822.
Venereal Disease as Public Health Problem in Far East. R. W. Medelson, Bangkok, Siam.—p. 827.
Character of Moonshine Liquor. J. M. Doran and G. F. Beyer, Washington, D. C.—p. 831.
Value of Routine Dark Field Examinations of All Venereal Sores. A. M. Crance, Geneva, N. Y.—p. 835.

Destroying Tubercle Bacilli in Milk by Pasteurization.—According to Bartlett, pasteurization by maintaining the temperature between 142 and 148 F. for thirty minutes destroys the tubercle bacillus in milk. Specimens of raw milk taken from mixing vats holding from 300 to 1,200 quarts each showed the presence of tubercle bacilli by guinea-pig inoculation in 50 per cent. The relative frequency with which tubercle bacilli were found were greater in milk from the larger mixing vats than in that from the smaller mixing vats.

Annals of Surgery, Philadelphia

78: 433-560 (Oct.) 1923

*Management of Injuries to Cranium and Its Contents. J. O. Bower, Philadelphia.—p. 433.
*Cancer of Tongue. P. E. Truesdale, Fall River, Mass.—p. 461.
Pathology and Surgical Treatment of Leukokeratosis Linguae. C. G. Cumston, Geneva, Switzerland.—p. 469.
*Leukoplakia Buccalis. H. P. De Forest, New York.—p. 474.
Abscess of Tongue. A. O. Wilensky and J. Harkavy, New York.—p. 496.
Intercostal Thoracopuncture for Removal of Penetrating Projectiles in Lung. C. Jackson, Philadelphia.—p. 501.
*Resection of Stomach for Chronic Gastric and Duodenal Ulcer. R. Lewisohn, New York.—p. 507.
Recurrence of Inguinal Hernia After Operative Treatment. A. S. Morrow, New York.—p. 524.
Treatment of Webbed Fingers, Congenital or Acquired (Modeling Compound Dressing). G. M. Dorrance and J. W. Bransfield, Philadelphia.—p. 532.

Management of Injuries to Cranium.—In injuries to the cranium or its contents, Bower regards lumbar puncture with spinal fluid pressure observations as essential to proper management. In certain cases, withdrawal of fluid may so reduce intracranial pressure that operation may be avoided; in borderline cases it is a means of determining early the least degree of intracranial tension; blood pressure readings at definite intervals may accomplish this, in part, but there may be an increase in intracranial pressure and no corresponding increase in blood pressure. Cerebrospinal pressure observations are important before and after plastic operations on the skull. Finally, repeated examinations of the spinal fluid for microscopic blood are of importance in differentiating the less severe types of cerebral trauma.

Cancer of Tongue.—Four cases of cancer of the tongue are reported by Truesdale to show that cancer of the tongue, except in the aged, grows rapidly, invades the lymphatics early, and becomes hopelessly advanced in from six to nine months. The fatal delay is too often the result of ignoring a small sore for weeks or months. His patients were aged 70, 49, 57 and 51, respectively. The oldest patient lived more than twice as long as the average among patients who were not subjected to operation.

Leukoplakia Buccalis.—De Forest reports two cases in which the use of arsphenamin caused the growth to disappear without recurrence.

Resection of Stomach for Ulcer.—Lewisohn's experience with resection in gastric and duodenal ulcers comprises twelve cases with one death (mortality 8 per cent.). Ten patients are well at present, the interval since the operations varying from two months to three years. One patient (partial gastrectomy with button gastro-enterostomy) returned eight months after the operation suffering from a stenosis of the stoma. Eight patients were suffering from penetrating ulcers of the lesser curvature, four from pyloric and duodenal ulcers. The Billroth II operation was performed in ten cases, the Billroth I operation in two cases. The operative recovery was remarkably smooth, much smoother than in many cases of gastro-enterostomy. The Murphy button was used in the first six cases. In one of these the button fell into the stomach and had to be removed by subsequent gastrotomy.

Archives of Internal Medicine, Chicago

32: 483-646 (Oct.) 1923

*Bacteriologic Observations on Acute Tonsillitis. Epidemiology and Susceptibility. A. L. Bloomfield and A. R. Felty, Baltimore.—p. 483.
*Electrocardiographic Changes Following Occlusion of Left Coronary Artery. F. M. Smith, Chicago.—p. 497.
*I. Effect of Strophanthin on Size of Normal and Abnormal Rabbit's Heart. G. F. Strong, Vancouver, B. C., and B. Gordon, Spokane, Wash.—p. 510.
*II. Effect of Vigorous Exercise on Size of Normal and Abnormal Heart. B. Gordon, Spokane, Wash., and G. F. Strong, Vancouver, B. C.—p. 517.
*Giardia Intestinalis Infection. E. Hollander, New York.—p. 522.
*Gonorrheal Myelitis. F. M. Phifer and N. K. Forster, Chicago.—p. 530.
Malignant Lymphoma (Hodgkin's Disease). Radiographic Study. L. R. Whitaker, Cambridge, Mass.—p. 538.
*Clinical and Roentgenologic Study of One Hundred and Five Cases of Syphilis with Reference to Cardiovascular System. E. Steinfield, G. E. Pfahler and J. V. Klauder, Philadelphia.—p. 556.
*Influenza Epidemic at Camp Devens in 1918. Pathology of Fatal Cases. S. B. Wolbach and C. Frothingham, Boston.—p. 571.
Changes in Size and Shape of Hearts During Progress of Compensation. J. C. Friedman and S. Strauss, Chicago.—p. 601.
*Influence of Pituitary Extract on Metabolism in Diabetes Insipidus. J. F. Weir, Rochester, Minn.—p. 617.
*Gastroscopy in Thirty Cases of Gastric Neoplasm. R. Schindler, Munich, Germany.—p. 635.

Hemolytic Streptococci Cause Tonsillitis.—In a series of cases of acute follicular tonsillitis studied by Bloomfield and Felty the disease was uniformly due to the beta hemolytic type of streptococci. Following the acute disease, the organisms persist for an indefinite length of time in the tonsils. Evidence is presented to show that a large outbreak of tonsillitis was not a true epidemic, but a group of sporadic cases. Tonsillectomy confers a high degree of protection against acute streptococcic infection of the lymphoid tissue of the throat. A certain number of persons in a group seem "naturally" insusceptible or relatively insusceptible to tonsillitis. Tonsillitis is not, as a rule, an autogenous infection but occurs in people not already carriers of hemolytic streptococci.

Electrocardiographic Changes Following Occlusion of Left Coronary.—Smith's report is based on the electrocardiographic findings with eleven patients. In one case, the descending branch of the left coronary artery was ligated for the repair of a self-inflicted stab wound of the heart. The remaining ten patients had typical clinical manifestations of coronary artery occlusion. In two cases the diagnosis was verified at necropsy. Eight patients recovered from the attack; the character and duration of the cardiac pain and the subsequent clinical course in these cases were as characteristic of coronary closure as in those in whom the diagnosis was checked by necropsy. Experimental and clinical observations seem to justify the belief that the electrocardiograph may be employed to advantage in the diagnosis of coronary thrombosis in man. It is predicted that a large percentage of those who have an occlusion of the left coronary artery will show significant changes in the electrocardiogram within the first few days after the cardiac accident. In some instances, the alteration in the electrocardiogram may persist for weeks. Changes in the T deflection and a decrease in the amplitude of the Q R S group are the most constant findings. The former is apparently dependent on the formation of an area of infarction in the apical region of the left ventricle. The latter has been associated with more extensive and disseminated changes in the myocardium.

Effect of Strophanthin on Size of Heart.—Strophanthin, given intravenously in doses comparable to those used clinically, Strong and Gordon found, causes a definite decrease in size of the rabbit's heart. This decrease is most marked in cases of experimentally produced myocarditis with cardiac dilatation. It also occurs, to a certain extent, in normal rabbits. The heart usually begins to return to normal size at the end of fifteen minutes and always recovers completely after two hours.

Effect of Exercise on Heart.—Normal rabbits were exercised by Gordon and Strong to complete physical exhaustion. The result in every instance was a definite decrease in the size of the heart. Six animals in which experimental myocarditis had been produced responded to overexertion in a similar manner. Although the rabbits had been observed for only a comparatively short time, there was no evidence that acute overexertion influenced the general condition of the animals.

Giardia Intestinalis Infection.—In the routine examination of the duodenal contents in 170 residents of New York City, nine cases of *Giardia intestinalis* infestation were found by Hollander. No symptoms attributable to this infestation could be established in the cases presented. Three patients were treated with three arsphenamin injections in the usual doses at from three to five day intervals. This procedure was not successful in eradicating the infestation in two cases. In one case, in which the injections were alternated with duodenal lavage with magnesium sulphate, the patient remained free from infestation during fourteen examinations of the duodenal contents over a period of six months.

Gonorrheal Myelitis.—To the twenty-nine cases of myelitis following gonorrheal urethritis on record Phifer and Forster add two cases. It was impossible to prove definitely that the gonococcus was the etiologic factor in these cases from the standpoint of laboratory findings, but the evidence from a clinical standpoint was extremely strong .

Effect of Syphilis on Cardiovascular System.—Of a group of 105 male syphilitic patients studied by clinical methods. twelve were found to be suffering from aortic or myocardial disease. Of the aortic lesions, one was diagnosed as aortitis, two as aortic dilatation, six as aortic dilatation and insufficiency and two as aneurysm. Of sixty-three patients studied by Steinfield et al. by roentgenologic methods, aortic disease (including aneurysm) was noted as being definitely present in nineteen. The higher percentage of patients with aortic disease discovered by roentgenologic examination is in accord with pathologic studies reported by others and reviewed in this report. The so-called Wassermann-fast syphilitic patient is discussed with particular reference to cardiac syphilis. Of a total number of twenty-five patients with neurosyphilis, there was an associated aortic disease in four. The relative infrequency of an active syphilitic process involving one or more systems in the same patient is discussed.

Cause of Epidemic Inflenza.—Wolbach and Frothingham conclude from their study that the cause of the influenza epidemic has not been established. The influenza bacillus is one of the secondary invading organisms. The virus that causes the epidemic, in addition to the general febrile reaction, the general toxic symptoms and involvement of the upper respiratory tract, produces in the lungs in a certain percentage of the cases lesions that are pathognomonic of this disease.

Effect of Pituitary Extract on Metabolism in Diabetes Insipidus.—Observations made by Weir following the administration of pituitary extract to two patients with diabetes insipidus confirm previously recorded findings of a marked decease in urinary output with corresponding increase in specic gravity and molecular concentration, coincident with a temporary disappearance of the distressing clinical symptoms.

Value of Gastroscopy.—Four benign and twenty-six malignant gastric tumors were demonstrated by Schindler by gastroscopy. Of the four benign tumors two were fibromyomas, one solitary mucous polyp and one polyposis. Of the twenty-six malignant tumors, one was a diffuse lymphosarcoma and twenty-five were carcinomas. Ten were confirmed by biopsy, eleven by necropsy, two by biopsy and necropsy. The findings were always in full accord. In three cases, early diagnosis of carcinoma was possible.

Boston Medical and Surgical Journal

189: 581-628 (Oct. 25) 1923

*Ptosis of Heart and Diaphragm. Important Points for Determination in Chronic Patient. J. E. Goldthwait, Boston.—p. 581.
*Empyema. Suggestion for New Method of Treatment. Report of Case. Review of Literature. H. S. Penn, Lawrence, Mass.—p. 590.
New Nasal Cartilage Support ("Distender;" "Expander"). A. C. Victor, Boston.—p. 592.
Gangrene of Foot as Complication of Typhus Fever and Its Treatment. S. Kagan, Boston.—p. 593.

Ptosis of Heart and Diaphragm.—Goldthwait calls attention to certain easily demonstrable changes in the position

of the heart and in the position and movement of the diaphragm from those which are considered normal; he believes that these features are of importance in causing disturbances of circulation and general physiology, especially of the abdominal viscera.

Horse Serum Irrigations for Empyema.—If irrigations are to be employed at all in empyema, Penn has found that normal horse serum is the ideal agent, for both acute and chronic cases. He has used it in a number of cases with good results. The serum meets all physiologic requirements. It is nonirritating, germicidal and removes adhering fibrin. Healing occurs promptly. Whenever reaccumulation of pus occurs with signs of absorption, Penn says immediate operation is indicated. Prolonged inadequate drainage is the chief etiologic factor in chronic empyema. When thoracotomy is indicated, rib resection at the most dependent portion of the cavity is the operation of choice.

Illinois Medical Journal, Oak Park

44: 229-304 (Oct.) 1923

Benign Tumors of Gastro-Intestinal Tract. D. A. Brown, Peoria.—p. 249.
Myocardial Deficiency from Surgical Standpoint. J. L. Yates, M. F. Robers and R. E. Morter, Milwaukee.—p. 253.
Hypertrophic Pyloric Stenosis with Large Multiple Erosions in Adult. W. A. Brams and I. Pilot, Chicago.—p. 268.
Adhesions of Appendix Associated with Intestinal Obstruction. J. M. Mora, Chicago.—p. 273.
Subacute Bacterial Endocarditis. W. L. Bierring, Des Moines, Ia.
Nitrous Oxid-Oxygen-Ether Anesthesia in Tonsil Operations. F. M. F. Meixner, Peoria.—p. 282.
Penetrating Injuries to Eye in Industrial Operations. F. Allport, Chicago.—p. 283.
Reminiscences of Forty Years of Medical Practice in Jo Daviess County, Illinois. I. C. Smith, Stockton.—p. 288.
Hematuria with Particular Reference to Essential Hematuria. H. C. Rolnick, Chicago.—p. 292.
Medical Fraternities of Chicago. W. A. N. Dorland, Chicago.—p. 294.
Medical Men Who Have Attained Fame in Other Fields of Endeavor. W. M. Thompson, Chicago.—p. 296.

Johns Hopkins Hospital Bulletin, Baltimore

34: 321-360 (Oct.) 1923

Experimental Studies Concerning Site of Origin of Bilirubin. A. R. Rich, Baltimore.—p. 321.
Clinical Study of Acute Streptococcus Infection of Pharyngeal Lymphoid Tissue (Acute Follicular Tonsillitis). A. R. Felty and A. B. Hodges, Baltimore.—p. 330.
*Sickle Cell Anemia. J. G. Huck, Baltimore.—p. 335.
Clinical Epidemiologic Study of Acute Tonsillitis and Acute Upper Respiratory Infections. A. B. Hodges, Baltimore.—p. 344.
Superventilation and Carbon Dioxid Elimination. J. T. King, Jr., and V. B. Cross, Baltimore.—p. 349.
Substitute (Black Tea) for Acid Hematin as Standard in Sahli's Hemoglobinometer. L. D. Felton, Baltimore.—p. 357.

Sickle Cell Anemia.—Fourteen cases of sickle cell anemia are reported by Huck. Eleven of these cases occurred in three generations of one family. The male transmitted the disease in the first generation, but in the second generation the disease was transmitted both by males and females, and in another genealogic tree by both members of the first generation. Apparently, the "sickle cell" condition in man is inherited according to the mendelian law for the inheritance of a single factor. One interesting feature in this inheritance is the fact that the sickle cell condition is dominant over the normal condition. The disease may be suspected after superficial examination. The blood picture is sufficiently characteristic, the anemia with the presence of sickle or crescent shaped cells, and the characteristic sickling of all cells in the fresh wet preparations after twenty-four hours. Syphilis, tuberculosis and hemolytic anemias should be eliminated by appropriate examinations. In the symptomless and mild cases the prognosis is excellent, but in the severe forms it is distinctly unfavorable on account of the susceptibility of these patients to intercurrent infections, especially pneumonia and tonsillitis. They seldom live beyond the age of 30. The treatment consists of simple hygienic measures with amplified diet and rest in bed. Medicinal therapy consists of the administration of iron in adequate doses, preferably in the form of Blaud's pills (soft mass), 5 grains, three times daily, after meals. Arsenic may be given in the form of Fowler's solution or intramuscularly in the form of sodium cacodylate. The disease has never been cured, but with treatment and rest the relapses are shortened and the remissions are made longer. The patients should never be allowed to perform hard physical work.

Journal of Biological Chemistry, Baltimore

57: 633-845 (Oct.) 1923

*Metabolism of Fixed Base During Fasting. J. L. Gamble, G. S. Ross and F. F. Tisdall, Baltimore.—p. 633.
Synthesis of Hippuric Acid in Animal Organism. W. H. Griffith and H. B. Lewis, Ann Arbor, Mich.—p. 697.
Preparation of Insulin. C. H. Best and D. A. Scott, Toronto.—p. 709.
*Copper as Constituent in Woman's and Cow's Milk. Its Absorption and Excretion by Infant. A. F. Hess, G. C. Supplee and B. Bellis, New York.—p. 725.
Influence of Diet During Preexperimental Period on Susceptibility of Rats to Rickets. A. F. Hess, M. Weinstock and E. Tolstoi, New York.—p. 731.
*Ether Anesthesia. P. A. Shaffer and E. Ronzoni, St. Louis.—p. 741.
Ether Anesthesia. E. Ronzoni, St. Louis.—p. 761.
Chemical Study of Several Marine Mollusks of Pacific Coast. Liver. P. G. Albrecht, Stanford University, Calif.—p. 789.
Anthocyans in Norton and Concord Grapes. Chemistry of Grape Pigments. R. J. Anderson, Geneva, N. Y.—p. 795.
*Urinary Acidity. N. R. Blatherwick and M. L. Long, Santa Barbara, Calif.—p. 815.
*Chemistry of Hemoglobin. R. M. Ferry, Boston.—p. 819.

Metabolism of Fixed Base During Fasting.—The data presented by Gamble, Ross and Tisdall were obtained from four epileptic children who were subjected to fasting as a therapeutic measure. The factors concerned in acid-base metabolism are particularly accessible to measurement during fasting.

Copper as Constituent of Woman's and Cow's Milk.—Investigations made by Hess, Supplee and Bellis show that cow's milk and woman's milk regularly contain copper, and that in infants and adults copper is absorbed from the alimentary tract; this was proved by its constant presence in the urine.

Ether Anesthesia.—A modification of the Nicloux method for the determination of ether as presented by Shaffer and Ronzoni consists of absorption in sulphuric acid, dilution of the acid to 40 per cent., and oxidation to acetic acid by the addition of bichromate, the excess of which is determined by iodometric titration. The accuracy of the method for the analysis of air, water and blood is ± 2 or 3 per cent.

Increased Acidity of Urine After Eating Prunes and Cranberries.—Data are presented by Blatherwick and Long to show that the increased acidity of urine after eating prunes and cranberries is produced by hippuric acid. The greater portion of this hippuric acid is derived from sources other than benzoic acid.

Preparation of Hemoglobin.—A method of preparing pure hemoglobin is described by Ferry. Crystallization is induced, without recourse to chemical means, solely by the aid of the Sharples' centrifuge and the principle of dialysis of reduced pressure. A method for determining the freedom of proteins from each other and their separation is also described.

Journal of Infectious Diseases, Chicago

33: 269-367 (Oct.) 1923

Immunologic Alteration of Bacterium Typhosum and of Bacillus Pestis-Caviae by Growth in Sterile Fixation Abscesses. E. E. Ecker and E. Megrail, Cleveland.—p. 269.
Studies on Thermal Death Time of Spores of Clostridium Botulinum. G. S. Burke, San Francisco.—p. 274.
Influence of Cholesterol on Pagocytosis. R. Tunnicliff, Chicago.—p. 285.
Toxin Production and Signs of Spoilage in Commercially Canned Vegetables and Fruits Inoculated with Detoxified Spores, of Bacillus Botulinus. P. Cchoenholz, J. F. Esty and K. F. Meyer, Washington, D. C.—p. 289.
*New Method for Increasing Yield of Therapeutic and Diagnostic Serum. J. Freund, Boston.—p. 328.
Relation of Bacterium Pullorum to Hatchability of Eggs. F. R. Beaudette, L. D. Bushness and L. F. Payne, Manhattan, Kan.—p. 331.
*Clasmatocytes and Resistance to Streptococcus Infection. V. F. P. Gay and L. F. Morrison.—p. 338.

Increasing Yield of Therapeutic and Diagnostic Serum.—By separating the blood cells before the plasma clots, Freund says, a large amount of serum can be obtained free from hemoglobin. In comparison with the method in which repeated withdrawals of serum are made over a period of eight days, it has been found possible to obtain from 10 to 95

per cent. greater yield of serum free from hemoglobin. The variation in the yield depends on whether the animal has been bled before. In the case of animals which have been bled but once, the difference may be as much as 95 per cent.

Clasmatocytes and Resistance to Streptococcus Infection.—The main thesis put forth by Gay and Morrison is that the "clasmatocytes" or "tissue macrophages" are in large part, if not entirely, responsible for the natural resistance of rabbits to experimental streptococcus infection; in spite of the obvious presence of polymorphonuclear cells, which have so long been held entirely responsible for the cellular protective mechanism in acute infections (Metchnikoff). Clasmatocytes seem likewise implicated in both active and passive acquired streptococcus immunity, but the evidence as to the exact mechanism is as yet incomplete. Clasmatocytes are now identified by modern vital staining methods and can readily be differentiated from fibroblasts, serosal cells and adult endothelium. The authors have confirmed and extended the observations that the cells normally present in both pleural and peritoneal exudates are nearly all clasmatocytes. They have estimated the actual number of clasmatocytes present in the pleural cavity of the rabbit.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

22: 139-214 (Oct.) 1923

*Studies on Vomiting. R. A. Hatcher and S. Weiss, New York.—p. 139.
Permeability of Capillaries as Influenced by Various Drugs. F. P. Underhill and J. Epstein, New Haven, Conn.—p. 195.

Location of Vomiting Center and Effect of Certain Drugs in Causing Vomiting.—Vomiting was induced by Hatcher and Weiss after destruction of the quadrigeminal bodies, the cerebellum and the area described by Thumas as the vomiting center in the cat, and of the latter area in the dog. Vomiting was not induced after destruction of the sensory nuclei of the vagi in cats, nor after destruction of the nucleus of one side in any of six experiments on cats and one experiment on a dog, but it was induced in one such experiment in which the destruction of the nucleus may have been incomplete. The results of experiments indicated that the sensory nuclei of the vagi are essential for vomiting in the higher mammals, however it is induced (possibly with exceptions so rare that they do not enter into this discussion). Hatcher and Weiss feel justified, therefore, in stating that the vomiting center is embraced within the sensory nuclei of the vagi. Twenty-seven substances were used in thirty-five experiments on dogs and cats in which ninety-seven applications were made to the floor of the fourth ventricle just above the obex. Thirteen of the substances induced vomiting in dogs and one drug caused vomiting in cats. The vomiting center is sensitive to the depressant action of apomorphin and other substances, and when moderately depressed in this way it is not stimulated by the application of other substances that commonly increase its excitability, but it is still capable of being excited reflexly from the stomach. The intravenous injection of a relatively small dose of mercuric chlorid induces vomiting, probably reflexly from the heart. The authors were unable to induce vomiting by the local application to the center of pilocarpin, quinin, tartar emetic, veratrin, or any of the digitalis bodies (previously reported), all of which induce vomiting in the eviscerated dog, nor was vomiting caused by the application of cocain, caffein, or atropin, toxic doses of which induce vomiting in the intact animal. These experiments furthermore proved that there is a defecation center in the floor of the fourth ventricle.

Kentucky Medical Journal, Bowling Green

21: 517-584 (Oct.) 1923

Surgery: Why, When and How? E. M. Howard, Harlan.—p. 526.
Rural Doctor. W. L. Tyler, Curdsville.—p. 528.
Inunction Treatment of Syphilis. E. R. Palmer, Louisville.—p. 533.
Tuberculosis of Hip Joint. M. H. Walker, Owensboro.—p. 542.
Uterine Fibroma Weighing Thirty-Five Pounds. C. Farmer, Louisville.—p. 543.
Cancer. G. A. Hendon, Louisville.—p. 543.
Prophylaxis and Treatment of Eclampsia. E. Speidel, Louisville.—p. 546.
Symptoms of Hypophyseal Tumor. A. O. Pfingst, Louisville.—p. 548.
Pulse, Temperature and Tongue. F. D. Haston, McAffee.—p. 557.
Rabies. C. H. Linn, Kuttawa.—p. 558.
Heart Block. E. F. Horine, Louisville.—p. 559.
Significance of Extreme in Blood Pressure. B. S. Rutherford, Bowling Green.—p. 565.
Adenomyoma of Uterus. Case Report. L. Frank, Louisville.—p. 568.
Treatment of Empyema by Closed Method. W. C. Simmons, Smith's Grove.—p. 572.
Cases of Pyloric Ulcer in Negro and Gastric Ulcer. J. G. Sherrill, Louisville.—p. 577.

Laryngoscope, St. Louis

33: 565-656 (Aug.) 1923

Significance of Pneumatization of Middle Turbinate. H. L. Baum, Denver.—p. 565.
Presentation of Case, Four Years After Operation for Large Subdural Cyst of Frontal Lobe. W. G. Shemeley, Jr., Philadelphia.—p. 575.
Presentation of Theory Explaining Phase of Tinnitus Aurium. O. A. Lathrop, Boston.—p. 582.
Modification of Direct Laryngoscope. A. E. Goodloe, Chattanooga, Tenn.—p. 585.
Waring Suction Tonsillectomy. J. B. H. Waring, Blanchester, Ohio.—p. 587.
Mechanism of Pain as Seen in Otologic Cases. L. Hubert, New York.—p. 596.
Case of Carcinoma of Larynx: Laryngofissure. H. S. Birkett, Montreal.—p. 609.
Modified Atomizer Tip for Specialists. A. W. Proctz, St. Louis.—p. 612.
Case of Maxillary Sinusitis in Child, with Fatal Issue. J. A. Morgan, Honolulu, T. H.—p. 614.
Case of Chronic Mastoiditis with Extensive Pathology. Operation. Recovery. F. M. Shook, Oakland, Calif.—p. 615.
Cerebrospinal Rhinorrhea. Report of Case. J. E. Loftus, Philadelphia.—p. 617.

Medicine, Baltimore

2: 171-348 (Aug.) 1923

Edema. L. Loeb, St. Louis.—p. 171.

Missouri State Medical Association Journal, St. Louis

20: 335-366 (Oct.) 1923

*Secondary Operations for Thyrotoxicosis. E. G. Blair and K. Kinard, Kansas City.—p. 335.
**Essential Factors in Treatment of Intestinal Obstruction. T. G. Orr and R. L. Haden, Kansas City.—p. 340.
Value of Roentgen-Ray Measurements in Cardiac Examination. D. S. Dann, Kansas City.—p. 343.
Limited Practice and Its Control. What of the Future? H. E. Pearse, Kansas City.—p. 348.
Accidental Intraspinal Injection of Nine Grains of Novocain. B. Williams, Joplin.—p. 354.

Secondary Operations for Thyrotoxicosis.—The views of Blair and Kinard are that hyperthyroidism is the result of the secretion from hyperplastic goiters; that the amount of hyperplasia determines the amount of hyperthyroidism. The type of poison which causes the marked cardiac muscular degeneration and deterioration of the central nervous system, if not of the entire organism, is dependent on altered thyroid secretions. These altered secretions may be due to degeneration of the hyperplastic goiter with formation of leukomains, or again to some action producing alteration of function in other endocrines, the chief of which are the suprarenals. The secondary effects may definitely be deferred by not waiting for involvement of the entire gland, the authors therefore recommend earlier but less radical operation. The amount of gland to be removed cannot be determined by rule of thumb; it depends entirely on the experience of the operator.

Treatment of Intestinal Obstruction.—In treating acute intestinal obstruction, Orr and Haden stress the point that mechanical obstruction, dehydration, starvation and toxemia should be emphasized as the four phases of the pathologic process. The mechanical obstruction should be relieved as early as possible, but the other three phases should be carefully considered in conjunction with its relief. Dehydration should be overcome by the administration of 3,000 c.c. or more of liquid in each twenty-four hours during the acute illness. The starvation should be met by the daily administration of glucose equivalent to or in excess of 1,680 calories per day, which is the minimum for an adult of 70 kg. at rest. This may be given in the vein, under the skin or by rectum. The toxemia, which is the most important factor of the disease, may be combatted by giving sodium chlorid in sufficient quantity to maintain the chlorids of the blood and urine at a normal level. This may be done by the subcutaneous injection of a 3 per cent. solution.

New York Medical Journal and Medical Record

118: 469-532 (Oct. 17) 1923

Has Adrenin Any Physiologic Value in Organism? N. Pende, Messina, Italy.—p. 469.
Case of Hypopituitarism with Epilepsy. H. Tucker, Brooklyn.—p. 475.
Preadolescent Gigantism with Precocious Puberty in Brothers. N. M. Macneill, Philadelphia.—p. 478.
Roentgen-Ray Therapy of Thyroid. J. G. Williams, Brooklyn.—p. 480.
Congenital Total Hemihypertrophy. A. C. Reed, San Francisco.—p. 483.
Newer Aspects of Roentgenotherapy. C. Eastmond, Brooklyn.—p. 484.
Cancer of Breast. Radiotherapy. M. J. Sittenfield, New York.—p. 487.
*Comparison of Wassermann and Kahn Tests in Three Hundred and Twenty-Nine Cases. J. F. Anderson and E. E. Fischer, Trenton, N. J. —p. 490.
Urography. B. H. Nicholas, Cleveland.—p. 492.
*Oral Infection in Relation to Health. M. J. Synnott, Montclair, N. J. —p. 494.
Death by Electricity. A. H. Werner, New York.—p. 498.
Subcutaneous Visceral Injuries. H. B. Schoenberg, New York.—p. 500.
Social and Public Health Aspects of Gonorrhea Problem. A. N. Thomson, New York.—p. 504.
*Comparative Study of Results Obtained by Counting Specimens of Blood with Einhorn-Laporte and Thoma-Zeiss Methods. H. A. Rafsky, New York, and W. Spigel, Norfolk, Va.—p. 506.
Glandular Dysfunctions in One Family. J. Baldwin, New York.—p. 508.

Comparison of Wassermann and Kahn Tests.—Kahn tests were performed by Anderson and Fischer parallel with the Wassermann reaction on 177 spinal fluids. The tests were performed in the same way as the serum tests, except that 0.6 c.c. of spinal fluid was used. These also were from syphilitics and from new admissions at the hospital—in fact from some of the same people from whom the serum came. There was agreement between the results of the tests in 68.3 per cent. only. In the disagreements it was the Kahn test that was weaker or negative. This work has convinced the authors that the Kahn test has great possibilities of becoming a simpler, more direct, more readily standardized method than the Wassermann test for serologic diagnosis of syphilis. But it must be thoroughly worked out and tried, before it can replace the Wassermann test.

Oral Infection and Health.—Synnott urges that prompt dental intervention should be advised whenever decay is detected in a child's teeth.

Counting Blood Cells by Einhorn-Laporte Method.—By comparing the Einhorn-Laporte method of counting blood cells with that of Thoma-Zeiss, Rafsky and Spigel found that the Einhorn-Laporte method is rapid, accurate and convenient. It can be carried out without a special blood counting apparatus. The differential count can be made from the same specimen at the same time.

Northwest Medicine, Seattle

12: 337-380 (Oct.) 1923

*Relation of Neuropsychiatric States to Early Status Thymicolymphaticus. W. Timme, New York.—p. 337.
*Vertebral Lesions Causing Spinal Cord Symptoms. P. Bassoe, Chicago. —p. 342.
Blood Chemistry in Study of Nephritis and Toxemias of Pregnancy. E. H. McLean, Oregon City, Ore.—p. 345.
Clinical Importance of Vital Capacity of Lungs. F. W. Peabody, Boston.—p. 350.
Surgical Treatment of Persistent Thyroglossal Duct. E. O. Jones, Seattle.—p. 353.
Legitimate Error in Diagnosis. W. C. MacCarty, Rochester, Minn.—p. 357.
Infection of the Antrum of Highmore. R. E. Golden, Walla Walla, Wash.—p. 359.
Case of Melanosarcoma of Choroid. E. E. Maxey, Boise, Idaho.—p. 361.
Autogenous Serum Treatment of Gonorrheal Ophthalmia After Barrage Doses of Vaccine. E. O. Houda and A. E. Hillis, Tacoma, Wash.—p. 363.

Status Thymicolymphaticus.—In these cases Timme says a judicious use of combinations of sodium iodid, thyroid and pituitary extract and, perhaps, to a less extent, of some form of suprarenal gland substance will produce marked improvement in all directions, and will show distinct gains in the measurable laboratory criteria. There will result a heightened blood sugar content, a lowered coagulation time, and more nearly normal differential white cell count. The dyspnea, cardiac distress, fatigability and circulatory disturbances all improve. With their improvement the patient's mental state becomes more stable and he more readily adjusts himself to his environment; his depression leaves. The improvement is not continuous but is stepladder fashion. A few weeks of betterment are succeeded by a week or more of stationary or even retrogressive character and he must be warned of this in advance to counteract the discouragement that otherwise might follow. But the upward tendency predominates markedly and he soon finds himself able to cope with his problems. Visceroptosis, pes planus, backache and other special symptoms must be treated, in addition to the above general indications, by special methods.

Vertebral Lesions Causing Spinal Cord Symptoms.—The subjects discussed by Bassoe are: inflammations of the vertebrae themselves, such as purulent osteomyelitis, tuberculous spondylitis, arthritis of the spine; vertebral tumors and malformations of the spine.

Oklahoma State Medical Association Journal, Muskogee

16: 355-382 (Nov.) 1923

Surgery of Tonsil with Pulmonary Abscess as Sequel. H. C. Todd, Oklahoma City.—p. 355.
Eye Injuries. Case Reports. J. C. MacDonald, Oklahoma City.—p. 358.
Industrial Ophthalmology. W. A. Huber, Tulsa.—p. 360.
Facial Deformities as Result of Adenoids. H. Price, Tulsa.—p. 361.

Public Health Journal, Toronto

14: 435-482 (Oct.) 1923

Industrial School for Epileptics and Feebleminded. A. J. Morphy.—p. 435.
Is Nationalization of Medical Profession Desirable? J. H. Mullin.—p. 439.
Diphtheria Mortality. R. George.—p. 450.
Kahn Precipitation Test in Public Health Laboratory. H. K. Detweiler. —p. 464.

South Carolina Medical Association Journal, Greenville

19: 605-636 (Oct.) 1923

Legitimate Use of Suggestion in Practice of Medicine. J. B. Townsend, Anderson.—p. 606.
Tumors of Pituitary Gland. J. S. Horsley, Jr., Richmond, Va.—p. 609.
Birth Control vs. Abortion. F. J. Carroll, Summerville.—p. 612.
Urologic Diagnosis. N. B. Edgerton, Columbia.—p. 616.

Southern Medical Journal, Birmingham, Ala.

16: 737-824 (Oct.) 1923

Ileocolic Stasis. S. K. Simon, New Orleans.—p. 737.
Relation of Gastro-Enterology to Other Specialties. A. W. Calloway, Asheville, N. C.—p. 742.
Development of Pediatrics in South. E. A. Hines, Seneca, S. C.—p. 746.
Group Practice in Pediatrics. F. H. Richardson, Black Mountain, N. C. —p. 749.
Mental Disorders. W. C. Ashworth, Greensboro, N. C.—p. 754.
*Pneumonia Complicating Neurosyphilis. Case Report. R. M. Pollitzer, Charleston, S. C.—p. 757.
Twilight Zone of Diagnosis. W. H. Lewis, Rome, Ga.—p. 759.
Swimming Pool Sanitation. M. Z. Bair, Little Rock, Ark.—p. 764.
Cost Equivalent System as Applied to Local Health Work in North Carolina. K. E. Miller, Raleigh.—p. 766.
Relation of Public Health Nurse to All-Time Health Department. P. E. Blackerby, Louisville.—p. 772.
*Food Allergy as Cause of Irritable Bladder. W. W. Duke, Kansas City, Mo.—p. 776.
Amputation Above Elbow. B. A. Washburn, Paducah, Ky.—p. 779.
Rectal Examinations in Obstetrics. B. Lankford, Norfolk, Va.—p. 783.
Eclampsia. M. H. Newman, Oklahoma City.—p. 786.
Trained Nurse in Obstetrics. W. T. McConnell, Louisville.—p. 792.
Diagnosis of Acute Abdominal Conditions. J. M. Clack, Rockwood, Tenn.—p. 799.
Service with Loyalty. H. T. Ballantine, Muskogee, Okla.—p. 804.
Late Results Following Roentgen-Ray Treatment of Chronically Infected Tonsils and Adenoids. C. A. Waters, Baltimore.—p. 809.

Pneumonia Complicating Neurosyphilis.—Pollitzer reports the case of a girl who became ill suddenly, presenting nothing but signs and symptoms of a primary or secondary involvement of the central nervous system, along with an intestine cyanosis. Later the presence of some respiratory disease was suspected and then a pneumonia located. The pneumonia was atypical and lasted only four days at the most. After finding the consolidation it was thought that, perhaps, all the nervous involvement was secondary, there being, perhaps, an encephalitis. This could not have been correct, for it would not have explained the colloidal gold reaction and the positive Wassermann reaction on the blood and on the spinal fluid. On discharge, the diagnosis was recorded as pneumonia with syphilitic encephalitis, because of the serologic report.

Encephalitis, rather than some other lesion, accounted best for the vomiting, convulsions, spasticity, etc., with apparent recovery. Subsequent events tended to prove, however, that while the diagnosis was basically correct, yet enough importance was not attached to the colloidal gold reaction. Inasmuch as there is general paralysis with ataxia now, even without mental involvement, Pollitzer thinks that taboparesis would be a more correct diagnosis.

Food Allergy Causes Irritable Bladder.—Duke believes that in patients of this type the bladder disorder is frequently the result of hypersensitiveness to certain foods which they are in the habit of eating. The subjective symptoms resemble those of cystitis and may be either mild or so severe as to confine the patient to bed. In uncomplicated cases, complete relief may immediately follow the avoidance of the food to which the patient is sensitive and symptoms may recur when the ingestion of such food is resumed.

Southwestern Medicine, Phoenix, Ariz.

7: 351-400 (Oct.) 1923

History of Medical Fees. D. E. Smallhorst, El Paso.—p. 351.
Physician and Patient. H. S. Bennett, Fort Bayard, N. M.—p. 356.
Technic for Removal of Testicle and Epididymis for Early Tuberculosis. C. S. Vivian, Phoenix, Ariz.—p. 362.
Electric Ophthalmia. S. A. Schuster, El Paso.—p. 365.
Biologic Protective Function of Skin. W. Wilkinson, Phoenix, Ariz.—p. 367.
Somnoform. H. T. Safford, El Paso.—p. 372.
Focal Infection. Cooperation Between Medical and Dental Professions in Its Treatment. L. B. Cary, Douglas, Ariz.—p. 374.
Value of Roentgen-Ray Examination in Pulmonary Disease. W. S. Larrabee, El Paso.—p. 376.
Physiology of Rest in Pulmonary Tuberculosis. R. B. Homan, El Paso.—p. 379.
Case of Pyelitis with Anomaly of Kidney. W. R. Jamieson, El Paso.—p. 381.

Texas State Journal of Medicine, Fort Worth

19: 313-360 (Oct.) 1923

Bronchoscopy. Who Can and Who Should Do It? G. S. McReynold, Temple.—p. 323.
Foreign Bodies in Bronchi. Bronchoscopy in Children. S. Israel, Houston.—p. 326.
Treatment of Chronic Hyperplastic Sinusitis. J. H. Foster, Houston.—p. 330.
Sinus Infection in Children. E. C. Mitchell, Memphis, Tenn.—p. 331.
Otitis Media and Its Sequelae. W. F. Smaltz, Dallas.—p. 335.
Zinc Ionization in Treatment of Chronic Suppurative Otitis Media. H. L. Warick, Fort Worth.—p. 337.
Improvement of Hearing, Nervousness and Tinnitus in Chronic Otitis Media Following Systematic Method of Management. L. H. Lanier, Texarkana.—p. 338.
Mastoid Cases. J. M. Woodson, Temple.—p. 343.
Mastoid Case. F. D. Boyd, Fort Worth.—p. 346.
Tonsil as Source of Systemic Infection and Toxemia. E. F. Wright, Greenville.—p. 347.
Surgery Versus Radiotherapy for Diseased Tonsils. O. M. Marchman, Dallas.—p. 349.
*Results of Tonsillectomy. C. C. Cody, Houston.—p. 352.

Results of Tonsillectomy.—Cody's figures are based on 32,386 cases, recorded in the literature, of tonsillectomy performed by various operators. The condition of mouth breathing, in which hypertrophied tonsils were in evidence, was cured in 89 per cent. of the cases. The failures were due to concomitant nasal obstruction and to the mouth breathing habit. Infective conditions of the throat were relieved in 93 per cent. of the cases. The predilection to colds was cured in 82 per cent. of the cases. The relief of ear symptoms followed the operation in 78 per cent. of the cases. Those affections are due to metastatic infection from a focus in the tonsil, were improved in 75 per cent. of cases. The efficacy of tonsillectomy in remedying enlarged cervical glands was estimated at not more than 50 per cent., and is probably less. In malnutrition the operation successfully remedied the condition in 60 per cent. of the cases. Contrary to the general impression, the mental condition of the child following the operation, as judged by scholarship, was improved in 49 per cent., was unchanged in 49 per cent., and was worse in 2 per cent. of the cases. The voice was improved following tonsillectomy, in 62 per cent. and was injured in 3 per cent. of the cases. Taking the series as a whole, and judging the end results of tonsillectomy under three heads, successful, no change, and worse, the figures are: In 86 per cent. of the cases the operation was successful; in 13 per cent. there was no change, and in 1 per cent. there was failure. Therefore, the efficacy of the operation can be placed at 86 per cent. The failure in 13 per cent. of the cases in which there was no change, was due to mistakes in diagnosis, exploratory or diagnostic operations and, to a slight degree, to errors of technic. The 1 per cent. in which the patient was worse after the operation, can be said to be due to errors of technic, neglect in after-care and operative complications.

Virginia Medical Monthly, Richmond

50: 427-502 (Oct.) 1923

Bilateral Nephrolithiasis. R. C. Bryan, Richmond.—p. 427.
Blood Transfusion. H. C. Jones, Petersburg.—p. 431.
Refraction. E. Hill, Richmond.—p. 435.
Diagnostic Methods in Refraction Work. H. H. McGuire, Winchester.—p. 438.
Etiology and Pathology of Cancer. K. D. Graves, Roanoke.—p. 442.
Symptomatology and Diagnosis of Cancer. W. H. Ribble, Wytheville.—p. 443.
Roentgen-Ray Treatment of Cancer. B. E. Rhudy, Abingdon.—p. 444.
*Vitalizing Obstetric Records. M. P. Rucker, Richmond.—p. 447.
Use of Quinidin in Cardiac Disorders. J. M. Hutcheson, Richmond.—p. 452.
Two Common Diseases in Children Often Overlooked. C. E. Conrad, Harrisonburg.—p. 454.
*Unusual Accident During Delivery at Term. B. H. Martin and A. S. Brinkley, Richmond.—p. 457.
*Unusual Case of Mastoiditis. L. Jones, Portsmouth.—p. 459.
Insulin Treatment of Diabetes. J. D. Willis, Roanoke.—p. 461.
"Acute Abdomen." W. D. Kendig, Kenbridge.—p. 464.
Duties and Advantage of "Whole-Time" County Health Officer. P. M. Chichester, Leesburg.—p. 466.
Treatment of Pulmonary Tuberculosis. H. R. Edwards, Richmond.—p. 470.
Significance of Prolonged Coagulation Time of Blood. J. S. Horsley, Jr., Richmond.—p. 475.
Problems of Rural Communites as Regards Physicans. J. M. Miller, Crockett.—p. 478.
Tetanus. Report of Cases. C. F. Graham, Wytheville.—p. 480.
After-Treatment of Obstetric Cases. H. R. Fairfax, Bristol.—p. 484.
Pott's Disease. W. F. Fogers, Bristol.—p. 485.

Vitalizing Obstetric Records.—Rucker reports a system of coding cases so that they can be put on cards by means of holes punched in such positions that the cases can be analyzed by machinery. The code gives a number to each phenomenon just as the international classification of the causes of death gives a definite number to each disease or cause of death, the difference being that the code can be changed to suit the needs of any particular study. The code Rucker submits is designed to meet the needs of obstetrics and minor gynecology.

Tear of Vaginal Vault During Labor.—Martin and Brinkley relate the case of a woman whose history during pregnancy was negative. Two hours after labor began the cervix was dilated about 2 inches. Seven or eight hours later the cervix was fully dilated and labor pains were about five minutes apart with the face presenting. At 9:45 p. m. a little chloroform was given by inhalation, and 5 minims of pituitary extract hypodermically. The patient had a severe pain soon after the administration and several slight pains for the next thirty or forty minutes. There was a moderate flow of dark blood from the vagina. The chin seemed to be locked behind the pubis. On introducing the hand, the baby was found to be outside the uterine cavity, and the hand was in the abdomen. Version was quickly done, and a dead child delivered. Little bleeding followed delivery. On opening the peritoneal cavity, there was no evidence of a rupture in the uterus. The clots and free blood were removed, and the uterus was found to be suspended only by the tubes on either side and a small bridge of the vaginal attachment posteriorly, which was about 1½ inches wide. Both broad ligaments were lacerated up to the pelvic brim on either side, and the tear on the right side extended through the vaginal wall practically to the vulva. The uterine arteries were cleanly dissected out, but were not torn away from the uterus at the main point of entry.

Extensive Infection of Mastoid Without Symptoms.—Jones' case is of interest in that there was an extensive and total infection of the right mastoid, including a perisinus and epidural abscess and lateral sinus thrombosis, with an atypical history—no pain, temperature or discomfort, either before or after operation. There was no discharge from the ear for over two weeks before the operation, during which time the child appeared perfectly well in every way and yet extensive destructive changes were taking place.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Anaesthesia, Manchester

1: 55-100 (Oct.) 1923

Joseph Thomas Clover, 1825-1882: A Pioneer in Anesthesia. D. W. Buxton.—p. 55.
Painless Childbirth by Synergistic Methods. J. O'Reagan, L. R. Cowan and J. T. Gwathmey.—p. 62.
Intratracheal, Spinal and Rectal Anesthesia. H. P. Fairlie.—p. 68.
Teaching of Anesthesia to Medical Students. W. Bourne.—p. 74.
Value of Reflex Basis in Interpretation of Phenomena During General Anesthesia. S. R. Wilson.—p. 79.
National Anesthesia Research Society of America. E. I. McKeeson.—p. 87.

British Medical Journal, London

2: 685-738 (Oct. 20) 1923

Wisdom of the Body. E. H. Starling.—p. 685.
Present Position of Vitamin Problem. F. G. Hopkins.—p. 691.
*Regulating and Reflex Process. III. Importance of Sinapse. P. T. Herring.—p. 693.
*Treatment of General Paralysis by Infection with Malaria. W. McAlister.—p. 696.
*Id. A. R. Grant.—p. 698.
Care of Choreic Children. A. D. Fordyce.—p. 700.
*Etiology and Treatment of Heart Disease in Early Life. R. Miller.—p. 702.
Spasm of Larynx. St. Clair Thompson, J. Dundas Grant and W. H. Kelson.—p. 712.

Importance of Synapse in Regulating and Reflex Process.—Herring says that there is abundant evidence that the action of drugs on the nervous system is exerted on the synapses or on the receptive substances between the endings of the efferent neurons, and the organs they innervate. Fatigue is brought about by the action of waste products formed during activity on the same structures. There is also evidence that certain toxins have a like action. Different substances pick out the synapses of different parts of the nervous system, and spread to others in definite manner. The action may be first manifested on the synapses in the highest level of the nervous system, as in the case of chloroform, and gradually spread to the lower levels involving the synapses on the pathways of the vital reflexes last of all; or it may begin in the receptive substances and cause death from paralysis of the muscles of respiration, as happens in poisoning by curare. It may gradually spread to the higher levels, as in atropin poisoning or in the continued use of overdoses of digitalis. Herring suggests that many of the manifestations of ill health are due to toxins acting on different parts of the nervous system. The symptoms of botulism are explainable in this way and their serious nature is due to the fact that the toxin involves the synapses on the reflex arcs of the vital processes at an early stage. Other and more common conditions are the results of toxins acting on less vital processes. Forms of exhaustion, nausea, lack of appetite, changes in temperature, cardiac, vasomotor and visceral disturbances may sometimes be ascribable to the action of toxins on the synapses of the pathways which are concerned in regulating normal processes. Disturbances of the normal processes are to be recognized by the sensations experienced by the patient and by the alterations that take place in the reflexes, especially those of the viscera: cardiac, vascular, respiratory or alimentary. It is imperative, therefore, that these effects, whether subjective or objective, should be recorded and analyzed carefully.

Treatment of General Paralysis by Infection with Malaria.—McAlister gives a preliminary account of an experiment in the treatment of general paralysis of the insane with the plasmodium of malaria. Twelve cases were treated. Of the nine cases in which this treatment was completed, two patients are conspicuously improved; in one case the emphasis is on the mental, in the other on the physical improvement. Besides these, four other patients show some improvement, although not so marked. In the remaining three cases no distinct change has occurred.

Treatment of General Paralysis by Infection with Malaria.—Grant is of opinion that this form of treatment is worthy of an extended trial as, in his experience, benefit seems to be obtained in almost every case. Of the forty patients under treatment during the past fourteen months, six have died. Three patients have been discharged to their homes and are now following their usual occupations. Three patients formerly wet and dirty in habits have ceased to be so. Two of the patients formerly confined to bed have regained their strength to a considerable degree and are able to be up and about.

Problems of Heart Disease.—The most urgent and important of the problems of heart disease awaiting solution, Miller believes to be: (1) What is the underlying connection between rheumatism and poverty? (2) What is the origin of the repeated relapses and reinfections in the rheumatic state, and how can they be prevented? (3) How can long courses of treatment be given to many heart cripples in the hope of prolonging their lives? These problems concern alike public health workers, clinicians and the charitable public.

Calcutta Medical Journal

18: 337-384 (Aug.) 1923

*Experimental Asthma in Guinea-Pigs. C. C. Bose.—p. 337.
Flood Flushing and Malaria in Kumarkhali. B. Rahmachari.—p. 342.
Malaria and Abortion. S. M. Das.—p. 348.
Neurosyphilis. S. C. Sen-Gupta.—p. 352.
Main Principles of Cardiologic Practice. S. C. Bose.—p. 361.
Variety of Painful Ulcers. A. C. Bose.—p. 365.

Experimental Asthma.—A condition resembling asthma was produced by Bose in guinea-pigs by nasal instillations of protein. A preliminary subcutaneous injection, preceding these instillations, is an advantage. In this way a larger number of positive results are obtained. In the majority of cases the hypersensitiveness is specific, but there are some notable exceptions. The eosinophilic count usually rises during protein instillations, but not so after the animal has become hypersensitive. A subcutaneous injection of epinephrin checks the fits brought about by protein instillation; it also prevents fits when given some time before protein instillation. A preliminary instillation of epinephrin in the nostril prevents the development of a fit in a susceptible animal, when the protein is instilled in the same nostril, but has no effect when the protein is put into the other nostril.

18: 385-432 (Sept.) 1923

*Occurrence of Leishmania in Ulcers of Stomach in Case of Kala-Azar. D. N. Banerjee.—p. 385.
Sporeforming Bacterium and Fungi Growing on Rice Grains Used by Families Suffering from Beriberi and Epidemic Dropsy. S. R. Bose.—p. 389.
*Calcium Content of Blood in Kala-Azar. H. N. Mukherjee.—p. 394.
Continental Treatment in Calcutta of Diseases of Heart and Circulation. U. Basu.—p. 396.
Main Principles of Cardiologic Practice. S. C. Bose.—p. 413.

Occurrence of Leishmania in Stomach Ulcer.—A woman, aged 45, was treated by Banerjee for anemia. She subsequently died of diarrhea and malnutrition. She was in the hospital for twenty-three days and during this period there was no manifestation which might lead to any suspicion that it was a case of kala-azar. Postmortem examination revealed about 120 ancylostomes in the intestines. The stomach showed congestion in patches and contained glairy mucus. There were about half-a-dozen small ulcers with raised margin, covered by fibrinous exudate and surrounded by an area of congestion. Apart from these ulcers there were numerous patches of fibrin sticking to the wall of the stomach, surrounded by areas of congestion but no ulceration. These ulcers were mainly placed on the posterior wall and near the greater curvature of the stomach. There was nothing more particular about the postmortem findings. Because of the severe grade of anemia present, in this case, the bone marrow was studied microscopically. Large numbers of Leishman-Donovan bodies were found either free or lying packed in the marrow cells. Subsequent examination of the smear from the spleen showed a similar finding but the liver showed very few parasites. Smears from the deep layers of the ulcers presented a fair number of these bodies. The case is an illustration of the many different phases of kala-azar.

Calcium Content of Blood in Kala-Azar.—Mukherjee found a calcium deficiency in kala-azar. He suggested that the decrease in the coagulability of the blood in kala-azar is possibly due to this calcium deficiency.

Journal of State Medicine, London

31: 451-500 (Oct.) 1923

Technic of Isolation of Streptococci. H. W. Crowe.—p. 451.
Spirochetic Dysentery. W. Broughton-Alcock.—p. 457.
Autolysis and Bacteriophagis. D. D'Herelle.—p. 461.
Physiotherapy Treatment of Industrial Accident Cases. J. R. Kerr.—p. 467.
Stability of Vitamins. H. Jephcott.—p. 471.

Lancet, London

205: 915-962 (Oct. 27) 1923

Relations of Surgery and Physiology. E. S. Schafer.—p. 915.
Lethargic Encephalitis. C. O. Stallybrass.—p. 922.
*Unilateral Edema with Albuminuria. J. W. Russell.—p. 925.
*Case of Cortical Necrosis of Kidney with Acute Nodal Polyarteritis. E. Wordley.—p. 927.
*Two Cases of Brain Abscess. G. Hadfield.—p. 929.
*Case of Minor Surgery of Hand. J. W. Tomb.—p. 930.
Unusual Hemorrhage Following Radical Mastoid Operation. H. L. Whale.—p. 930.
"Eternal" (Plastic) Triangle. H. D. Gillies.—p. 930.

Unilateral Edema with Albuminuria.—A woman, aged 40, consulted Russell complaining of swelling of the left foot of six years' duration, which gave her serious inconvenience only in hot weather. Very occasionally the right foot was also a little swollen. For the same period she had been feeling tired and had suffered from headache. The urine invariably contained albumin but no casts. There were no visible varicose veins. The pulse was slow and regular and the heart was not appreciably enlarged, though an apical systolic murmur was well marked. The diastolic pressure was 76, the systolic 142. A girl, aged 19, had edema of the left foot and albuminuria, the former of nine years' duration. The right foot was said to be occasionally slightly swollen. The left-sided edema was worse in the summer than in the winter. The heart was normal, as was the blood pressure for the age, and no casts were at any time discovered in the urinary deposit. There were no varicose veins. The patient had a marked lateral curvature with the lumbar convexity toward the left. She also voided considerable quantities of albuminous urine soon after arising from a recumbent position. As a possible factor in the cause of this condition, Russell mentions the fact that there is frequently a small vein running vertically between and connecting the left iliac and renal veins, and that this vein represents either the left postcardinal or the left supracardinal embryonic vein. Sometimes this vein is found of larger size, and in these cases the postrenal portion of the inferior vena cava may be correspondingly diminished. Occasionally this portion of the inferior vena cava may be entirely transferred to the left side, and under these circumstances the whole of the blood from the lower extremities must pass into the left renal vein in order to reach the general portion of the vena cava. It is suggested that if the postrenal portion of the inferior vena cava were in this way duplicated to a considerable extent, so that the blood from the left leg, and, perhaps, some from the right leg, passed into the left renal vein, then any obstruction of the latter would tend to produce an albuminuria with edema of the left lower extremity, and occasional edema of the right foot also.

Necrosis of Kidney with Acute Nodal Polyarteritis.—The interesting features of this case are the most unusual combination of polyarteritis acuta nodosa with cortical necrosis of the kidney. That the disease is an acute infection is obvious from its history and pathology, though so far no cause has been found. In Wordley's case syphilis could be excluded. There was almost complete suppression of urine at first, after which a gradually increasing diuresis set in. The arterial change was limited to the vessels of the heart as far as naked-eye inspection went, and in spite of the extensive degeneration of the kidney, edema was absent throughout the clinical course. The sudden onset with acute pain and hematuria, and the absence of edema, at the beginning of the illness had suggested stone as a possible diagnosis. Later the extreme wasting, the low urea content of the blood, and the continued absence of edema had suggested a neoplasm of the kidney. The abdominal pain and fever were in many respects similar to those described in cases of pure polyarteritis acuta nodosa, with the exception of the complete suppression of urine and sudden termination of the illness.

Value of Cell Count in Brain Abscess.—The two cases cited by Hadfield illustrate the value of a careful differential count of the cells in the cerebrospinal fluid during the stage when this is still clear. In both cases a cerebral abscess was found postmortem which had not discharged its contents into the ventricular system or subarachnoid space. The cerebrospinal fluid was first examined in each case when it was clear, and while the clinical diagnosis was doubtful. At this time, in each case, the cell count was 12 per c.mm. The cells responsible for the increase were polymorphonuclear leukocytes.

Saving a Severed Phalanx.—Tomb relates the case of a girl, aged 5, the terminal phalanx of whose right index finger had been severed through the joint completely with the exception of a narrow strand of skin and tissue on the inner side by which the phalanx was hanging. The phalanx was brought into line with the rest of the finger and retained roughly in position by three stitches one on each of the severed sides. The finger was then bandaged and kept continuously immersed in a bowl of warm saline solution. The after-history was uneventful, the phalanx "growing on" without suppuration, leaving a finger of normal appearance but with a stiff distal joint.

National Medical Journal of China, Shanghai

9: 175-264 (Sept.) 1923

*Causes of Blindness Among Chinese. W. P. Ling.—p. 175.
Typhoid and Paratyphoid Fever in Changsha. Y. Y. Lung and J. H. Foster.—p. 185.
*Mixed Tumor of Parotid. Report of Case. Y. Wong.—p. 198.
Medicolegal Aspects of Insanity. A. H. Woods.—p. 203.
Common Chlorin Antiseptics. J. Cameron.—p. 213.
Spread of Respiratory Disease Through So-Called "Droplet Infection." R. M. Atwater.—p. 217.
Magnesium Sulphate in Tetanus. Report of Two Cases. L. C. Chu.—p. 223.

Causes of Blindness Among Chinese.—Among 6,811 cases analyzed by Ling, blindness in one or both eyes occurred in 760. Trachoma was the etiologic factor in 398 cases; cataract in eighty-three cases; syphilis in seventy-six cases; glaucoma in seventy-three cases. Other causes were: bacterial infections, 48 cases; injuries, 44 cases; exanthemata, 37 cases; neoplasms, 15 cases; albuminuric retinitis, 2 cases; keratomalacia, 4 cases; focal infection, 2 cases; tuberculosis, 2 cases; toxic amblyopia (probably due to methyl alcohol). In 278 cases the etiology was not traceable.

Large Tumor of Parotid.—The tumor in Wong's case was interesting mainly because of its size. It measured 7 x 8 x 4½ inches (17.75 x 20.3 x 11.4 cm.), and weighed 5 pounds and 6 ounces (3.44 kg.), In its center there was a cyst about 2 x 1½ x 1⅛ inches (5 x 3.8 x 2.8 cm.) in size apparently resulting from degeneration.

Practitioner, London

111: 241-308 (Oct.) 1923

Fibrotic Diseases of Lungs and Their Incidentals. T. Oliver.—p. 241.
Indications for Treatment in Pulmonary Tuberculosis. C. A. Sprawson.—p. 255.
Intestinal Theory of Exophthalmic Goiter. E. G. Slesinger.—p. 266.
Otitis Media. L. J. Curtin.—p. 273.
Present Position of Organotherapy. I. G. Cobb.—p. 278.
Behavior of Lymphosarcoma Under Radium Treatment. D. J. Harries and E. R. Williams.—p. 291.
Dietetic Treatment of Nephritis. H. W. Jones.—p. 295.
Spontaneous Reduction of Intussusception. F. Crooks.—p. 298.

Archives Médicales Belges, Brussels

76: 609-677 (Aug.) 1923

*Sudden Death of Young Children. Lefebvre.—p. 609.
*Denervation of the Stomach. Gianolla.—p. 618.
Hematuria in Staphylococcosis. Gripekoven.—p. 626.

Sudden Death in Young Children.—Lefebvre admits that an enlargement of the thymus is present in the majority of such cases. Yet he considers it only one of the lesions of endocrine glands present in such children. The calcium metabolism is affected, and hence the tendency to the fatal spasms. He believes that inherited syphilis is the basis of the whole condition.

Denervation of the Stomach.—Gianolla resected the gastric branches of the pneumogastric nerve in eight patients. He confirms Latarjet's and Wertheimer's favorable opinion on the results of the neurectomy in painful gastric ulcers.

Journal de Médecine, Lyon

41: 537-576 (Sept. 20) 1923

Circular Movement of the Auricle. L. Gallavardin.—p. **537.**
rritable Heart. J. Bret.—p. 567.
Blood Pressure and Apoplexy. A. Dumas.—p. 573.

Circular Movement of the Auricle.—Gallavardin surveys the ubject of auricular fibrillation and flutter—both conditions ue to formation of a circular wave around the caval veins. the speed is fast (around 600 in a minute), fibrillation ccurs. Flutter is caused by a speed down to 200 in a minute. he theory of quinidin treatment and the history of the subject e discussed.

Blood Pressure and Apoplexy.—Dumas does not consider gh blood pressure a sufficient cause for cerebral hemorages, though it determines their extent. Therefore apoplexy more dangerous in young persons with high pressure than older subjects with lower pressure.

Lyon Médical

132: 817-860 (Sept. 25) 1923

Pseudocyst of Pancreas. L. Bérard and A. Cade.—p. **817.**
Amebic Bronchitis. Petzetakis.—p. 822.

Paris Médical

217-228 (Sept. 22) 1923

Vomiting of Pregnancy. Lévy-Solal and Leloup.—p. 217.
Idem and Anaphylaxis. E. Lévy-Solal and J. Paraf.—p. 218.
Leukopenia in Shock. E. Delbecq.—p. 220.
Cerebellar Ataxia. P. Auban and Bonhoure.—p. 224.

Vomiting of Pregnancy.—Some features in common of the severe vomiting of pregnancy and the hemoclastic crisis gave Lévy-Solal and Leloup a basis for trying injections of pilocarpin hydrochlorid in treatment of the former. A patient who was semicomatose recovered after eight injections of mg. within forty-eight hours (always three hours before a meal). Pilocarpin nitrate had no action.

Idem and Anaphylaxis.—Lévy-Solal and Paraf injected a glycerin extract of the fetus in a woman who required induction of abortion on account of intractable vomiting. The injection caused a new attack, which lasted for an hour. Cutaneous tests with fetal extracts did not give constant results. Nevertheless, it seems as if such women might be sensitive to the proteins of the fetus.

Leukopenia in Shock.—Delbecq does not consider leukopenia characteristic of hemoclastic shock. Leukopenia is present because the pneumogastric is excited in the shock. Many factors concur in the digestive hemoclasis: the rapidity of the ingestion of the milk with its mechanical irritation, the temperature of the fluid and the amount of pepsin secreted. In two cases the maximum of leukopenia occurred just at the time of a strong sensation of hunger.

Presse Médicale, Paris

31: 789-796 (Sept. 15) 1923

Fractures of Neck of Femur. Robineau and Contremoulins.—p. 789.
Goiter in Alsace. M. Rhein.—p. 792.
Reduced Circulation. H. Roger.—p. 793.

31: 825-832 (Sept. 29) 1923

Reconstruction of Recently Fractured Neck of Femur. M. Robineau and G. Contremoulins.—p. 825.

Goiter in Alsace.—Rhein compares hydrogeologic conditions with the distribution of endemic goiter in Alsace. With certain reservations he finds that his observations would speak for an infectious etiology of goiter.

Progrès Médical, Paris

469-480 (Sept. 22) 1923

Hemoclastic Crises. F. Moutier and J. Rachet.—p. 469.
Sympathetic Syndromes. Laignel-Lavastine.—p. 473.
Sacrocoxalgia. Delbet.—p. 474.

Hemoclastic Crisis.—Moutier and Rachet found always an identical positive or negative reaction, whether the patients took milk or distilled water. The crisis seems to be conditioned exclusively by neurovascular reflexes which do not depend on the chemical nature of the test substance. They did not observe, however, any causal connection between the crisis and hypervagotonia.

Revue Franç. de Gynécologie et d' Obstét., Paris

18: 353-432 (June 10-25) 1923

*Vaccine Therapy in Obstetrics and Gynecology. L. M. Pierra.—p. 353.
*Vaccine Therapy in Obstetrics. P. Lequeux.—p. 355.
*Idem in Gynecology. A. Robiolis.—p. 363.
Idem in Disease of Adnexa. G. Cotte.—p. 369.
*Idem in Puerperal Fever. H. Paucot.—p. 373.
Idem in Mastitis. P. Balard.—p. 379.
Idem in Uterosalpingitis. A. Weymeersch.—p. 389.
Idem in Gynecology. A. van Cauwenberghe.—p. 396.
Idem in Puerperal Infection. J. Vanverts.—p. 398.
Autogenous Vaccine in Pyelitis. C. Gonnet and Gaté.—p. 403.
Idem in Puerperal Fever. A. Boquel.—p. 404.
Indications for Vaccines in Puerperal Fever. A. Dantin.—p. 406.
*Antigonococcus Vaccine Therapy. E. Gaujoux.—p. 413.

Vaccine Therapy in Gynecology and Obstetrics.—This entire issue is devoted to arguments and experiences in vaccine therapy. Pierra summarizes them in the statement that the consensus of opinion seems to be that only in subacute and chronic cases is there much chance of success, and then only with autogenous vaccines. The streptococcus vaccines generally fail; the gonococcus give very uncertain results, while colon bacillus and especially staphylococcus vaccines often prove successful.

Vaccine Therapy in Obstetrics.—Lequeux rates low the value of stock vaccines in colon bacillus and gonococcal infections in pregnancy. Autogenous vaccines sometimes produce good effects; at other times the patients become worse. Isolation of the micro-organism (if possible, from the blood) is an important factor. When the condition grows worse after the injection, this is probably because it was made at a wrong time. Some have reported that vaccines by the mouth have given good results when preceded by ingestion of bile. Prophylactic injections of streptococcus vaccine eight days before delivery diminish the number of puerperal infections. Their action is beneficial even when injected during labor. In the period of generalization of the puerperal infection, vaccines are dangerous; serotherapy is then indicated. In the period of localizations, vaccines should be used.

Idem in Gynecology.—Robiolis sees in vaccine therapy only an adjuvant to the usual treatment of adnexal affections, especially of gonococcal type. Alleviation of pain frequently follows the specific treatment.

Idem in Puerperal Fever.—Paucot believes that the main effect of vaccines is nonspecific. They act favorably in not too severe cases. The mortality of puerperal infection remains the same. The treatment has a therapeutic but not a certainly curative value.

Antigonococcus Vaccine Therapy.—Gaujoux reviews critically the literature on the use of gonococcus vaccines in gynecology and obstetrics. He admits good results only in affections of the adnexa.

Schweizerische medizinische Wochenschrift, Basel

53: 857-876 (Sept. 13) 1923

*Tuberculosis of Bronchial Glands. Reh.—p. 857. Idem. Holtz.—p. 862.
*Danger of Iodin in Treatment of Goiter. O. Roth.—p. 865.
*Seroprevention of Puerperal Fever. F. Chatillon.—p. 869.

Tuberculosis of Bronchial Glands.—Reh reviews the clinical (not the radiographic) signs and treatment of tuberculosis of tracheobronchial glands in children.

Danger of Iodin in Treatment of Goiter.—Roth deplores the abuse of iodin in Switzerland, where every school-teacher and druggist seem to give it freely, apparently convinced that the officially sanctioned dosage is without danger. Out of his thirty cases of bad effects of iodin he publishes a few in which the injury was done by minimal doses. Very strict individualization is essential in the prophylactic treatment of goiters. Patients who tolerated larger amounts before, may develop hyperthyroidism later after taking even very small doses.

Seroprevention of Puerperal Fever.—Chatillon injects antistreptococcus serum in all obstetric interventions. It has lowered the morbidity and mortality considerably.

Pediatria, Naples

31: 969-1024 (Sept. 15) 1923

*Hydrocele in Infants. R. Vaglio.—p. 969.
*Bismuth in Congenital Syphilis. A. F. Canelli.—p. 975.

*Etiology of Scarlet Fever. G. Vitetti.—p. 989.
*Idem. P. Ritossa.—p. 992.
Cirrhosis of the Liver in an Infant. G. Salvioli.—p. 995.

Hydrocele in Infants.—Vaglio considers a unilateral or bilateral irreducible hydrocele in infants suggestive of hereditary syphilis. The rare cases of hydrocele which communicated with the peritoneal cavity, were not of syphilitic origin. Among 178 cases, 61 per cent. were certainly or probably syphilitic.

Bismuth in Congenital Syphilis.—Canelli finds that extensive research is still necessary to demonstrate the value of bismuth preparations in syphilitic infants.

Etiology of Scarlet Fever.—Vitetti found the diplococci described by Caronia and Sindoni in the pharyngeal exudate in scarlet fever. The diplococci are gram-positive, smaller than pneumococci, and more ovoid. Anaerobic cultures made from Berkefeld filtrates were agglutinated by serum from convalescents.

Idem.—Ritossa found in the sediment of urine in scarlet fever the diplococci described in the previous abstract. They were not present in the control.

Policlinico, Rome

30: 1185-1216 (Sept. 10) 1923

*Blood Pressure in Scarlet Fever. R. Doria.—p. 1185.
Present Status of Insulin Treatment. S. Marino.—p. 1193.

Blood Pressure in Scarlet Fever.—Doria finds hypotension in scarlet fever similar to that in other infectious diseases. It is due to a general vasodilatation and especially to weakness of the left ventricle. The peripheral circulation is comparatively good, since the diastolic pressure remains high. Albuminuria with low pressure is usually not followed by nephritis. Serum injections lower the blood pressure.

30: 1217-1248 (Sept. 17) 1923

*Antihemolytic Urine Index. A. Siligato.—p. 1217.
Accidental Sounds in Auscultation of Apex of Lung. Pezzotti.—p. 1220.
Nephrocolopexy. R. Mosti.—p. 1224.

Antihemolytic Urine Index.—Siligato tested Condorelli's antihemolytic urine index in patients with nephritis. The index represents the proportion of the inhibiting cholesterol to the hemolytic fatty acids. He found the index high in degenerative affections of the kidneys, due to the presence of cholesterol. Sheep and beef corpuscles are not suitable for the test; emulsions of human corpuscles gave good results.

30: 1249-1280 (Sept. 24) 1923

*Cutaneous Reaction in Malta Fever. E. Trenti.—p. 1249.
Treatment of Surgical Tuberculosis. P. G. Bortolucci.—p. 1254.
Infestation with Ascaris and Oxyuris. A. Filippini.—p. 1256.
Calcium and Complement Fixation. N. Pietravalle.—p. 1259.

Cutaneous Reaction in Malta Fever.—Trenti injected intracutaneously small amounts of the filtrate from twenty day broth cultures of *Micrococcus melitensis* in patients and animals with Malta fever. The reaction was positive even if performed two years after the infection. Controls were negative.

Riforma Medica, Naples

39: 865-888 (Sept. 10) 1923

*The Blood Under Protein Therapy. M. Gelera.—p. 865.
Lymphangio-Endothelioma. P. Russi.—p. 868.
*Vasomotor Eye Reflex. G. Marcialis.—p. 870.
Facial Paralysis in Otitis. U. Virgili.—p. 872.

The Blood Under Protein Therapy.—Gelera found changes in the immunologic qualities of the blood serum: albumin content, surface tension and hydrogen ion concentration, after the first three parenteral injections of foreign proteins. He concludes that the nonspecific treatment acts against the disturbance of protein equilibrium in infections.

Vasomotor Eye Reflex.—Marcialis took plethysmographic tracings of the forearm of healthy subjects during compression of the eyes. He found constantly an initial vasoconstriction followed by vasodilatation. The reaction was not modified by subcutaneous injections of atropin.

39: 889-912 (Sept. 17) 1923

Elephantiasis. D. Giordano.—p. 889.
Sella Turcica in Ocular Affections. C. Guarini.—p. 892.
Fracture of the Patella. G. Tritto.—p. 895.
*Treatment of Epidemic Encephalitis. T. Silvestri.—p. 898.
Pregnancy and Tuberculous Scrositis. G. Tescione.—p. 898.
Addison's Disease. S. Antonio.—p. 900.

Treatment of Epidemic Encephalitis.—Silvestri reports good results from intravenous injections of potassium and antimony tartrate in acute epidemic encephalitis. He injected from 5 to 10 c.c. of a 1 per cent. solution, at three day intervals and repeated eventually after fourteen days.

39: 913-936 (Sept. 24) 1923

*Phagocytosis in Sputum. D. Manzetti.—p. 913.
Spastic Paraplegia. R. Menasci.—p. 914.
*Histogenous Immunity. J. Carra.—p. 916.
Reconstruction of Knee Joint. Stanischeff.—p. 918.
Postencephalitic Neurasthenia. G. Calligaris.—p. 918.

Phagocytosis in Sputum.—Manzetti found phagocytosis of tubercle bacilli in the sputum of twenty-two patients out of 108 examined (20.3 per cent.). The sign is prognostically unfavorable. It was present in patients with rapidly progressing pulmonary tuberculosis and a tendency to anergy.

Histogenous Immunity.—Carra injected filtrates from staphylococcus cultures, which contained hemolysins and leukocidins, into rabbits. He found that red and white corpuscles, washed carefully so that they contained no trace of serum, were more resistant against these poisons than the controls.

Brazil-Medico, Rio de Janeiro

2: 173-184 (Sept. 15) 1923

*Gonococcal Urethritis in Little Boys. Barros Lima.—p. 173.
Gonorrhea of Twenty Years' Standing. A. Pereira.—p. 176.
Chlorophyl and Vitamins. E. Bertarelli and U. Paranhos.—p. 178.

Gonococcal Urethritis in Little Boys.—In the case described by Barros Lima, the urethritis was typical in a boy, aged 4, and it healed without complications. He compares it with similar cases on record and the methods of treatment that have been applied.

2: 185-200 (Sept. 22) 1923

*Epidemic Encephalitis. Malagueta and Tavares Corrêa.—p. 185.
*Partial Epilepsy. W. Berardinelli.—p. 188.

Epidemic Encephalitis.—The girl, aged 15, was in domestic service when she developed fever, pains and severe contractures. The early somnolence and the 9.3 per cent. of glucose in the spinal fluid differentiated the case as epidemic encephalitis after tetanus and meningitis had been excluded.

Partial Epilepsy.—The jacksonian epilepsy developed suddenly in the young man not long after he had acquired syphilis. The attacks were frequent and severe, but they subsided completely under specific treatment.

2: 201-212 (Sept. 29) 1923

*Nature of Bacteriophagy. J. da Costa Cruz.—p. 201.
The Conception of Consciousness. Fabio Sodré.—p. 202.
Chemical Composition of Sodium Citrobismuthate. Ganassini.—p. 204.

Nature of Bacteriophagy.—Costa Cruz reports further experiences which sustain the assumption that the bacteriophage is a substance that resembles the antibodies. Its physical properties seem to exclude the possibility of its being a living virus. In fact, he says, the inactivation of the bacteriophage by the absence of electrolytes from the fluid suggests that our present conceptions of filtrable viruses need revision. Electrolytes act on antibodies, and on the bacteriophage by maintaining the dispersion necessary for the action of the antibodies and the bacteriophage. The electrolytes act on emulsions of microscopic living organisms in exactly the reverse manner, that is, they induce flocculation instead of dispersion.

Prensa Médica Argentina, Buenos Aires

10: 253-280 (Sept. 10) 1923

*Control of Leprosy. M. Aberastury.—p. 253.
*Drainage for Empyema. C. I. Allende.—p. 264. Conc'n.
*Neurectomy of Phrenic Nerve J. Maque and M. Balado.—p. 267.
Experimental Psychochronometry. J. L. Alberti.—p. 270.

Control of Leprosy.—Aberastury presents a bill for consideration by the government, in prophylaxis of leprosy, which has been endorsed by the national public health service and others. He mentions that the second American Antileprosy Conference is to convene at Buenos Aires in 1926.

Treatment of Empyema.—Allende declares that the costodiaphragmatic sinus is not the preferable point for draining

ıe pleural cavity. He describes twenty cases which apparıtly sustain his claim that the most effective drainage is by ı opening on the posterior axillary line, in the equator of the ıorax, at about the fifth rib. He insists on the importance f using the smallest drain that will evacuate the pus, and ding evacuation by breathing exercises or the use of Wolff rs. He resected the fifth or sixth rib, and 20 per cent. were ured completely in two weeks, including one infant of 10 ıonths. Sixty-five per cent. recovered in a month at most. is important to bear in mind the gravity of any intervention or acute empyema when the primary lung process is still ctive.

Neurectomy on the Phrenic Nerve.—Maque and Balado's xperience has confirmed the advantages of paralyzing the iaphragm by phrenicotomy to rest the lower lobes in case f a tuberculous focus in the superior lobe, and as a preminary to resection of the esophagus and thoracoplasty, but, bove all, as a guide to intervention. If after the neurecomy the fever increases and clinical signs appear in the upposedly sound lung, the latter is not capable of standing xtra functional demands, and extrapleural thoracotomy is ontraindicated. Two cases are described; the phrenicotomy roceeded smoothly without by-effects under infiltration nesthesia.

Revista de Medicina y Cirugía, Havana

28: 623-662 (Sept. 25) 1923

Climatic Psychoneurosis. E. Escomel.—p. 623.
Prophylaxis of Venereal Disease. J. Traviesco.—p. 633.

Climatic Psychoneurosis.—Escomel describes the peculiar noods of depression or exaltation from which nearly every ne suffers in Arequipa on certain days. This is the second ity in Peru, and it lies at an altitude of about 7,000 feet. In hese days of *nevada* the air is charged with electricity, and ven animals and children are restless and different. All lasses are affected, but brain workers and nervous women uffer most. A similar atmospheric psychic state has been bserved at Biskra and at Caracas, but it seems most severe t Arequipa.

Revista de Medicina y Cirugía, Caracas

6: 219-240 (Sept. 30) 1923

Abdominal Pregnancy at Term. Mario García D.—p. 219.
The Leprosy Question. J. Izquierdo.—p. 226.
Wilde's Incision in Otology. L. López Villoria.—p. 231.
Acute Syphilitic Myelitis. B. Perdomo Hurtado.—p. 238.

Abdominal Pregnancy at Term.—Mario García reports the necropsy findings in two cases and the operative findings in another case of secondary abdominal pregnancy at term. In the first case the head of the fetus was still in the tube but the arms and legs lay among the intestines, one arm reaching to the bottom of the pouch of Douglas. The fetus weighed 4 kg. (8.8 lb.). The pregnancy had been apparently normal until the eighth month. In the two other cases the fetus at term was macerated. One woman complained only of pains in the region of the right tube. The third woman had been having severe pains in the lower abdomen from the sixth month and recurring syncopal attacks from the seventh month. During the eighth month there had been recurring uterine hemorrhage. The palpation findings suggested a large myoma in the uterine cervix. The fact that the wall of the vagina formed part of the tumor was accepted as excluding ectopic pregnancy. Redness and tenderness in the right iliac fossa led to puncture; this released gases, and the hand of a fetus was discovered. After extraction of the partly gangrenous fetus and a siege of suppuration, with escape through the fistula of all the feces, the woman recovered and left the hospital after a five months' stay.

Semana Médica, Buenos Aires

1: 885-936 (May 10) 1923

Arsenicals in Treatment of Leprosy. P. L. Baliña.—p. 886.
*Diathermy. C. A. Castaño and J. F. Merlo Gómez.—p. 893.
Auscultation and Percussion of the Abdomen. E. P. Siri.—p. 901.
Reform in University Management. O. L. Bottaro.—p. 907.
*Berberis in Therapeutics. J. A. Domínguez.—p. 915.

Diathermy.—Castaño and Merlo Gómez analyze their experiences with diathermy in more than 100 cases. The benefit was amazing in some, while others, apparently identical, failed to show any improvement. But the treatment never did harm, and it should be given a trial, they say, before resorting to the knife. It is most promising in abdominal and gynecologic affections, and especially for postoperative adhesions. Tenacious and rebellious constipation from postoperative adhesions or retraction or spasm was notably benefited, as also traumatic and rheumatic joint disease, but not infectious arthritis. Their experiences with gonococcus processes were conflicting. The secretions sometimes returned in forty-eight hours after gonococcus urethritis had been exposed in forty-two cases up to an hour and fifty-seven minutes. But the diathermy relieves the pain almost at once, and frequently proves a most valuable adjuvant. In orchitis, epididymitis and prostatitis the relief was great and the treatment more often successful with less drawbacks than with other measures. The large, chronically painful uterus with parenchymatous metritis subsided and softened, and the pains disappeared under diathermy. The best results were obtained in adnexitis, and saved many women from mutilating operations. Acute joint and abdominal processes, especially tuberculosis, contraindicate diathermy, as the process generally flares up under it. A tendency to hemorrhage is a further contraindication.

Berberin in Therapeutics.—Domínguez gives the results of study of the chemical and pharmacologic properties of indigenous species of berberis.

2: 81-132 (July 19) 1923

*Treatment of Eczema in Infants. P. Rueda.—p. 81.
Schick Reaction in Weakly School Children. T. A. Tonina.—p. 96.
*Extraction of Foreign Bodies. C. Heuser.—p. 107.
*Intractable Vomiting of Pregnancy. S. E. Bermann.—p. 109.
Radiotherapy of Uterine Cancer. Martín Miranda Gallino.—p. 117.

Treatment of Eczema in Infants.—Rueda reports 27 cases of seborrheic eczema in infants treated on the basis that the pancreas was responsible for the affection.

Extraction of Foreign Bodies Under Roentgen Control.—Heuser wears over one eye a metal tube provided with a fluorescent screen; the roentgen apparatus is below the table on which the patient is lying. He thus can locate the foreign body with this eye, by turning on the current, while the other eye sees by daylight.

Uncontrollable Vomiting of Pregnancy.—Bermann's analysis of the literature shows a bewildering variety of measures that have succeeded in some cases and failed in others. The first thing is to combat the dehydration, preferably by drip rectal infusion of 2 liters of 5 per cent. glucose solution or a liter of physiologic saline solution subcutaneously. Isolation is imperative, and this can be insured only in an institution, with a nurse skilled in suggestion. For twenty-four to forty-eight hours nothing, not even a drop of water, should be allowed by the mouth. Then boiled water or Vichy water can be taken by the spoonful, every hour or half hour. When the water is retained, milk can be added to it, cold or hot as preferred. If milk is disliked, yoghurt can be taken, or tapioca gruel. The stomach is rinsed out every day for four days. This should be done gently by the physician himself, with 2 liters of slightly alkaline water. The bowels should be regulated, by the mouth if possible. The feet should be kept warm, and chloral be given by enema, 4 or 6 gm. in 100 gm. of acacia solution, and the urine analyzed. A subcutaneous injection of 15 c.c. of horse serum or 20 c.c. of the patient's own blood may prove useful, possibly supplemented by transfusion of 300 or 400 gm. of blood. If this treatment fails and the patient is losing weight, a sham abortion operation might be tried. Before beginning treatment, it is well to correct displacement of the uterus, and hold it corrected with a bandage, at least.

Archiv für Gynäkologie, Berlin

119: 163-378 (Sept. 12) 1923

Pathology of Corpus Luteum. P. Mathes.—p. 163.
Cause of Rupture of Follicle. E. Strassmann.—p. 168.
Hemorrhagic Metropathies. H. Runge.—p. 207.
*Research on Fetal Development. E. Vogt.—p. 219.
*Surgery of Pelvic Inflammations. Werner and Stiglbauer.—p. 228.
*Glycogen in Vagina. W. Niderehe.—p. 261.
Puerperal Mesenteric Thrombosis. Bucura.—p. 275.
*Edema of Pregnancy. P. Schumacher.—p. 305.

*Placenta Praevia. H. O. Neumann.—p. 320.
*Regeneration of Uterine Muscle. H. Kalenscher.—p. 348.
*Hermaphrodism. J. Matsuno.—p. 359.
Fetal Malformations. P. Schugt.—p. 366.
Papilloma of Cervix. W. Möhnle.—p. 373.

Research on Fetal Development.—Vogt describes his method of cutting frozen sections of fetuses for the study of the topographic relations of organs.

Surgery of Pelvic Inflammations.—Werner and Stiglbauer operated on only 5 per cent. of their patients suffering from infections of the adnexa and pelvic cellular tissue. The total mortality was 1.6 per cent. It was high (7.2 per cent.) in abdominal radical operations, which were, however, performed in the severer cases. The best results were realized in radical vaginal operations. A permanent recovery was obtained in 79 per cent. of all the patients.

Glycogen in Vaginal Tissue.—Niderehe examined vaginal sections histologically for the presence of glycogen (Best's staining method, controlled by Schmorl's digestion with saliva). It has been supposed that this substance is important for the nutrition of some vaginal bacteria and formation of lactic acid. While admitting this, he warns against overestimating its final importance. He considers the presence of glycogen as a process which is analogous to keratinization.

Edema of Pregnancy.—Schumacher studied 200 pregnant women for the presence of edema. He found evidences of edema in the last four weeks in 64 per cent. of the women in the morning, and in 95 per cent. in the evening. Weighing is the best method to recognize a tendency to edema. Only those who presented sudden changes in weight were diagnosed as cases of hydrops gravidarum. The blood pressure was usually normal, rarely increased, without albuminuria. The dilution and concentration tests elicited normal responses.

Placenta Praevia.—Neumann publishes two cases of accretion of placenta praevia. At least a strong adhesion to the uterine wall may be expected in every case of placenta praevia, especially in the cervical form. Most of these women bleed to death, if treated with old methods. Cesarean section allows free inspection and makes total extirpation possible if it is necessary.

Regeneration of Uterine Muscle.—Kalenscher made tissue cultures from the uterine musculature. He found that the embryonal cells regenerated actively, while the cultures from the uteri, taken postpartum, showed only few new cells.

Hermaphrodism.—Matsuno reports two cases of female pseudohermaphrodism. Extirpation of the ovaries and implantation of apparently normal glands failed to induce a better development of the secondary sex characters. Complete series of sections of the extirpated ovaries revealed no testicular elements.

Deutsche medizinische Wochenschrift, Berlin

49: 1141-1172 (Aug. 31) 1923

Insulin. E. Grafe.—p. 1141. Conc'n, p. 1177.
Insulin in Diabetic Coma in Child. M. Simon.—p. 1144.
Hernia of the Brain. P. Prym.—p. 1145.
*Transformation of Streptococci. R. Freund.—p. 1146.
*Pyotherapy. E. Makai.—p. 1147.
*Seroprophylaxis of Measles. G. Salomon.—p. 1151.
Wildbolz' Urine Reaction. Ahrens.—p. 1153.
*Etiology of Alveolar Pyorrhea. M. M. Reinmöller.—p. 1155.
Economizing Cocain. A. Abraham.—p. 1156.
Treatment of Whooping Cough with Ultraviolet Rays. Schotten.—p. 1157.
Cannula for Artificial Pneumothorax. P. Zobel.—p. 1157.
Vaccine Therapy of Furunculosis. H. Sieben.—p. 1158.
Survey on Dermatology and Venerology. Evening.—p. 1158.
Reform of Professional Organization and Tribunal of Honor. B. Glaserfeld.—p. 1161.

Transformation of Streptococci.—Freund observed hemolytic colonies among green ones when he made cultures from the subcutaneous tissue of mice infected with the viridans and treated with some acridin derivative.

Pyotherapy.—Makai treated acute and chronic abscesses with subcutaneous injections of 1-10 c.c. of the pus, at five day intervals. The injections were well tolerated, although no attempt was made to sterilize the pus.

Seroprophylaxis of Measles.—Salomon injected normal serum of adults and serum of convalescent children in prophylaxis of measles. The results were about equal. It is to be noted, however, that he used very small doses of the convalescents' serum, which resulted in a morbidity of nearly 50 per cent.

Etiology of Alveolar Pyorrhea.—Reinmöller tested the serum from eight patients suffering from alveolar pyorrhea for the presence of ferments. Seven of the eight serums digested boiled thymus tissue. Only the eighth patient improved markedly after local treatment. He believes, therefore, that genuine pyorrhea occurs only in persons with some endocrine disturbance.

49: 1173-1196 (Sept. 7) 1923

Digitalis Treatment. C. Hirsch.—p. 1173. Conc'n, p. 1202.
Insulin. E. Grafe.—p. 1177. Conc'n.
*The Myocardium in the Tuberculous. G. Töppich.—p. 1179.
*Early Eye Changes in Syphilis. A. Memmesheimer.—p. 1180.
Skin and Immunity. W. Böhme.—p. 1182.
Pyarthrosis. E. Wohlauer.—p. 1183.
Treatment of Viper Bite with Passive Hyperemia. K. Jacob.—p. 1184.
Sickness Insurance of Middle Classes. Hanauer.—p. 1184.

The Myocardium in the Tuberculous.—Töppich's experiments show that tuberculin causes only a fatty degeneration of the heart muscle.

Early Eye Changes in Syphilis.—Memmesheimer examined vision and the fundus of the eyes in patients with certain positive syphilitic findings in the cerebrospinal fluid. He found changes in the eyes as early as in the fourth week after infection.

Klinische Wochenschrift, Berlin

2: 1677-1724 (Sept. 3) 1923

*The Metabolism in Diabetes. H. C. Geelmuyden.—p. 1677.
Desensitization in Eczema. J. Jadassohn.—p. 1680.
*Management of Childbirth. H. Sellheim.—p. 1684.
*Therapeutic Quotient of Disinfectants. W. Lipschitz.—p. 1689.
*Injections of Iodin. G. Holler.—p. 1692.
*Purin Elimination and Gout. H. Steudel.—p. 1694.
*Shotgun Wounds. G. Strassmann.—p. 1695.
*Treatment of Tetany. W. Raab.—p. 1696.
Extracardiac Circulation of Blood. K. Hasebroek.—p. 1697.
Antihidrotic Action of Thallium. A. Buschke.—p. 1698.
Culture of Spirochoeta Pallida. W. Krantz.—p. 1698.
Analysis of Silver Preparations. K. v. Neergaard.—p. 1699.
Chyliform Effusions. H. Schranz.—p. 1699.
*Placenta Praevia. H. A. Dietrich.—p. 1702.
Serodiagnosis of Syphilis. H. Dold.—p. 1705. Conc'n.

The Metabolism in Diabetes.—Geelmuyden reviews the intermediate metabolism in diabetes from the standpoint of increased sugar production. The increase in the respiratory quotient after injections of insulin is due rather to a production of fat from carbohydrates than to an increased burning of sugar. The quotient may surpass 1, which can be explained only as production of fat. He points to certain parallels with conditions leading to hypoglycemia, disappearance of glycogen and fatty infiltration of the liver, like phosphorus poisoning, Addison's disease, and cyclic vomiting of children, in which lipemia and ketonuria may occur. Epinephrin seems to be a true antagonist of insulin, each acting in the opposite way on production of sugar from fat, and vice versa.

Management of Childbirth.—Sellheim uses Gauss' "principle of least coercion" as the best expression for the mechanism of labor. The mother's organs act according to this principle on the fetus, and the fetus reciprocates. The drawbacks of childbirth, as compared with labor in animals, are partly compensated by the underdevelopment of the bones in babies. Some of the disadvantages would be overcome if women would have their first delivery earlier, before the elasticity of the organs has become reduced. He believes that a normal sexual and procreative life would not only lower the number of anomalies in childbirth, but would also reduce the number of cases of endometritis and of pathologic growths of the uterus.

Therapeutic Quotient of Disinfectants.—Lipschitz compares the inhibition by disinfectants of the reducing power of germs with the inhibiting influence of the preparations on the respiration of body cells. He found that the reducing power of bacilli in respect to meta-dinitrobenzol corresponds to their breathing and to their number. It has nothing to do, however, with the inhibition of their growth. Yet this quality of the disinfectants is also of great practical value, when com-

ed with the inhibition of respiration of the tissues. Both otients should be determined for every preparation.

Injections of Iodin.—Holler confirms the accumulation of din in diseased tissues, especially in tuberculosis. He ind no iodin in the thyroid in two cases of pernicious emia. He has had favorable results with iodin treatment anemias, such as others have reported with thyroid treatnt. He finds that the erythrocytes under this treatment come larger and contain more proteins and hemoglobin.

Purin Elimination and Gout.—Steudel studied the effects the use of different sorts of bread in two healthy men. me bread caused strong intestinal fermentation, and on se days the uric acid content of the urine was small. He ributes this to destruction of the nucleinic bases by the estinal micro-organisms, and believes that this might be basis for a rational treatment of gout.

Shotgun Wounds.—Strassmann reviews the differential gns that distinguish the entering from the emerging point of llets. He suggests that the tissues of the wound be exam-d microscopically for particles torn from the clothing. olisko found that the second shot from a gun darkens the ound canal more than the first shot, because it carries the ot from the first shot with it. Up to a distance of 40 ters, pistol shots caused a narrow gray border around the trance, except when the gun had been extraordinarily well aned.

Treatment of Tetany.—Raab reports recovery in a case of vere tetany after daily doses of 12 gm. of mono-ammonium osphate, as recommended by Porges and Adlersberg.

Placenta Praevia.—Dold considers cesarean section as the thod of choice in cases of placenta praevia. The mortality low. Infection is a contraindication. Midwives should not allowed to make examinations in such cases.

Medizinische Klinik, Berlin

19: 1215-1246 (Sept. 9) 1923

rradiation of Cancer. E. Opitz.—p. 1215.
esistant Syphilis. Fabry.—p. 1218.
rradiation of Ulcers. H. H. Matoni.—p. 1220.
reatment of Glaucoma. C. Hamburger.—p. 1224.
picondylitis of Tuberculous Origin. M. P. Schüller.—p. 1225.
ragmentation of Heart. G. Hartwich.—p. 1226.
reatment of Abortion. R. Elkan.—p. 1227.
kin and Immunity. H. Moral.—p. 1229.
reatment of Cervical Gonorrhea. Roscher and Gollmer.—p. 1229.
ough Respiration. Windrath.—p. 1231.
alvanic Current and Erythrocytes. M. E. Alexander.—p. 1232.
he Meinicke Turbidity Reaction. Holländer and Funccius.—p. 1233.
nsulin. K. Brandenburg.—p. 1234.
resent Status of Orthopedic Treatment of Rickets. S. Peltesohn.—p. 1235.
ecent Works on Vitamins from Pediatric Standpoint. Zoepffel.—p. 1238.

Irradiation of Cancer.—Opitz admits the possibility of lling cancer cells by roentgen-rays, if it were not necessary protect the surrounding tissues. The dose required would several times as large as the doses actually employed. The sults have no relation to the amount of the irradiation. ost of the apparently cured cases in his experience received nall doses. The cancer returned in those patients who were ated with the full so-called "carcinoma dose." The "carnoma dose" is only the maximal, not the best possible nount of rays. The action does not consist in a direct struction of the cancer cells. It causes the formation of emical substances, which may influence the cancer even if e rays are not applied directly to it. The irradiation causes inically an irritation of the vegetative nervous system ffecting especially the pneumogastric). Its action resemes the effects of cholin. The hope to find a certain dose roentgen rays which would destroy cancer is utopian. nall doses may have a stimulating action on the cancer, but never was able to observe this in cancers of the female sex gans.

Irradiation of Ulcers.—Matoni treats with roentgen rays all cers of the stomach and duodenum except indurated ulcers id those that have entailed stenosis. He reports more than per cent. of recoveries among 140 patients. He saw no juries from the treatment except a regular very pronounced oentgen-ray crapula." The diminution of acidity was conant and permanent. Pains were favorably influenced.

Treatment of Glaucoma.—Hamburger injected maximally 0.5 c.c. of a 0.1 per cent. solution of epinephrin under the conjunctiva, preferring the temporal side not far from the cornea. Extreme mydriasis, which is greater than that after atropin and is painful in inflamed eyes, follows almost immediately. The tension of healthy and glaucomatous eyes sinks rapidly and remains low for a few days. An acute attack of glaucoma after such an injection disappeared after eserin. He believes that glaucoma is caused by atony and dilatation of the uveal blood vessels. Therefore he uses the sympathicotropic epinephrin in chronic cases.

Skin and Immunity.—Moral injected 0.5 c.c. of typhoid vaccine partly intracutaneously, partly subcutaneously, and determined the agglutinating titer of the serum. There was no difference between the two ways of immunization.

Münchener medizinische Wochenschrift, Munich

70: 1141-1166 (Sept. 7) 1923

Fashions in Therapeutics. W. Stoeltzner.—p. 1141.
*Porphyrinuria. H. Fischer.—p. 1143.
*Porphyrin in Lung Gangrene. H. Kämmerer.—p. 1144.
Cancer Growth. R. Bierich.—p. 1145.
*Serodiagnosis from Retroplacental Blood. Hohn and Gummert.—p. 1146.
*Experimental Leukopenia. W. Müller.—p. 1149.
*Silver Charcoal. H. Bechhold.—p. 1149.
Neurology of Young Children. E. Thomas.—p. 1151.
Astringent Action of Mineral Waters. G. Keysselitz.—p. 1155.
Duties of Contract Obstetricians. W. Zangemeister.—p. 1156.
Chronic Nephritis in Children. M. Klotz.—p. 1157.

Porphyrinuria.—Fischer distinguishes three natural kinds of porphyrins in man: the porphyrin of urine, of stools, and Kämmerer's porphyrin. All of them sensitize the skin against light. He does not believe that Kämmerer's porphyrin, which undoubtedly forms in the intestinal tract after ingestion of meat, has any pathologic significance. It did not appear in the urine. The coproporphyrin is derived from the myohemoglobin and is present in normal urines. It is increased in sulphonal and lead poisoning, which accelerate the destruction of myohemoglobin. Before being excreted, it is carboxylized. Its sensitizing power is greatly enhanced by this process. There are interesting analogies between the porphyrins, derived from blood and from muscle hemoglobin, and between the two chlorophyls.

Porphyrin in Lung Gangrene.—Kämmerer made cultures from pulmonary gangrene and a putrid bronchiectasis in blood bouillon. He found a very marked formation of hematoporphyrin, and concludes that this may occur in vivo.

Serodiagnosis from Retroplacental Blood.—Hohn and Gummert examined the retroplacental blood from 944 women. They compressed the uterus after delivery of the placenta and caught the blood in sterile tubes. The precipitation reactions gave less false positive results than complement fixation. Addition of small amounts of glycocoll and other substances, which inhibit complement fixation, did not give false results with precipitation.

Experimental Leukopenia.—Müller finds that intracutaneous injections cause a diminution of at least 25 per cent. of the leukocytes, in normal subjects. Some (although not all), generalized affections of the skin failed to present this phenomenon.

Silver Charcoal.—Bechhold treated animal charcoal and kaolin with small amounts of silver preparations. He found that it increased their absorbing power and added to it a strong germicidal property. Silver charcoal is superior to silver bolus. He points out that the use of bolus was recommended by Dioscorides against erysipelas and poisons.

70: 1191-1216 (Sept. 21) 1923

*Roentgen Treatment of Cancer. P. Sippel and G. Jaeckel.—p. 1191.
*Treatment of Sepsis. M. Friedemann.—p. 1195.
Influenza in the Tropics. W. H. Hoffmann.—p. 1199.
*Dentistry in Epilepsy. H. J. Tholuck.—p. 1199.
Hookworm Disease in German Colonies in South America. Jaeger.—p. 1200.
Meningeal Carcinosis. G. Wüllenweber.—p. 1200.
Reflecting Roentgen Plates. P. Stumpf.—p. 1201.
Stimulation by Roentgen Rays. L. Freund.—p. 1202.
The Tonus in Tuberculosis. A. Bacmeister.—p. 1202.
Present Status of Diphtheria. G. Riebold.—p. 1204. Conc'n p. 1232.

Roentgen Treatment of Cancer.—Sippel and Jaeckel discuss critically the failure of roentgenotherapy of cancer in the last

eleven years at Bumm's clinic in Berlin (seventy-one primary cancers and eighty-three recurrences, with an interval since of five years). The only comparatively favorable results were obtained in the 144 cases of prophylactic after-treatment of operated carcinomas of the cervix and ovaries. The outcome in all the others has been, with few exceptions, disastrous (*vernichtend*). They investigated the causes of failures: Coolidge tubes of the same system may give a different amount of rays. The milliamperemeter may accumulate an electric charge and give higher figures in currents of low intensity, and lower figures with stronger currents (60 per cent.). They gave usually the highest possible doses (erythema of skin). They found that Dessauer's and Vierheller's estimations of the deep dose are too high. Therefore a combination with a direct vaginal irradiation (with radium) gives better results. Yet the main cause of failures is the different sensitivity of the tumor. No histologic or chemical method, nor initial results allow us so far to predict the outcome. Very few tumors are really sensitive like solitary sarcomas of lymphatic glands, and some cases of malignant goiter. Only about 10 or 20 per cent. of the tumors react to the skin dose, and the rest (60-70) are very little or not at all influenced. Different adjuvant methods (protein therapy, injections of salts of heavy metals) failed. It seems that local irradiation enhances the growth of metastases. They now have resumed the practice of operating in all cases of cancer which are not inoperable when first seen.

Treatment of Sepsis.—Friedemann reports his experiences with different drugs and without them in septicemias. Both methods gave good and bad results. He declares that he would believe in the action of a given drug only if several cases of puerperal sepsis with severe clinical symptoms and repeatedly positive blood cultures should recover. All other cases and combinations can recover spontaneously.

Dentistry in Epilepsy.—Tholuck discusses the possibility of provocation of epileptic seizures by carious teeth or irritation from false teeth. Epileptics should prefer crowns and bridges, and avoid plates as much as possible. In any event, the plates should be made from metal so that they cannot be bitten through, and they should be so large that they cannot be swallowed.

Wiener klinische Wochenschrift, Vienna

36: 635-652 (Sept. 6) 1923

Morbid Anatomy and the Clinic. R. Maresch.—p. 635.
*Pyocyancus Bacteriophages. S. Okuda.—p. 638.
Vaginal Cysts. V. Pauliucu-Burla.—p. 639.
*Pylorus and First Part of Duodenum. T. Bársony.—p. 643.
Echinococcus Disease of Liver. G. Spengler.—p. 644.

Pyocyaneus Bacteriophages.—Okuda continued Cancik's investigations on pyocyaneus bacteriophages. He believes that probably all the cultures which color the medium dark contain them. Similar bacteriophages were found in a culture of *Bacillus fluorescens liquefaciens.*

Pylorus and First Part of Duodenum.—Bársony investigated the movements of the pylorus caused by contractions of the antrum. He finds that they determine the shape of the upper first part of the duodenum. It is concave in hypertonia and increased peristalsis, and straight or convex downward in conditions of atony.

36: 653-670 (Sept. 13) 1923

Ossification of Stroma in Cancer. T. Hasegawa.—p. 653.
*Roentgen Rays in Anuria. F. Pordes.—p. 656.
Urobilin Formation. F. Passini and J. Czaczkes.—p. 657.
Duodenal Stenosis in New-Born Infant. Ostertag.—p. 659.
*Medical Impressions of America. E. Fuchs.—p. 670.

Roentgen Rays in Anuria.—Pordes believes that the roentgen rays never have a stimulating action. Even small doses destroy some parts of the irradiated tissues. Their favorable action in anuria may be attributed to a destruction of a leukocytic infiltration and subsequent decompression of the glomeruli.

Medical Impressions of America.—The ophthalmologist, Prof. E. Fuchs, reports his experiences during his recent visit in America. A large part is formed by objective data; the subjective part is quite favorable. His first visit was more than twelve years ago.

Zeitschrift für urologische Chirurgie, Berlin

14: 1-104, 1923

*Carbuncle in the Kidney. W. Horn.—p. 1.
*Hypertrophy of the Prostate. M. Jacoby.—p. 6.
*Postoperative Renal Hemorrhage. A. Jianu.—p. 38.
Causes of Retention in Bladder Diverticulum. G. Praetorius.—p. 46.
Dermoid Cyst in Pelvis Connective Tissue. A. Brenner.—p. 58.
*The Bladder After Suppuration in the Prostate. Boeminghaus.—p. 63.
Research on Physiology of the Prostate. Idem.—p. 71.
*Device to Plug Cystostomy Opening. G. D'Agata.—p. 89.
*Operative Treatment of Undescended Testis. I. Bruskin.—p. 91.

Carbuncle in the Kidney.—In Horn's case there had been no local symptoms attracting attention to the kidney, no pain or tenderness, while coincident hypertrophy of the prostate apparently explained the general symptoms. The man, aged 53, had had a carbuncle at the back of the neck two months before. The condition grew worse after prostatectomy, and the man died in three weeks with uroseptic symptoms. The right kidney presented an aspect resembling that of the carbuncle on the neck.

Hypertrophy of the Prostate.—Jacoby photographed from above the outlet of the bladder, and examined frozen sections taken from the three dimensions in 200 cases at operation or necropsy. His eighteen photomicrograms confirm his verdict that the hypertrophy of the prostate is never diffuse. The enlargement is due to the development of nodules. These nodules are not found in atrophy; they consist of glandular or fibromyomatous tissue. Neither arteriosclerosis, inflammation, or the internal secretions seem to be responsible; the hypertrophy is more of the nature of a tumor, although not a true tumor.

Postoperative Hemorrhage in the Kidney.—Jianu takes a U stitch through the kidney capsule and the mucosa, after the nephrotomy. The suture lies in the plane of a Bertin pyramid, where the vessels have been severed. A row of these U stitches on each side prevents danger of hemorrhage at the time or later.

Behavior of the Bladder After Prostatectomy.—Boeminghaus gives details of a case in which abscesses in the prostate had entailed incontinence of urine. The muscular elements controlling the bladder sphincter are liable to be destroyed by the suppuration in the prostate. Somewhat similar conditions prevail in the bladder after prostatectomy, only in this case the muscular elements are less involved and are able to recuperate. In the case reported the patient prefers the wearing of a urinal to the plastic operation advocated.

Cystostomy Drain.—D'Agata slips an inflatable rubber bag, shaped like an hour-glass, over the tube introduced into the bladder at the cystostomy, preliminary to prostatectomy. This bag is introduced into the bladder incision, the narrow part fitting to the skin. When it is inflated, the round bulge on each side of the narrow part plugs the opening, and holds the whole in place, while the urine passes off through the central tube.

Operative Treatment of Undescended Testis.—Bruskin denounces the practice of removing the ectopic testis, saying that every effort must be made to provide favorable conditions to promote the internal secretion of the testis. He advocates this even in the elderly. The disadvantages of the various methods of treatment in vogue are enumerated; the Herzen technic alone answers the purpose, he says, without impairing the circulation in the testis. With this method, the testis is brought down into the scrotum and through an incision in the scrotum and in the skin of the adducted thigh opposite. The testis is buried under the skin of the thigh by this scrotum-thigh anastomosis, suturing the scrotum to the thigh. The patient gets up the tenth day. As he hobbles around, stooping over, the spermatic cord stretches more and more until he can stand upright, and there is no danger of the cord's retracting when released. This gradual stretching leaves the physiologic conditions unimpaired, and in four or six weeks the testis can be slipped back into the scrotum and the thigh released. Injury of the testis seems impossible with this self-stretching method as pain warns against overdoing. The drawbacks are the tediousness and the two operations required; but Bruskin says that the brilliant advantages compensate for all this. He describes five cases in adults with ideal results, confirmed by reexamination.

Zentralblatt für Chirurgie, Leipzig

50: 1417-1488 (Sept. 15) 1923

Postoperative Tetany After Operation in Nongoitrous Affections. E. Melchior.—p. 1423.
*Quinin in Exophthalmic Goiter. Kleinschmidt.—p. 1425.

Quinin Hydrobromid in the Preliminary and After-Treatment of Exophthalmic Goiter.—Kleinschmidt used quinin hydrobromid for preliminary treatment in more than fifty cases of exophthalmic goiter, and compares the results with about the same number of cases in which no preliminary treatment was given. The results speak very favorably for quinin in the preoperative and postoperative treatment of this disease. The patients received, about a week before the operation and for a corresponding period afterward, two or three times daily, 0.25 gm. of quinin hydrobromid by mouth. The pulse diminished from ten to fifteen beats a minute during the preliminary treatment. At the same time, subjective and objective improvement in the existing nervousness was noted. After the operation, the pulse count rose but, on the average, remained from twelve to fifteen beats lower than the average for the patients who had received no preliminary treatment. The pulse on dismissal of the patients ranged from 80 to 81 for those who had received preliminary treatment and from 95 to 96 in the others. The quality of the pulse was also good, and postoperative excitement was rarer and less marked.

Zentralblatt für Gynäkologie, Leipzig

47: 1473-1488 (Sept. 15) 1923

Trials with the Sellheim Inflator for Testing the Patency of the Fallopian Tubes. H. Sellheim.—p. 1473.
*Abdominal Versus Vaginal Operation. J. Halban.—p. 1480.
*Blindness After Uterine Hemorrhages. O. Retzlaff.—p. 1484.

Abdominal Versus Vaginal Operation in Carcinoma of the Cervix.—Halban found the abdominal and the vaginal method of operation in carcinoma of the cervix of precisely equal value. Accordingly the choice of method may be left to the operator. A combination of the two methods might give better results when the abdominal walls are unusually thick or the Trendelenburg position is contraindicated.

Onset of Blindness in Connection with Hemorrhages of the Reproductive Organs.—Retzlaff reports a case in which a woman, aged 52, became blind in both eyes following severe and long continued hemorrhages of the uterus during the menopause. Vision had been previously normal.

Zentralblatt für innere Medizin, Leipzig

44: 529-544 (Aug. 18) 1923

*Capsella in Place of Ergot and Hydrastis. F. Grumme.—p. 529.

Capsella in Place of Ergot and Hydrastis.—Grumme recommends extracts of *Capsella bursa pastoris* instead of ergot and hydrastis. Its styptic action was known to Dioscorides and Paracelsus.

Casopis lekaruv ceskych, Prague

62: 917-940 (Sept. 1) 1923

*Dangers of Tuberculin Reactions. E. Vasek.—p. 917.
*Fight Against Cancer. J. Necas.—p. 920.
Tuberculins in Surgical Tuberculosis. Zahradnicky.—p. 925. Conc'n.
Soft Catheter for the Lacrimal Duct. Vejdovsky.—p. 931.

Dangers of Tuberculin Reactions.—Vasek publishes three cases of apparent though transitory injury of the eyes in tuberculous patients after diagnostic injections of old tuberculin.

Fight Against Cancer.—Necas publishes statistics of the necropsy findings in 2,396 cases of malignant tumors among 25,919 necropsies performed in the last twenty-one years in Hlava's Institute in Prague. Of 100,000 persons living in Bohemia and Moravia, about 100 die every year from cancer.

62: 993-1020 (Sept. 22) 1923

Papulotuberculoid Syphilis. V. Jedlicka.—p. 993. Cont'd.
Confusional States. A. Heveroch.—p. 997. Cont'd.
Blood Transfusion. J. Divis.—p. 1002. Conc'n.
*Preservation of Fruit Juices. G. Kabrhel.—p. 1008. **Conc'n.**

Preservation of Fruit Juices.—Kabrhel considers the addition of 0.25 per cent. formic acid to fruit juices innocuous.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 989-1068 (Sept. 8) 1923

*The Pyramidal Chest. A. J. P. van den Broek.—p. 990.
*Malaria in Amsterdam Region. J. de Hartogh, Jr.—p. 996.
*The High Blood Pressure Question. J. T. Peters.—p. 1016.
*Hortega's Third Element in the Central Nervous System. A. Gans.—p. 1024.
*Dilute Tuberculin Treatment. J. Koopman.—p. 1028.
Dupuytren's Contracture. A. Q. van Braam Houckgeest.—p. 1032.
A Primary Interlobar Empyema. W. L. Pel.—p. 1034.
Primary Suture of Compound Fracture of Patella. J. B. Kosters.—p. 1036.

The Pyramidal Chest.—Van den Broek analyzes the mechanical factors responsible for the tetrahedral or pyramidal shape of the chest. It is common in asthma, and is seen practically exclusively in the young, and it does not seem to have any connection with rickets.

Malaria in the Netherlands.—De Hartogh reports his own experience at Amsterdam and the epidemiologic data in twenty-seven cases. In one woman, aged 46, the intense occipital headache, vomiting and slight mental confusion suggested an acute brain affection.

High Blood Pressure.—Peters gives his impressions from the discussion of the hypertension question at the recent congress of internal medicine at Vienna. Volhard's classification of hypertension subjects as "ruddy" and "pale" does not conform to Peters' observations in 300 cases: Many persons with pallor from vascular spasm have normal kidneys, and vice versa. Volhard remarked that he advanced this classification merely to arouse discussion, hoping that it will "act like a ferment." But Peters adds that a ferment is not always harmless. Polycythemia was found in some of the "ruddy" cases. Volhard's statement that acute nephritis is secondary to general vascular constriction conflicts with Peters' observation that the blood pressure often returns to normal after decapsulation on account of acute nephritis. This seems to indicate that the acute nephritis is the cause of, not the consequence of the vascular spasm. Peters disputes further Volhard's dictum that no one nowadays should die from acute nephritis. Such exaggerated statements reaching the lay public might result in harm.

The Third Element in the Central Nervous System.—Gans gives a photomicrogram showing the cells of Del Rio Hortega's third element in the brain cortex. He describes the new technic which made this discovery possible, and Spatz and Metz' deductions as to the import of Hortega's third element in general paralysis.

Dilute Tuberculin Treatment.—Koopman reports years of tests of de Keersmaecker's method of treating tuberculosis with extremely dilute tuberculin. No advantage from it over the controls was evident in any instance.

Mededeel. v. d. Burg. Geneesk. Dienst, Batavia

189-342, 1922. English Edition.

The Four Groups for Blood Transfusion in East Indies. Korthoff.—p. 193.
Acute Confusional Insanity in Dutch East Indies. F. H. van Loon.—p. 200.
*Colloidal-Chemical Biologic Reactions. Radsma.—p. 221.
Secretion of Chlorin in Febrile Diseases. Moh. Djamil.—p. 226.
General Pathology of Tropical Cirrhosis of Liver. Oudendal.—p. 236.
Constitutional Characteristics of Malay and Chinese Races. H. Müller.—p. 249.
Origin and Significance of Blood Platelets in Man. Laoh.—p. 261.
*Simple Quinin Test. P. Laoh.—p. 266.
Chronic Bacillary Dysentery. Lichtenstein.—p. 268.
The Bilirubin Content of Blood. Atmosodiro.—p. 280.
Edema Disease Probably from Improper Food. A. J. Salm.—p. 294.
Origin of Anemia in Ankylostomiasis. C. D. de Langen.—p. 304.
Arsphenamin Dermatitis and Arsphenamin Jaundice. A. v. d. Zijl.—p. 317.
Deep Roentgen-Ray Therapy. H. C. Nauta.—p. 333.

Colloid Reactions.—Radsma recalls that the last phase of agglutination is merely a process of colloidal flocculation. It is influenced by addition of salts. This influence is neither osmotic nor chemical, but is of lyotrope nature, and the erythrocytes of different species respond differently. He gives charts and illustrations, and reiterates that the agglutination of erythrocytes in sugar solution with an acetate-acetic acid buffer solution is a simple method for research in pathologic conditions. The final phase of phagocytosis i.

likewise governed by colloid chemical factors. This can be demonstrated by distributing 1.5 c.c. of an isotonic solution of different alkali salts in test tubes. Then 60 c. mm. of blood is added, and after standing for fifteen minutes, 0.25 c.c. of a suspension of rice starch containing 50 mg. per c.c. is added. The tubes are then put in the incubator for half an hour, and shaken every five minutes. Then 1.5 c.c. of a 2 per cent. acetic acid solution is added. One good drop is allowed to dry on an object glass, colored with methylene blue. By counting 300 or 400 leukocytes, the proportion which have absorbed the starch grains is determined. The same factors which are decisive for the colloidal condition of the hydrophilic colloids determine also phagocytosis.

Test for Quinin.—Laoh advocates the picric acid test of the urine as a simple and reliable test of whether the quinin prescribed is being taken or absorbed properly. When a few drops of the 1 per cent. picric acid solution used in the Esbach test for albumin are added to a cooled and filtered quinin urine, a precipitate forms, first cloudy, then diffuse. This disappears on heating and returns when cooled again. (A precipitate of albumin increases when heated, and settles to the bottom on standing.) The urine of an adult who has taken 0.2 gm. of quinin gives a positive reaction in an hour.

Acta Chirurgica Scandinavica, Stockholm

Supplement **4**: 1-91, 1923

*Pathogenesis of Exophthalmic Goiter. J. Holst.—p. 1.

Pathogenesis of Exophthalmic Goiter.—Holst remarks that this disease interests internists and surgeons, pathologists, oculists and laryngologists as well as gynecologists, neurologists and psychiatrists, and his study of 300 cases took him into all these special fields as well as that of physiologic chemistry. All the testimony thus accumulated points to the formation of epithelial tumors in the thyroid as the essential element in all cases of primary thyrosis, which includes primary and secondary exophthalmic goiter, hyperthyroidism and thyrotoxicosis. The abnormal proliferation of the epithelial tissue starts the vicious circle. Causal treatment must aim to combat this: resection, ligation, roentgenotherapy, alone or combined. This pathogenetic conception explains the occasional spontaneous recovery as due to retrogressive changes which arrest further development of the microscopic epithelial tumors, while there is still enough normal thyroid tissue left to carry on its work. Fatty degeneration of the epithelium may progress to such a point that the symptoms of exophthalmic goiter may yield to those of myxedema. A slow pulse and the absence of alimentary glycosuria in exophthalmic goiter are symptoms that belong to the encroaching myxedema. "The riddle of the sphinx—the cause of the tumor formation—is still unsolved, but the sphinx itself has been dug out until now we can see its entire shape and the base on which it rests, namely, the thyrosis and the exophthalmic adenomas." His article is in German, with thirty-three photomicrograms and a colored plate showing the various phases of the process. He recalls that primary exophthalmic goiter does not occur endemically, while the secondary form is endemic in most cases. The exophthalmic goiter functions with a variability of autonomy and a mixture of excess and deficit which correspond to the mixture of abnormal tissue proliferation and enhanced tendency to degeneration that characterize parenchyma tumor growth in general.

Acta Medica Scandinavica, Stockholm

58: 515-611 (Sept. 25) 1923

Counting the Blood Platelets. O. Thomsen.—p. 515.
*Wilon's Pseudosclerosis. G. Söderbergh.—p. 519.
*Volume of Lungs. C. Lundsgaard and K. Schierbeck.—p. 541.
*Influenzal Encephalitis. R. Jaksch-Wartenhorst.—p. 557.
Sugar Content of Blood. K. Marie Hansen.—p. 585.
Iron in Anemia. E. Meulengracht.—p. 594.

Wilson's Pseudosclerosis.—Söderbergh points out the fallacies of our present knowledge of the extrapyramidal syndrome. Wilson's pseudosclerosis is something much more extensive and complicated than a simple lesion of the lenticular nucleus.

Volume of Lungs.—Lundsgaard and Schierbeck examined twelve patients with emphysema. They found a normal volume of the lungs, but an increase in the residual air, with a corresponding decrease in the vital capacity, affecting especially the residual air.

Influenzal Encephalitis.—Jaksch-Wartenhorst states that every form of influenza may be followed by an encephalopathy. The period of latency may be over a year. Over eighteen pages of literature are added.

Hygiea, Stockholm

85: 705-752 (Sept. 15) 1923

Berzelius and Hwasser: Historical Sketch. H. G. Söderbaum.—p. 705.
*Pathogenesis of Spasmophilia. K. Wejdling.—p. 720.
Systems of Graphic Records. Sömme.—p. 730.

Pathogenesis and Treatment of Spasmophilia.—Wejdling comments on the light thrown on tetany by the discovery that in genuine epilepsy the blood gives an alkaline reaction just preceding a seizure. Treatment should aim to combat the alkalosis, and ammonium chlorid seems to be most effectual for this. György has demonstrated that ammonium chlorid induces a lively elimination of phosphates, a phosphate diuresis. The resulting acidosis mobilizes calcium, and restores the normal balance between the calcium and phosphate in the blood. The ammonium chlorid is thus an indirect calcium treatment but it is exclusively symptomatic. Cod liver oil and the quartz lamp combat the diathesis, the rickets, and only indirectly the manifestations of tetany, by curing the underlying diathesis. György found that in one or two days all the manifest symptoms of spasmophilia vanished with a daily dose of 5 gm. of ammonium chlorid by the mouth. Wejdling recalls that fever tends to induce alkalosis—latent tetany is liable to flare up under an infectious fever; also that breast milk contains less phosphates than cow's milk, and that fasting tends to induce acidosis, all of which have a bearing on treatment of spasmophilia.

Ugeskrift for Læger, Copenhagen

85: 685-698 (Sept. 27) 1923

Graphic Records of Lung Findings. S. Bang.—p. 685.

85: 699-716 (Oct. 4) 1923

Dermatosis from Fur Dye. Jacobsen.—p. 699.
*Test for Urea in Blood. J. Christiansen.—p. 700.
*Boarding Out the Insane. A. G. J. Elmquist.—p. 705.

Test for Urea in the Blood.—Christiansen states that he has been applying for the last year Steinfield's method as described in The Journal, Aug. 14, 1920, p. 473. He has found it often extremely useful for the differential diagnosis and to supervise progress from day to day. In one patient the urea nitrogen increased by 100 per cent. every day until decapsulation of the kidney. Then the percentage dropped in the course of one day from 150 mg. to 20 mg. The normal limits in all his numerous tests coincided with those of Steinfield.

Boarding Out the Insane.—Elmquist reviews the experiences with "family care" of the mild insane in the Djursland district in the last twenty years. The method here differs from that at Gheel and in Scotland in that the families selected reside near the insane asylum, and the supervision of the insane thus boarded out is entrusted to the local general practitioner. At present there are 110 patients thus placed in families in Djursland, which is a farming district on a peninsula. He explains that the family must take the insane patient into its actual family life and work, and both family and patient have to be selected with care. At present, 75 øre (about 20 cents) per day is paid for the lodging, board, washing and mending. The hospital supplies clothes. He describes a few instances of the complete transformation of the insane in the quiet homelike environment. The pride displayed by the family in such a transformation brings new applications for "patient boarders"; the larger the number of families willing to take these charges, the greater the freedom of choice. The local practitioner is the best judge of the conditions in the families. The custom has recently been introduced of having the patients brought back to the hospital once a week for a bath and inspection of the clothing. Some member of the family drives them in, and they bathe and have coffee, and regard it as a kind of picnic.

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A SALIVARY INDEX TO RENAL FUNCTION *

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I. THE CLINICAL USE AND SIGNIFICANCE OF THE SALIVARY UREA INDEX

That the determination of the blood urea is the most aluable test for estimating renal impairment with egard to retention of nitrogenous metabolites is gen-rally recognized. However, the estimation of the lood urea, although a comparatively simple procedure f certain laboratory facilities are available, is too com-licated and laborious for the use of the general ractitioner.

Urea is easily diffusible and is almost uniformly istributed in all tissues [1] and fluids of the body, includ-ng the spinal fluid and mammary gland excretion.[2] Myers and Fine [3] report that urea is present in the pinal fluid in 88 per cent. of its blood concentration. f standard solutions of urea are used, 93 per cent. vill dialyze in twenty-four hours.[4]

We have demonstrated in a previous paper [5] that the oncentration of urea in saliva is practically the same s the concentration of urea in the blood. The salivary rea is estimated from the combined urea and ammonia itrogen, for there is conclusive evidence that by far he greater part, if not all, of the salivary ammonia itrogen is a product of urea by hydrolysis. The con-entration of urea in saliva varies somewhat in different ersons. The probable causes of variation and the exact elationship between the salivary urea and the blood rea are discussed in detail in a previous paper,[5] and in art II of this paper.

The average value of urea concentration in the saliva s approximately 80 per cent. of that of the blood urea. herefore, for practical purposes 16 mg. of combined mmonia and urea nitrogen for each 100 c.c. of saliva as been considered the upper limit of normal, corre-ponding to 20 mg. of urea nitrogen for each 100 c.c. f blood.

In cases of urea retention, the combined ammonia and urea nitrogen of the saliva is increased in definite amounts, and closely parallels the urea nitrogen of the blood. This fact is of practical significance in determining renal function, since the availability of saliva recommends it for practical usage. The value of determinations of salivary urea would still further increase with the development of a method sufficiently accurate and easier of application than the urease method. Such a method, based on the mercury combining power of saliva, has been developed.

HISTORICAL NOTES

The combination of urea with mercuric nitrate, forming a complex mercuric salt, was used by Liebig,[6] in 1853, as a basis for his method for the determination of urea in urine. Pflüger [7] showed that under the varying reactions of the urine incident to the method, not only urea, but all the nitrogenous compounds of the urine were precipitated by the mercury; and Freund and Fellner [8] made this fact a basis for a method for fractional precipitation of all nitrogenous substances from the urine. That sodium chlorid is a mercury combining substance, forming mercuric chlorid from the mercuric nitrate, was recognized by Liebig and some of the earlier workers, who made a correction for this in their nitrogen methods. By using mercuric chlorid as the combining mercuric salt, Freund and Fellner obviated the need for such a correction.

Friedländer,[9] in 1921, described a rapid titrimetric method for the determination of urea in urine, in which mercuric chlorid was used. As an end-point he used the first appearance of a "red mercury carbonate" (rotes kohlensäures Quecksilber) which is formed when a drop of the titrated urine is added to a drop of sodium carbonate, thus showing the presence of an excess of mercuric chlorid in the urine. He maintained that the values obtained represent other nitrogenous substances of the urine besides the urea. Uric acid, creatinin and amino-acids all combine with mercury, but are present in the urine in so much smaller quantities, and use so much less mercury proportionately than does urea, that Friedländer believed they did not impair the values of the urea determinations for clinical purposes. We have adopted for our use a modification of this method. A critical study of the details in the development of our technic is described in Part II.

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* Work done under the direction of Dr. Leonard G. Rowntree in the ivision of Medicine, Mayo Clinic.

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TECHNIC

Collection of Specimen of Saliva.—The mouth is washed out with one-half glass of water, and a small piece of paraffin is used to stimulate the salivary flow. Two specimens of about 8 c.c. each are collected.

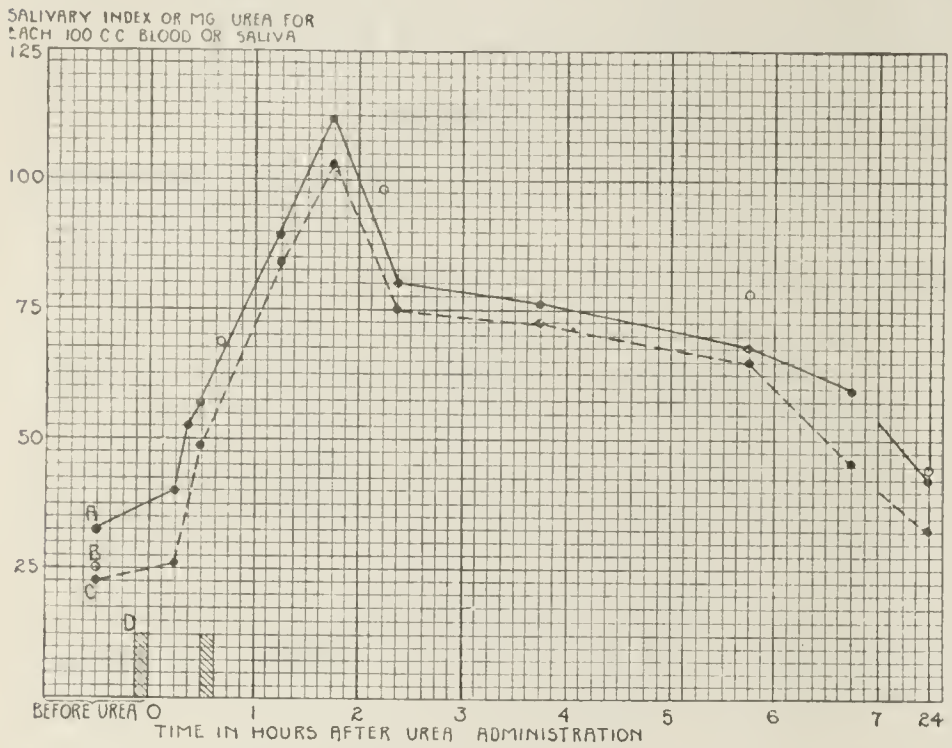


Chart 1.—Parallel changes in blood and saliva of a normal person following administration of 50 gm. of urea by stomach tube: solid line, salivary urea index; *O*, blood urea; broken line, salivary urea (urease method); shaded columns, 25 gm. urea.

The first or preliminary specimen, which removes food particles or excess of epithelial débris, is discarded, or may be used as a check on the second specimen, which is used for titration. Filtration of saliva is unnecessary.

Mercury Titration.—Two solutions are used, a 5 per cent. solution of mercuric chlorid, and a 7 per cent. (saturated) solution of sodium carbonate (anhydrous). This latter is approximately equivalent to a 20 per cent. solution of sodium carbonate crystalline (Na_2CO_3 $10H_2O$), or 8.5 per cent. of monhydrated sodium carbonate U. S. P. To 5 c.c. of saliva in a small flask or tube is added the mercuric chlorid solution from a buret, until a test drop of the titrated saliva, when added to a drop of the sodium carbonate on a white tile, shows a prompt formation (within three seconds) of a definite brown precipitate of a mercury oxychlorid, which is formed by the combination of mercuric chlorid and excess sodium carbonate.[10] It was found that 5 c.c. of saliva requires a minimum of 1.5 c.c. of mercuric chlorid. Hence this amount should be added before a test drop is removed. As titration progresses, a deepening canary yellow color appears on adding test drop to the sodium carbonate; but the true end-point is the first appearance of a reddish brown precipitate.

This titration measures the total mercury combining power of the saliva. The appearance of the oxychlorid shows that the mercuric chlorid has ceased to combine with substances in the saliva and is free to react with the carbonate. The titration figure for 5 c.c. of saliva, multiplied by 20, gives the number of cubic centimeters of mercuric chlorid used for 100 c.c. of saliva. The mercury combining power of 100 c.c. of saliva we have called the "salivary urea index."

DETERMINATION OF NORMAL SALIVARY UREA INDEX

Fifty grams of urea was given to one of us (P. S. H.) by stomach tube to avoid contamination of the saliva, and a temporary urea accumulation in the blood was thus produced. The salivary urea, calculated from the ammonia and urea nitrogen, the blood urea by the urease method, and the salivary urea index were determined at intervals (Chart 1).

There was a distinct and continuous parallelism of the three values, as the urea increased and decreased in the blood. The salivary urea index varied directly with changes in the concentration of urea in saliva and blood. Obviously, the information gained from one estimation was of similar value to that obtained from the other two.

Subsequently, about 900 estimations of the salivary urea index were made in a series of about 600 persons, to determine (1) the variations in the salivary urea index in normal persons, and (2) the variations in the salivary urea index in patients in whom urea retention was evidenced by an increased blood urea.

The normal salivary urea index was determined from saliva collected from 442 persons whose renal function was considered normal. They included eighteen laboratory workers, 337 patients whose blood urea was obtained and found to be between 12 and 40 mg. for each 100 c.c., and eighty-seven patients whose blood urea was not obtained, but who had normal phenolsulphonephthalein excretion, normal urinalysis, and no subjective nor objective evidence of renal damage with retention. Six hundred and sixty-seven titrations of the salivary urea index were made on this group. At the onset of the work a single specimen of saliva was taken. Eighty-two per cent. gave an index value of from 30 to 50 (that is from 30 to 50 c.c. of 5 per cent. mercuric chlorid for each 100 c.c. saliva),

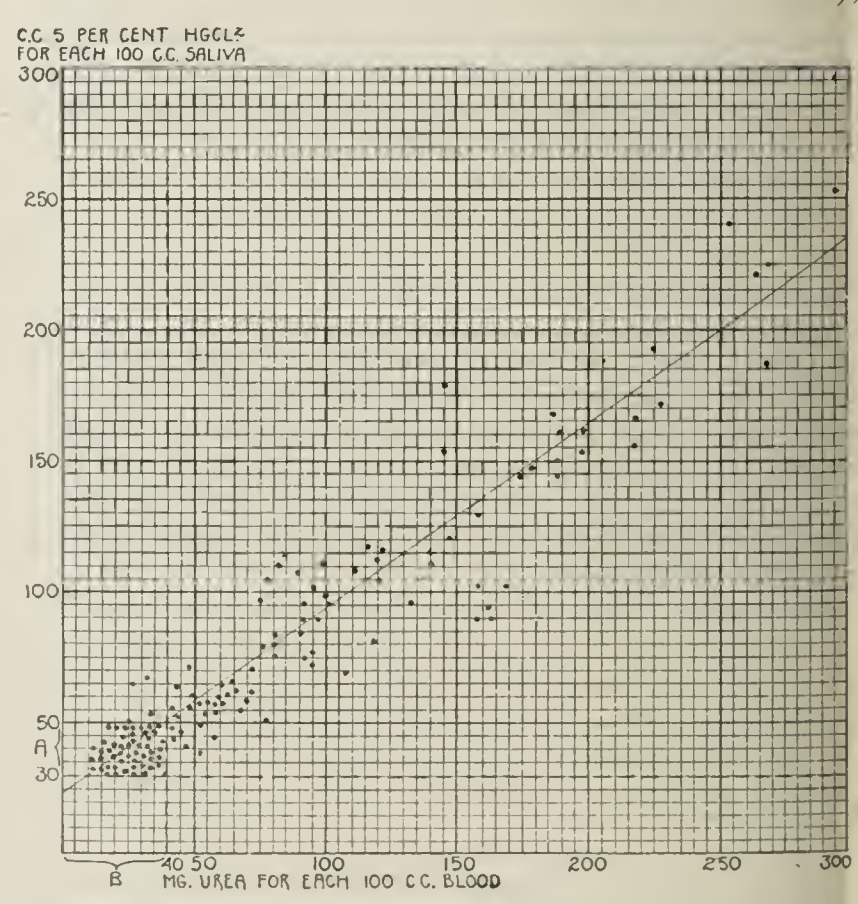


Chart 2.—Relation between blood urea and the salivary urea index: ordinate, salivary urea index; abscissa, blood urea. *A*, normal range of the salivary urea index; *B*, the normal range of blood urea.

while 18 per cent. crept above the value of 50 to values which later were proved to be generally an indication of beginning retention. This overlapping area was materially reduced by using the second specimen of a fractionated salivary collection, as described in discussing

10. Schmidt, E.: Ausführliches Lehrbuch der pharmazeutischen Chemie, Ed. 6, Braunschweig, F. Vieweg, 1919, p. 748.

ne technic. Thus, 92 per cent. of 190 estimations nade on the second specimen of fractionated salivary ollections gave an index between 30 and 50. This xplains the necessity for making fractional collections.

Most of these estimations were made on ambulatory atients at the Mayo Clinic, who were sent for salivary nalyses immediately after their blood was collected. The routine fractional method for salivary collection vas used, and no special attention was given to persons vhose mouths were in bad condition. It is probable that he 8 per cent. overlapping group might have been still urther reduced if checks had been available in some of hese instances in which the index value was disproporionate to the blood urea.

SALIVARY UREA INDEX IN PERSONS WITH UREA RETENTION

Several cases of prolonged retention were studied ver long periods of time.[11] In the following cases the hanges in the salivary urea index and the fluctuations n the blood urea were most strikingly parallel. Their istories are given in brief detail in order to emphasize he clinical applicability of the test.

TABLE 1.—*Laboratory Data in Case 1*

Date	Salivary Urea Index	Blood Urea, Mg. for Each 100 C.c.	Phenolsulphonephthalein, per Cent.
1/20/23	..	..	35
1/26/23	..	21	..
2/15/23	224	..	..
2/17/23	..	266	..
2/19/23	73	96	..
2/22/23	36	42	..

TABLE 2.—*Laboratory Data in Case 2*

Date	Salivary Urea Index	Blood Urea, Mg. for Each 100 C.c.	Phenolsulphonephthalein, per Cent.
12/13/22	192	226	..
12/14/22	..	..	No return
12/16/22 to 2/17/23	..	..	5-10-15
2/18/23	90	100	10
2/20/23	108	112	..
2/24/23	90	96	..
2/27/23	78	80	..
3/ 2/23	..	..	15
3/ 3/23	72	64	..
3/ 7/23	66	66	..
3/ 9/23	60	56	..
3/10/23	54	..	..
3/16/23	57	52	15
3/20/23	66	60	..
3/23/23	60	62	..
3/27/23	60	68	..
3/30/23	66	60	..

TABLE 3.—*Laboratory Data in Case 3*

Date	Salivary Urea Index	Salivary Urea, Mg. for Each 100 C.c.	Blood Urea, Mg. for Each 100 C.c.	Phenolsulphonephthalein, per Cent.
1/ 8/23	240	306	252	..
1/12/23	168	231	187	..
1/15/23	108	103	...	..
1/16/23	...	...	...	30
1/17/23	102	98	96	..
1/22/23	45	30	29	..
1/24/23	...	...	...	50
1/29/23	40	24	20	..

CASE 1.—Mr. L. A. Van H. came to the clinic, Jan. 3, 1923, complaining of backache and hematuria. Examination of the urine revealed albumin 2, erythrocytes 1 and pus 1, and was negative for tuberculosis bacilli. A diagnosis of left hypernephroma was made, and left nephrectomy was performed, February 6. Acute postoperative uremia occurred.

11. These cases were reported briefly by Hench, P. S.: Salivary Urea and the Mercury Combining Power of Saliva: A New and Simple Index of Renal Insufficiency, M. Clin. N. Am. **7**: 123-134 (July) 1923.

CASE 2.—Mr. P. O. came to the clinic, Dec. 9, 1922, complaining of acute and chronic retention. This patient was observed over a considerable period of time. The bladder was gradually decompressed. A diagnosis of hypertrophied prostate 2 with uremia was made.

CASE 3.—Mr. B. D. came to the clinic, Dec. 26, 1922, complaining of bladder trouble. Examination of the urine revealed pus 3, erythrocytes 1, and positive stain for tubercolosis bacilli. The phenolsulphonephthalein return was 50 per cent. Pyelographic and cystoscopic examinations confirmed the diagnosis of renal tuberculosis, and right nephrectomy was performed, December 30. Acute retention ensued.

TABLE 4.—*Laboratory Data in Case 4*

Date	Salivary Urea Index	Salivary Urea, Mg. for Each 100 C.c.	Temperature	Pulse
4/ 8/23	54	..	Normal	Normal
4/10/23	..	..	103	135
4/11/23	..	..	103	130
4/12/23	71	70 5	99.5 to 102.5	112 to 102
4/14/23	..	..	Normal	Normal
4/17/23	54	..	...	...
4/19/23	32	34	...	...

TABLE 5.—*Probable Equivalents in Blood Urea, Derived from Salivary Urea Index*

Titration Figure, C.c. 5 per Cent. Mercuric Chlorid for 5 C.c. Saliva	Salivary Urea Index	Probable Equivalent in Blood Urea, Mg. for Each 100 C.c.
1.5	30	10
2.0	40	24
2.5	50	40
3.0	60	53
3.5	70	67
4.0	80	81
4.5	90	95
5.0	100	109
5.5	110	124
6.0	120	138
6.5	130	152
7.0	140	166
7.5	150	180
8.0	160	195
8.5	170	209
9.0	180	223
9.5	190	237
10.0	200	250
10.5	210	265
11.0	220	279
11.5	230	294
12.0	240	307

CASE 4.—Mrs. H. C. came to the clinic, Jan. 1, 1923, and a diagnosis of bilateral pyelonephritis was made. Examination of the urine revealed pus 3 and 4, albumin 2, and erythrocytes 1. The blood urea was 20 mg. The temperature and pulse rate were normal. The patient was dismissed from observation, but returned to the clinic, March 23. At this time blood urea could not be obtained. The salivary urea index was determined, April 8. Two days later the patient developed high temperature and rapid pulse rate, with headache and nausea. This case illustrates the possibility of studying urea retention when blood urea estimations are impossible.

COMPARISONS BETWEEN THE SALIVARY UREA INDEX AND BLOOD UREA

Seven hundred and four determinations of blood urea and the salivary urea index were made on 493 persons. The two tests were usually taken within an hour, and never more than a few hours apart. The urea levels, as indicated by the blood urea, were between 12 and 300 mg. The results of the tests on all patients with a blood urea value of 70 mg. or over are charted. Below this value a representative series is shown. It will be seen that the salivary urea index increased directly with the degree of urea retention as indicated by the blood urea (Chart 2).

In order to determine the clinical significance of single index estimations in terms of blood urea, and to ascertain the most probable relationship between

the two values in the entire series, a "line of probability" was arbitrarily drawn and is shown in Chart 3. From this chart the probable equivalents may be found. A table (Table 5) of these probable equivalents is also given, which merely expresses in another way the values as shown in Chart 3.

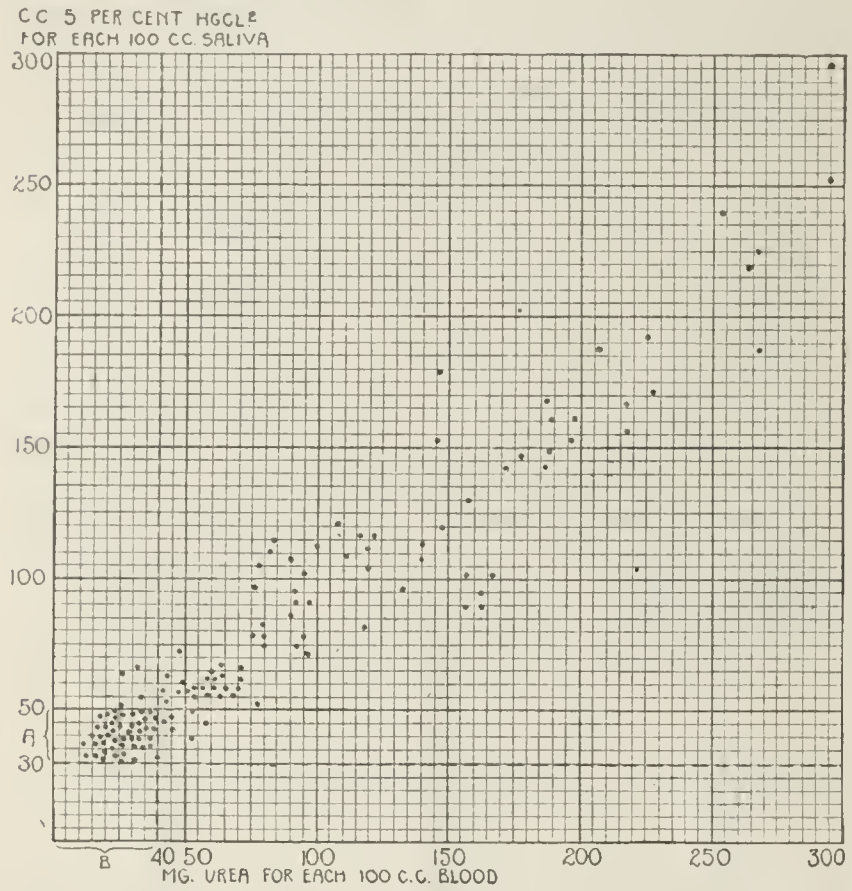


Chart 3.—Relation between blood urea and the salivary urea index: ordinate, salivary urea index; abscissa, blood urea. The line indicates the probable blood and saliva equivalents throughout the range of values of the chart. *A*, normal range of the salivary urea index; *B*, the normal range of blood urea.

By the application of the mathematical formula for the analytic expression of a straight line ($y = mx + b$), a formula for the estimation of the probable equivalents is obtained: $S = mB + b$, in which S = salivary urea index, B = blood urea, m = the value for the slant of the line, b = the particular constant obtained from the figure used; or, $B = 1.43 \times S - 34$, in which B = blood urea, and S = the salivary urea index.

Thus, without consulting Chart 3 or Table 5, the probable equivalent of any salivary urea index may be obtained in terms of blood urea. For example, if the salivary urea index is 100, $B = 1.43 \times 100 - 34$, the probable blood urea = 109 mg. for each 100 c.c.

COMMENT

In a large series of cases, variations may be expected, and the scattering of dots in Charts 2 and 3 denotes the variations in our series. Some of these variations are undoubtedly due to the fact that the values represent analyses made in cases in which only a single specimen of saliva was obtained; others may be due to individual variations in the relation between the concentration of urea in the blood and the saliva. This relation is discussed in detail in Part II. Chart 3 shows the probable equivalents of the two values, as well as the observed variations in them. In about 8 per cent. of the determinations of the fractional series, the salivary urea index indicated a mild retention in cases in which the blood urea was within normal limits. In about the same percentage (all determinations) the salivary urea index did not indicate a retention in cases in which the urea of the blood was slightly increased. No index value below 50 was obtained in the presence of a blood urea of 60 mg. or more. With a normal blood urea the salivary urea index never indicated a retention of more than 60 mg.

It will be observed that in the normal range of blood urea values, from 12 to 40 mg. for each 100 c.c., the salivary urea index varies somewhat indiscriminately between 30 and 50; but with a blood urea value above 40 mg. for each 100 c.c., the variability is less significant. With urea retention, the other retained substances, uric acid, creatinin, amino-nitrogen, and so forth, which are included in the mercury titration, increase very slightly, or not at all, as compared with the rise in urea itself. Although we do not claim that the salivary urea index gives accurate figures for the blood urea in each case, the parallelism between blood urea and the salivary urea index is sufficiently established, and therefore a high salivary urea index can be accepted by itself as indication of nitrogen or urea retention.

The method may be used as an office test for detecting cases of retention. It is advocated for hospital practice as a routine before blood urea estimations are made. High indexes definitely denote retention; borderline index values indicate the need of blood studies. Cases may also be followed daily, with occasional blood urea checks, and the discomforts and inconvenience of unnecessary venipunctures avoided.

CONCLUSIONS

1. The mercury combining power of saliva was determined in 888 instances on 598 persons in an effort to ascertain its significance in regard to renal functional capacity. A salivary urea index of renal function has been evolved.[12]

2. The salivary urea index denotes the number of cubic centimeters of a 5 per cent. solution of mercuric chlorid used for each 100 c.c. of saliva. In 92 per cent. of estimations on 190 normal persons, the salivary urea index was between 30 and 50.

3. The salivary urea index increases in definite parallelism with urea retention, as evidenced by the blood urea.

4. The probable relationship between the salivary urea index and the blood urea may be expressed by a formula which is given to assist in the clinical interpretation of the salivary urea index; but it is sufficient to know that high salivary urea indexes denote definite renal insufficiency.

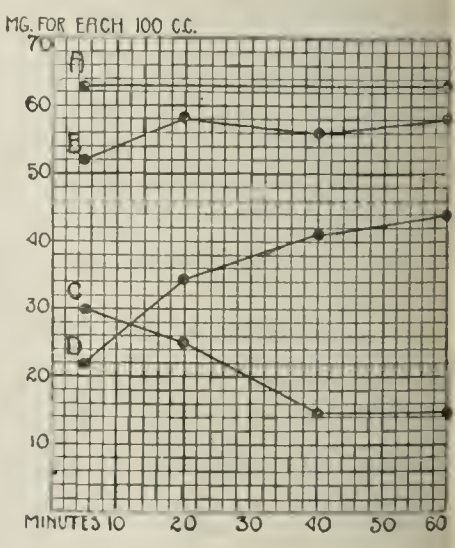


Chart 4.—Constancy of the combined urea and ammonia nitrogen of the saliva, and variations in its components during salivation for a period of one hour, in a case of urea retention: *A*, blood urea nitrogen; *B*, salivary combined urea and ammonia nitrogen; *C*, salivary ammonia nitrogen; *D*, salivary urea nitrogen.

5. The results of this series indicate that, when a salivary urea index below 50 is obtained, there is, in nearly 90 per cent. of the cases, no urea retention in the body. There is a 10 per cent. possibility that mild retention exists, but not in any case does it exceed the blood urea value of 60 mg. When a salivary urea index above 50 is obtained, there

12. Although no special laboratory accessories are needed, a simple compact apparatus in a small portable container has been designed, and may be obtained from Hynson, Wescott and Dunning Company, Baltimore.

in 91 per cent. of cases definite urea retention, and nly a 9 per cent. possibility that there is no retention.

6. The estimation of the salivary urea index is dvocated as a substitute for certain blood urea deter-inations. In doubtful cases it may be controlled by ie blood urea.

II. A DISCUSSION OF SALIVARY UREA AND THE MERCURY COMBINING POWER OF SALIVA

By Martha Aldrich, A.B., and Philip S. Hench, M.D.

Urea is present in saliva as in all other body fluids. Ve have shown that when urea retention occurs, hroughout the body, the combined ammonia and urea itrogen of the saliva is increased proportionately to ie increase in blood urea itrogen.[5] These findings ave since been corroboated by Schmitz[13] and andsberg.[14] The latter, owever, dismisses as of no importance for prac-ical purposes" the varying mounts of ammonia found n the saliva. We have requently found ammonia resent in large amounts vith only small amounts f urea, and wish to em-hasize again that it is only y considering this ammonia s derived from urea by ydrolysis that a true stimation of the urea con-ent of the saliva may be btained. Chart 4 illus-rates this point.

In four specimens col-ected over a period of one iour from a patient with rea retention, the salivary ombined urea and am-nonia nitrogen remained ractically constant, where-s the high value of the am-nonia nitrogen in the first pecimen decreased mark-dly throughout the hour, he urea nitrogen varying niversely with the ammonia.

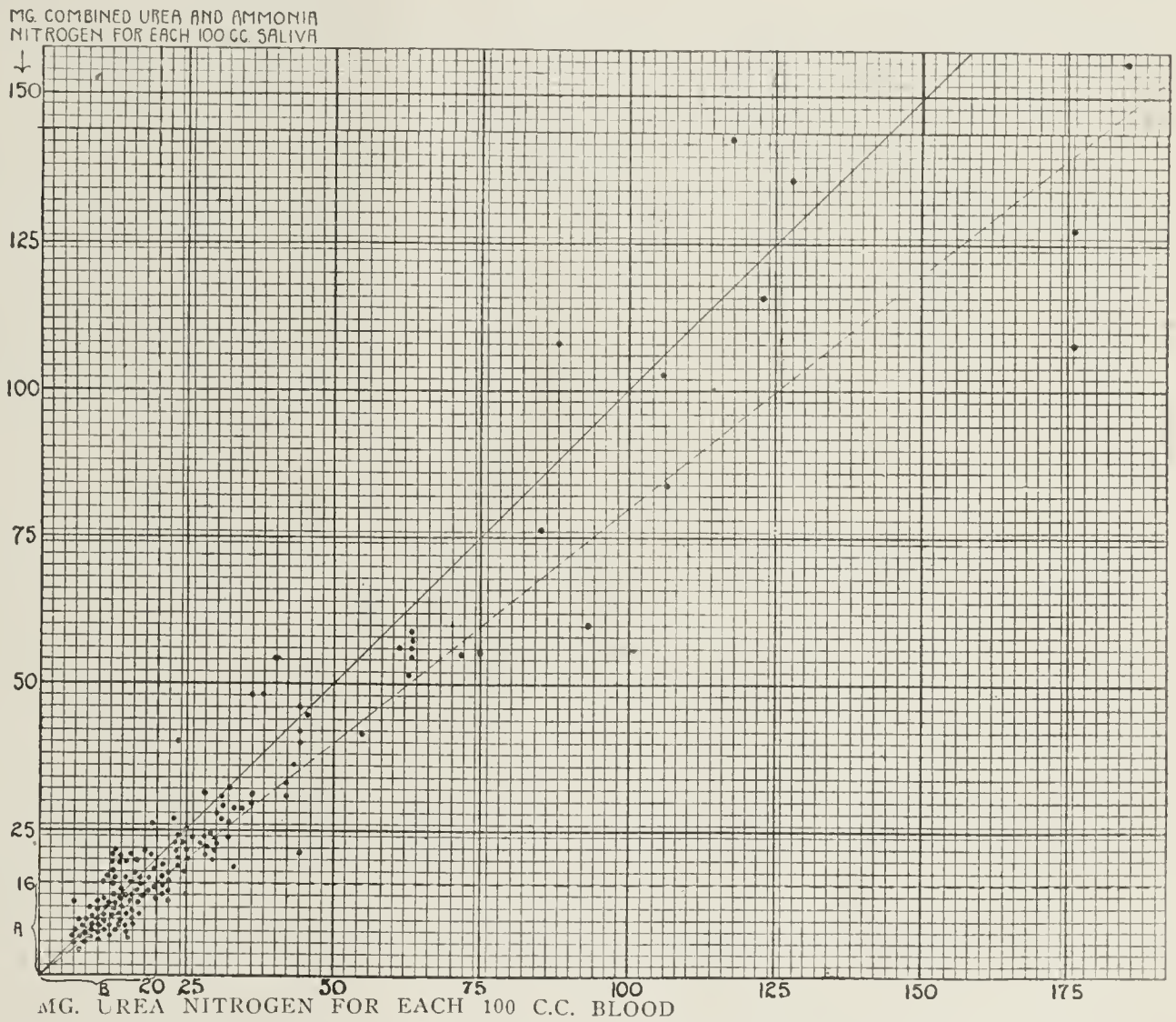


Chart 5.—Relation between blood urea nitrogen and salivary urea and ammonia nitrogen: solid line, the line on which points would fall if the blood urea and salivary urea values were equal; broken line, line on which points would fall if the salivary urea values were 80 per cent. of the blood values.

The relation of the combined ammonia and urea itrogen of the saliva to the urea nitrogen of the blood n a series of 165 cases is shown in Chart 5. In about 0 per cent. of the cases, the salivary values lie between 0 and 100 per cent. of the blood values; 25 per cent. re higher than the blood values, and 25 per cent. below 0 per cent. of the blood values. These variations etween the relative concentration of urea in the blood nd saliva may be caused by various conditions:

1. Cases have been observed in which the salivary rea values were higher than those of the blood, owing o the fact that the specimen, although the mouth was inse, contained ammonia from sources other than the alivary secretion, such as from decomposed food. More carefully collected specimens from the same persons showed a concentration of urea proportionate to the blood.

2. Apparent variations have occurred in cases in which there have been very rapidly occurring changes in the blood urea, such as often follow operation. Unless blood and saliva estimations are made simultaneously, the relative urea concentrations are not absolutely comparable.

3. It is also apparent that any condition which may cause a change in the permeability of the tissues, with a resultant change in the diffusion rate of urea, may also cause variations between the salivary and blood urea content. Although variations do occur in the relative concentration of urea in saliva and blood, we have demonstrated in Chart 2 that these variations do not impair the clinical value of the salivary urea index, and hence of the salivary urea, in more than 8 per cent. of the cases within a certain range.

In an effort to obtain a simple way of estimating the salivary urea, various methods were tried. The hypobromite method was employed with some success. The use of permutit (an "aluminum silicate" with high adsorptive powers) to determine both the ammonia already formed in the saliva and that obtained by hydrolysis of the urea by urease was theoretically attractive. Since it was difficult to secure perfectly clear solutions on nesslerization, we concluded that such a method could not be generally utilized, although we have recently observed that Stitt[15] advocates this principle as practicable. Schmitz has described a

13. Schmitz, H. W.: Comparative Concentration of Urea in the Blood nd Saliva in a Series of Pathologic Cases, J. Lab. & Clin. Med. **8**: 8-82 (Nov.) 1922.

14. Landsberg, M.: Ueber dem Harnstoffgehalt im Speichel, Klin. Vchnschr. **2**: 306 (Feb. 12) 1923.

15. Stitt, E. R.: Practical Bacteriology, Blood Work and Animal Parasitology, Including Bacteriological Keys, Zoological Tables, and Explanatory Clinical Notes, Ed. 6, Philadelphia, P. Blakiston's Son & Company, 1918, p. 633.

simple method [16] for determining salivary urea, which, however, requires considerable time and laboratory facilities. The determination of the mercury combining power of the saliva by a modification of the Friedländer method for determining urea in urine, which we have adopted, is both rapidly and easily accomplished.

In a study of the principle of this method, determinations were made on solutions of ammonium salts and urea: ammonium chlorid, ammonium sulphate, diammonium phosphate and urea were used. By the same technic as is employed for the saliva titration, with particular attention to the timing of the appearance of the end-point, it was shown that the mercury combining power for each milligram of nitrogen was the same, within the limits of error of the method, for urea and all ammonium salts tested. The results are tabulated in Table 6.

TABLE 6.—*Mercury Combining Power of Urea and Some Ammonium Salts*

Nitrogen, Mg. 5 C.c. Volume	In Mercuric Chlorid, C.c. for 5 C.c. Solution of			
	Ammonium Sulphate	Ammonium Chlorid	Diammonium Phosphate	Urea
0.2	0.8	0.75	0.83	0.80
0.3	0.97	....	....	1.05
0.4	1.07	1.05	1.09	1.07
0.5	1.32	1.35	1.26	1.4
0.6	1.45	....	....	....
0.8	1.6	....	....	1.65
1.0	1.92	1.8	1.85	2.1
2.0	3.3	2.95	3.13	3.28
3.0	4.27	4.1	4.2	4.25
4.0	5.6	5.27	5.5	5.41
5.0	6.5	6.15	6.15	6.48
6.0	....	7.65	7.2	7.55
8.0	....	9.75	9.95	9.65
10.0	....	11.8	11.45	11.55

It is evident that variations in the ammonia urea ratio of the saliva, which often occur, have no effect on the mercury combining power of the saliva (Table 6). Moreover, the mercury combining power of the saliva is not in simple proportion to the salivary urea; for, although 1 mg. of nitrogen in a standard solution utilizes approximately 2 c.c. of a 5 per cent. solution of mercuric chlorid, 4 mg. of nitrogen does not utilize 8 c.c., but approximately 5.5 c.c. This in no way impairs the clinical value of the test discussed in Part I.

By the use of the same solution of salts, since two were acid, one alkaline and one neutral to methyl red, it was determined that over a range of hydrogen-ion concentration far exceeding that encountered in saliva specimens,[17] the mercury titration figure is the same for each milligram of nitrogen for the ammonium salts tested, and for urea. Ammonium sulphate and urea solutions in a phosphate buffer solution with a hydrogen-ion concentration of about 7.0 gave the same results as are obtained in aqueous solutions.

In the alkaline phosphate solution, a white amorphous precipitate was formed on the addition of mercuric chlorid to the solution. This precipitate did not occur in the acid solution of ammonium sulphate, ammonium chlorid, or in the neutral solution of urea, but the mercury added to the solutions was nevertheless bound in a compound, since there was no immediate formation of a mercury oxychlorid when a drop of the titrated mixture was added to sodium carbonate. Instead of this, a white precipitate was formed with the sodium carbonate, resembling the white precipitate of the alkaline phosphate solution. When the ammonium chlorid solution was cautiously neutralized with sodium hydroxid to a hydrogen-ion concentration of about 7.0, the same white precipitate occurred on addition of mercuric chlorid as in the phosphate solution. As would be expected from the reaction of saliva, a white precipitate occurs on addition of mercuric chlorid.

Liebig's analyses of the various precipitates formed with urea and some mercury salts showed them to be complex substances, composed of the urea and the mercuric oxid; the proportion of the latter in the molecule varied according to the conditions under which the precipitation was made.[6] The precipitate that we obtained was not analyzed.

The mercury combining power of glycin in a phosphate buffer solution was tested and found to be greater for each milligram of nitrogen than that of the ammonia salts: 0.4 mg. of nitrogen utilizing 2.3 c.c. of a 5 per cent. solution of mercuric chlorid; 0.6 mg., 2.9 c.c.; and 1.0 mg., 4.25 c.c.

Besides the ammonia and the urea, some of the substances that occur in the saliva and combine with mercuric chlorid are the amino-acids, creatinin, uric acid, mucin, and in certain cases, albumin. Morris and Jersey [18] have proved that the urea and ammonia content of the saliva is affected only slightly by the stimulation of the glands by paraffin, but that the amounts of the other substances vary greatly. We have not determined the mercury combining power of substances other than urea separately. However, by means of a curve, based on Table 6, we have determined the proportion of mercuric chlorid used in combining with substances of the saliva other than urea and ammonia nitrogen.

In forty cases with normal mercury combining power and normal salivary urea, the proportion of mercuric chlorid used for substances other than the urea and ammonia nitrogen averaged 39 per cent.; in twenty-two cases with urea retention, the proportion of mercuric chlorid for substances other than ammonia and urea nitrogen averaged 35 per cent. This approximate constancy of proportion between the urea and the other mercuric combining substances of the saliva in normal persons, and in persons with retention, may be explained by any one of several interesting conjectures. It offers a distinct contrast to conditions in the blood in which the urea percentage of the total nonprotein nitrogen increases greatly in cases of retention.

Although routinely mixed saliva has been used, it is interesting to note that the mercury combining power of a specimen of pure sublingual saliva was the same as that of mixed saliva from the same individual.

Besides the specific substances of glandular secretions, and the blood extractives, all specimens of saliva contain oral and lingual epithelium, secretions from the mouth, occasional bits of food, and many bacteria. The presence of ammonia-forming bacteria in the saliva makes it necessary either to work on fresh specimens, or to prevent decomposition by killing the bacteria. In warm weather, particularly, bacterial decomposition will change the mercury combining power of the saliva in a few hours. Mucin, on standing, also liberates ammonia. Formaldehyd (2 drops of 10 per cent.) was used as a preservative with some success, but it is more satisfactory simply to bring the saliva to the boiling point. This kills the bacteria and any enzymes present, and the mercury combining power will remain unchanged for several days. One specimen, which was

16. Schmitz, H. W.: A Simple Method of Estimating the Salivary Urea, J. Biol. Chem. **55**: 1923; Proc. Am. Soc. Biol. Chem., **43-44**.

17. McClelland, J. R.: The Influence of Various Stimuli on Human Saliva, Am. J. Physiol. **63**: 127-141 (Dec.) 1922. Starr, H. E.: Variations in the Hydrogen Ion Concentration of Human Mixed Saliva, J. Biol. Chem. **54**: 55-64 (Sept.) 1922.

18. Morris, J. L., and Jersey, V.: Chemical Constituents of Saliva as Indices of Glandular Activity, J. Biol. Chem. **56**: 31-42, 1923.

boiled for ten seconds in a test tube, and kept stoppered and sterile, showed no change in two weeks' time in its mercury combining power. The boiling might be expected to drive off ammonia, but determinations of both salivary urea and mercury combining power show that boiling for ten seconds makes no change in the initial ammonia value.

Our technic of collection is also developed to prevent the danger of contaminating substances from decomposed food. The collection of fractional specimens, as described in Part I, has reduced the disproportionate results obtained from the presence of such substances from 18 to 8 per cent.

The amount of sediment in the second specimen is generally less than in the first, as is evident in gross examination. This sediment settles so rapidly that in most cases the supernatant fluid can be easily obtained. To determine whether or not it is necessary to filter or centrifuge specimens, a few experiments were made on specimens containing sediment, and were repeated when the sediment had been removed, and on the sediment itself suspended in water. It was found that while mercury is utilized in combining with the sediment of the saliva, this sediment (except when present in abnormal amounts), displaces approximately its equivalent in mercury combining power in the volume of saliva taken for estimation. Filtration, therefore, is not necessary, although the use of clear supernatant fluid is preferable to a specimen in which the sediment has not settled.

INFLUENCE OF ULTRAVIOLET IRRADIATION ON CALCIUM CONTENT OF BLOOD SERUM

IN HAY-FEVER, HYPERESTHETIC RHINITIS AND THE ASTHMAS: PRELIMINARY REPORT

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I. A STUDY OF THE CALCIUM CONTENT OF HUMAN BLOOD SERUM IN HAY-FEVER, HYPERESTHETIC RHINITIS AND THE ASTHMAS

In 1917, Halverson, Mohler and Bergeim[1] of Philadelphia presented data with regard to the calcium content of the blood in a variety of pathologic conditions. While a rather wide field had been covered, no mention was made of hay-fever, hyperesthetic rhinitis, (vasomotor rhinitis) or the asthmas. This was probably due to the fact that these diseases were accepted as belonging to an entirely different field, and no possible relationship was suggested between them and the calcium deficiency of the blood. A thorough review of the literature gives one no added information regarding these conditions. This study was therefore undertaken to determine what relationship existed, if any, between hay-fever and hyperesthetic rhinitis and an ionic calcium deficiency of the human blood serum.

Determination of Calcium in Blood Serum.—The problem of measuring the calcium content of blood serum was not a difficult one, as much work has been done along these lines. Halverson and Bergeim,[2] in 1917, showed how the calcium could be determined in small amounts of blood and in other biologic materials low in this element. According to these investigators, three main problems must be solved in this connection: "The first is the preparation of a solution containing all of the calcium but free from interfering organic matter. The second is the precipitation of the calcium in the presence of such other elements as commonly occur, while the third consists in the accurate estimation of the precipitated calcium."

While many methods are known, these authors suggested the precipitation of calcium as oxalate directly in the filtrate from biologic fluids after removal of protein, the final estimation being carried out by a refinement of the permanganate titration method. We have accepted this plan in our determinations. It apparently affords not only accurate computations, but also the simplest procedure for obtaining them, particularly when one considers the many complicated procedures mentioned in the literature.

More recently certain investigators have suggested other ways of determining calcium in small amounts of blood serum. Kramer and Tisdall[3] in 1921, published two reports, the more interesting of which from the standpoint of the clinician is the first one,[4] which speaks of a clinical method for quantitative determination of calcium not only in small amounts of serum, but also in plasma. As can readily be understood, these determinations may serve as a valuable help to the clinician. However, the computations cannot be relied on as being as accurate as those obtained by laboratory technic.

It has been argued that determinations on plasma would be preferable to those on serum on account of the changes in plasma values in many pathologic conditions. While this contention is no doubt correct, it has been found that changes in plasma values are closely reflected in serum values, even in uremia,[1] in which the calcium content of the blood is most markedly altered. This work was part of the study of Halverson, Mohler and Bergeim of Philadelphia, and has been accepted by most students of this problem. Blood serum has therefore been employed as a matter of convenience. In this connection, it is pointed out that calcium determinations on whole blood are of little value unless the relative volume of corpuscles and plasma is known. As this plan is not only more complicated, but unpractical, it has not been considered at all.

It must be remembered, further, that calcium is present in the blood in two forms, ionized and combined. When coagulation of the blood occurs, the calcium in the exuded serum is found to be all in the ionized form. What the normal amount present is, varies only slightly. Groves and Vines, British writers, accept the figure of 10.5 mg. of calcium per cent., while Halverson, Mohler and Bergeim accept 10.2 as the standard. The work of the latter is based on a study of the calcium content of human serum in a variety of conditions. For normal men, percentage values from 9.6 to 10.8 with an average of 10.2 were obtained. That these values are characteristic is supported by the finding of similar values in the great majority of pathologic

1. Halverson, J. O.; Mohler, H. K., and Bergeim, Olaf: The Calcium Content of the Blood Serum in Certain Pathologic Conditions, J. Biol. Chem. **32**: 171 (Nov.) 1917.

2. Halverson, J. O., and Bergeim, Olaf: The Determination of Small Amounts of Calcium, Particularly in Blood, J. Biol. Chem. **32**: 159 (Nov.) 1917.

3. Kramer, Benjamin, and Tisdall, F. F.: Determination of Calcium and Magnesium in Small Amounts of Serum: A Simple Technic, J. Biol. Chem. **47**: 475 (Aug.) 1921.

4. Kramer, Benjamin, and Tisdall, F. F.: Clinical Method for Quantitative Determination of Calcium and Magnesium in Small Amounts of Serum or Plasma, Bull. Johns Hopkins Hosp. **32**: 44 (Feb.) 1921.

cases not known to be associated with disturbances in calcium metabolism.

Leicher [5] recently reported on the decrease of blood calcium in otosclerosis. He says that in considering the possibility of successfully treating blood calcium deficit, a distinction must be made between patients in whom only the total calcium (or combined calcium) of the serum is decreased, and those with the positive signs of deficit in ionized calcium. The latter can be influenced by treatment easily, the former only with difficulty.

Ionic Calcium Content of Blood Serum in Hay-Fever, Hyperesthetic Rhinitis and Asthma.—The present report is not based on selected cases. It represents a series which one meets in office and clinical practice, and includes the complaints of the conditions commonly known as hyperesthetic rhinitis, or vasomotor rhinitis, hay-fever and certain types of bronchial asthma. In each instance, before any laboratory tests were made, the clinical diagnosis was confirmed. The attacks of hyperesthetic rhinitis are characterized by paroxysms of sneezing, which have been referred to as the machine gun sneeze. The patient sneezes from a half dozen to fifty times in one paroxysm. This is followed by a profuse, thin watery, serous, irritating discharge from the nose. The conjunctivae become more or less suffused and hyperemic.

On examination of the nose between attacks, it appears practically normal except for the pallor of the mucosa. During the attack and for a variable length of time afterward, the turbinates and the mucous membrane lining the septum are water-logged. The tissues are pale, soft and swollen. The thin, serous discharge gives them a shiny appearance.

The ionic calcium content of the blood serum was measured in each patient according to the method already described. The lowest figure obtained in hyperesthetic rhinitis is 6.76, and the highest, 9.8 mg. per cent. (Other figures are given in the accompanying table.)

While the calcium content of the serum is invariably low in hyperesthetic rhinitis, it is not always so in all cases of hay-fever and asthma. In the two latter diseases, many blood specimens yielded a normal calcium figure and some even gave results in excess of the standard. This group does not belong to the classification of cases included in the scope of this paper. It is more than likely that in instances in which the calcium is normal or very close to the standard, the etiology is some factor other than a calcium deficiency.

II. EFFECT OF CALCIUM, THYROID AND COMBINED CALCIUM-THYROID THERAPY IN HAY-FEVER, HYPERESTHETIC RHINITIS, AND ASTHMAS

The Empiric Use of Calcium in Asthma.—For some time past, clinicians have employed calcium, chiefly as calcium lactate, in the treatment of hay-fever, and more particularly, asthma. This remedy has been prescribed purely on an empiric basis. Recently, however, the possibility of an associated disturbance of calcium metabolism was thought of. And while very little consideration has been given to this phase in a specific way, several investigators have reported some comprehensive data from which one may conclude definitely that a dysfunction of metabolism exists.

The Basal Metabolism in Hyperesthetic Rhinitis.—Novak,[6] in 1921, measured the basal metabolism in hyperesthetic rhinitis in a series of cases. In a definite number of them he found that the metabolic index was low. These observations were not substantiated by the work of Simpson,[7] who reported that he found only an exceedingly small number of hyperesthetic cases with a low metabolic index.

Parathyroid Studies.—Groves and Vines contend that the parathyroids rather than the thyroid are at fault, and their report deals chiefly with the dysfunction of the former. In certain ulcerative conditions it was found that there occurred a deviation from the normal in the calcium content of the serum, some of the calcium being present in the combined form. This abnormality was present in all cases of varicose ulcer; and, in the belief that this might be concerned in maintaining the chronicity of the ulceration, measures were taken to increase the ionic calcium in the serum. Accordingly, calcium was administered by two routes, the intramuscular and the oral. The latter produced no effect at all; the former had a definite influence in promoting the commencement of healing in the ulcers. But the injections alone did not appear to have the power to cause complete healing. It was necessary to give, in addition, small doses of parathyroid substance by mouth. After this additional medication was instituted, complete healing resulted. Further observations demonstrated that the rate of healing was dependent on the rise in the ionic calcium of the blood serum. Groves and Vines concluded that "the toxic substance produced by various pathologic conditions in some way injures the parathyroid glands, and also combines with some of the ionized calcium of the blood. In this way the calcium balance of the blood became disturbed, and the parathyroids were not able to rectify it."

Action of Parathyroid Substance.—In continuing their discussion, the same writers choose to classify the conditions dealt with as "chronic states of a toxic or infective origin." They aim to explain the mode of action of parathyroid substance, "so that the appearance of a claim to its action as a universal panacea may be avoided."

All agree that the mode of action of parathyroid is essentially physiologic, "a more or less specific action on calcium metabolism combined with, or resulting in, a generalized stimulation of metabolism as a whole. It is an aid in the fight against infection of the chronic type, not by its specific action on the infecting organism, but because it places the tissue cells under the most favorable conditions for an adequate resistance."

In accord with these views is the work of Dragstedt,[8] at the University of Chicago, on tetany. He found that completely thyroparathyroidectomized dogs could be kept alive, at least for a year, by diets containing large amounts of lactose. Such a diet undoubtedly produces a complete suppression of bacterial proteolysis in the intestine and the resultant production of intestinal poisons. It was concluded that this tetany [9] is due to an intoxication, and that the responsible toxic substances come chiefly from the gastro-intestinal tract. They are supposed to arise through the activity of the proteolytic group of intestinal bacteria, and are probably for the most part cleavage products of the nature of amins. The function of the parathyroid glands is to prevent intoxication by these poisons.

5. Leicher, Hans: Further Report on the Decrease of Blood Calcium in Otosclerosis and the Possibility of Affecting It by Treatment, Ztschr. f. Hals, Nasen u. Ohrenh. **4**: 74 (Dec. 6) 1922.

6. Novak, F. J., Jr.: Basal Metabolism in Hyperesthetic Rhinitis, Wisconsin M. J. **19**: 534 (March) 1921.

7. Simpson, W. L.: Basal Metabolism in Hyperesthetic Rhinitis, Bronchial Asthma and in Cases in Which the Roentgen Ray or Radium Has Been Applied to the Tonsils, Laryngoscope **32**: 768 (Oct.) 1922.

8. Dragstedt, L. R.: The Pathogenesis of Parathyroid Tetany, Am. J. Physiol. **63**: 408 (Feb.) 1923; The Pathogenesis of Parathyroid Tetany, J. A. M. A. **79**: 1593 (Nov. 4) 1922.

9. Old Theories and New Facts Regarding the Tetany Due to Parathyroidectomy, Editorial, J. A. M. A. **80**: 774 (March 17) 1923.

Luckhardt,[10] a co-worker of Dragstedt, found that completely parathyroidectomized dogs can be kept alive, without showing tetany, on a diet very rich in meat, by means of the oral administration of calcium lactate. After a time this can be stopped entirely without the appearance of tetany. The spontaneous tetany occurring thereafter at irregular intervals, presumably because of constipation or the ingestion of large quantities of unspoiled or small quantities of putrid meat or other spoiled food, can be rapidly controlled by the ingestion of calcium lactate and by the giving of enemas.

Another interesting report comes from Salvesen,[11] of Christiania, who discovered in his experiments in the chemistry of parathyroid insufficiency, the drop in blood calcium, which is more marked the more parathyroid tissue is removed. Suggestion is made that the parathyroids control the calcium metabolism, and by doing so they influence the function not only of the muscle and nerve tissue, but probably of all organs.

Calcium Deficit in Serum in Hay-Fever, Hyperesthetic Rhinitis and Asthma.—With this somewhat differing expression of views in mind, we took up the treatment of hay-fever, hyperesthetic rhinitis and asthma, on the basis of an analogous ionic calcium deficit in the blood serum. After the calcium content of the blood serum was determined and found low, the patients were put on calcium lactate in variable doses of from 5 to 20 grains, from three to four times daily. Observation of these patients showed no definite improvement in the original symptoms. Later the same patients were placed on small doses of thyroid extract, one-fourth grain three times a day, and within four or five days, a complete change had taken place in more than three fourths of them.

While the one-fourth grain of thyroid extract was employed, no doubt similar results could be obtained with smaller doses, as in some instances, this dose was administered after a time only once a day, with a continuation of the general improvement.

It was not, however, until the calcium and thyroid were combined that the therapy showed its true value. Calcium lactate, 5 grains, thyroid extract, one-fourth grain, at first three times daily, and later reduced to twice and even once a day, gave immediate relief within from forty-eight to seventy-two hours. This relief occurred in all cases of hyperesthetic rhinitis and in some cases of hay-fever and asthma; but a sufficient opportunity has not been afforded thus far to try this combined therapy on a large enough number of patients with severe asthma and hay-fever. It should be added that while this therapy was being continued, no local or other form of treatment was being carried out.

The following cases are representative:

CASE 1.—W. F., a woman, aged 23, single, had had hay-fever for the past thirteen years. Various forms of treatment and change of climate gave no relief. Recently she has had typical attacks of asthma in addition to the hay-fever symptoms. Calcium lactate, 10 grains, three times daily, over a period of time gave no relief; thyroid extract, one-half grain, twice daily, gave partial relief; calcium lactate, 10 grains, and thyroid extract, one-fourth grain, gave prompt and complete relief within forty-eight hours. This treatment was continued for eight days, and when discontinued, there was a slight recurrence of the old symptoms. After the combined calcium-thyroid therapy was instituted again, relief was once more obtained. When discontinued, the old symptoms again manifested themselves. The calcium was reduced to 5 grains and the thyroid to one-fourth grain and administered once daily, with complete relief of the symptoms.

CASE 2.—S. E. L., a man, aged 45, married, had severe symptoms of hyperesthetic rhinitis for four years. The course of treatment was carried out as described in Case 1 with results precisely the same.

CASE 3.—A. L. F., a man, aged 52, had hay-fever and asthma for fourteen years. He had previously taken calcium lactate in variable doses, at different times, with no relief. Thyroid extract, one-fourth grain, and calcium lactate, 5 grains, administered twice daily, and, after two weeks, once daily, gave complete relief, with a cessation of violent sneezing and freedom from characteristic asthmatic breathing. (The results obtained in the entire series of cases are given in the accompanying table.)

Calcium Determinations and Results Obtained in a Series of Cases of Hay-Fever, Hyperesthetic Rhinitis, and Asthma with Calcium, Thyroid, Combined Calcium-Thyroid Therapy, and the Ultraviolet Light

	Number of Cases	Lowest Calcium Finding	Highest Calcium Finding	Average for Total Cases	Number of Cases Influenced by Calcium	Number of Cases Influenced by Thyroid	Number of Cases Afforded Relief by Calcium and Thyroid	Cases Which Appear to be Influenced Permanently by Ultra Violet Light
Hyperesthetic rhinitis.....	39	6.76	9.8	8.1*	0	18	39	39
Hay-fever	36	8.18	11.2	10.3	0	6	16	16
Bronchial asthma.....	12	8.70	10.5	9.4	0	3	6	6

* Standard, 10.5 mg. per hundred cubic centimeters of blood serum.

The serum calcium in each instance was observed during the treatment. Improvement commences when the amount of ionic calcium in the serum begins to approach the normal figure.

From these results with the single and combined therapy, it is evident that the thyroid extract (or parathyroid) plays an important part in (1) stimulating the calcium metabolism of the body, or in (2) activating the artificial calcium in addition thereto and fixing it so that it is not immediately excreted. It is probable that the former theory is correct, and yet when one observes that prompt relief was obtained in the majority of patients, only after the thyroid extract was combined with the calcium lactate, he is wont to lean somewhat to the latter possibility.

Why is the calcium therapy alone not effective? As noted by Groves and Vines, it is effective when administered alone, but only when given by intramuscular injection. And even in this way, "healing was only partial and temporary until parathyroid substance was added." The fact is that prolonged clinical testing with calcium has not been performed to any great extent. Most of the experimental work has been done in animals and only for a sufficient time to serve its purpose. The observations reported in this paper, based on clinical experimentation, are therefore more or less conclusive. Calcium lactate alone, when given orally, does not influence calcium deficiency. It is probably for this reason that clinicians are disappointed in the use of calcium alone in the so-called asthmatic tendencies.

On the other hand, reports show that thyroid (or parathyroid) is effective in most instances. This is not unusual, since we know the basal metabolism in some of these cases is decreased, and from this standpoint, if

10. Luckhardt, A. B., and Goldberg, Benjamin: Preservation of the Life of Completely Parathyroidectomized Dogs, J. A. M. A. **80**: 79 (Jan. 13) 1923. Luckhardt, A. B., and Rosenbloom, P. J.: The Prevention and Control of Parathyroid Tetany, Proc. Soc. Exper. Biol. & Med. **19**: 129, 1921. Luckhardt and Blumenthal: Science **56**: 257 (Sept.) 1922.

11. Salvesen, H. A.: Studies on the Physiology of the Parathyroid, Proc. Soc. Exper. Biol. & Med. **20**: 204 (Jan. 7) 1923.

from no other, the glandular substance is indicated. Furthermore, the experience of most investigators along these lines is practically the same. The result is that thyroid extract in calcium deficiencies is an accepted form of therapy.

While the combined calcium thyroid treatment has shown its merit, the question of the permanence of results had to be answered. Relief of symptoms was present in many cases while the treatment was in progress, and also during the time the dosage of the drugs was gradually reduced. It seems that the smallest dosage of one-eighth grain of thyroid extract combined with 5 or ten grains of calcium lactate, once daily, is sufficient to afford relief during its continuous administration. But within a very short time after the medication is discontinued, if any of the excitants are present, there is a prompt return of symptoms. It is this phase which led the authors to search still further for a means which would not only stimulate, but permanently fix, the increased ionic calcium in the blood serum.

III. INFLUENCE OF THE MERCURY VAPOR QUARTZ LAMP (ULTRAVIOLET RAY) IN FIXING THE CALCIUM CONTENT OF THE BLOOD SERUM

Treatment of Rickets by the Ultraviolet Ray.—Tisdall [12] recently reported the successful treatment of rickets by exposure to ultraviolet rays from a mercury vapor quartz lamp. While other investigators have reported similar results, according to Tisdall, none have reported any observations on the effect of ultraviolet rays on the calcium and phosphate content of the blood.

Tisdall's experiments included six cases. In all of these the ionic calcium content of the blood was proportionately low and well under the 10.5 mg. per cent. standard. In the majority of these cases a total three hours' exposure to the quartz lamp was necessary. The calcium was increased in each instance and the patients permanently cured. A similar experiment with an ordinary 500 watt incandescent lamp, even with a much longer exposure, proved unsuccessful in increasing the calcium content. These changes were not influenced by diet, as the diets during treatment remained the same as before.

In foreign literature, one reads of the reports of Brasch and Bach, the latter of whom successfully treated rhinitis, and especially hay-fever. No explanation is made, however, in describing their work.

Interesting also is the work of Hess,[13] who attempted to cure a number of rachitic infants by means of rays from the mercury vapor lamp. This author believes that although his results were inconclusive, owing to the lack of roentgenograms, subsequent work by Huldschinsky, who also used this source of radiation, gave evidence of definite healing by means of roentgenograms.

Hess' experiments on rats showed that rickets-producing diets will fail to develop rickets if the rats are exposed to the sun. He found further that artificial light produces the same result, particularly the mercury vapor quartz lamp. "Daily irradiation at a distance of three feet for three minutes is sufficient to protect white rats fed on the standard diet."

The Influence of Ultraviolet Light on Calcium Metabolism.—"There is evidence of metabolic change in the animal body brought about by solar rays in the fact that the inorganic phosphate was brought up to normal by sunlight and also carbon-arc irradiation. A similar effect was had with calcium in the blood. The ultraviolet light seems to be necessary for the normal metabolism of the infant."

Another series of experiments conducted by Kramer, Casparis and Howland [14] conclusively demonstrated that rachitic infants treated by systematic exposure to the rays from the mercury vapor quartz lamp showed healing in every instance, and showed the necessary calcium deposits in the bones.

The investigations of Huldschinsky [15] are even more convincing. His results have far exceeded his expectations, proving that this form of therapy can be considered as a specific method for the treatment of rickets, insuring arrest of the pathologic conditions within a short time.

With this work as a basis for study, we were of the opinion that if the calcium metabolism in rachitis could be so markedly influenced by ultraviolet irradiation, the same good results could be obtained in hay-fever, hyperesthetic rhinitis and the asthmatic tendencies when the calcium content of the blood was lower than normal. Accordingly, those patients who had had a recurrence of symptoms when the calcium and thyroid had been discontinued were exposed to the rays of the mercury vapor quartz lamp.

Method of Use.—The lamp is raised about 1 meter from the patient and fractional body exposures are made, two or three times weekly or oftener. The time of exposure, at first two minutes, is increased at each treatment by from two to three minutes, depending on the tolerance of the individual. At each successive treatment, the distance between patient and lamp is decreased by 3 inches. The smallest distance reached is about 18 inches, while the longest exposure made may reach fifteen minutes, or in exceptional cases, when the tolerance of the individual is great, twenty minutes.

The Ultraviolet Spectrum.—The air cooled lamp used is of the Victor type. The mechanism whereby ultraviolet radiation from this lamp increases the calcium of the blood is not at all understood. The lack of understanding, however, in no way interferes with the clinical usage of the energy for the definite production of the necessary increase. According to Pacini,[16] "the region of the ultraviolet spectrum involved in occasioning the increase is readily fixed; for, as Hess and others have shown, only the ultraviolet fraction of sunlight that remains unfiltered by glass is apparently useful. Sunlight ultraviolet ends at the region of 2,900 Angström units; glass filters at 3,022 Angström units. So that the small region of sunlight ultraviolet included between the limits of 3,022 and 2,900 Angström units is clinically effective in influencing calcium metabolism."

It should be noted that the lamp irradiation is used in conjunction with the drug treatment, for it is with this combined therapy that the most favorable results are obtained.

CONCLUSIONS

1. The ionic calcium content of the blood serum is invariably low in hyperesthetic rhinitis.
2. There are also certain cases of hay-fever and asthma which show a low calcium content.
3. Calcium alone does not influence these conditions.

12. Tisdall, F. F.: The Effects of Ultraviolet Ray on the Calcium and Inorganic Phosphate Content of the Blood Serum of Rachitic Infants, Canadian M. A. J. **12**: 536 (Aug.) 1922.
13. Hess, A. F.: Influence of Light in Prevention and Cure of Rickets, Lancet **2**: 367 (Aug. 19) 1922.
14. Kramer, Benjamin; Casparis, H. R., and Howland, John: Ultraviolet Radiation in Rickets: Effect on Calcium and Inorganic Phosphorus Concentration of Serum, Am. J. Dis. Child. **24**: 20 (July) 1922.
15. Huldschinsky, K.: Die Behandlung der Rachitis durch Ultravioletbestrahlung, Ztschr. f. orthop. Chir. **39**: 426, 1919-1920.
16. Pacini, A. J.: Ultra Violet Radiation in the Treatment of Fractures, Am. Med. **17**: 701 (Dec.) 1922.

4. Calcium lactate combined with thyroid extract affords temporary relief in all cases of hyperesthetic rhinitis and in some cases of hay-fever and bronchial asthma.

5. Exposure to the mercury vapor quartz light, together with the combined calcium-thyroid therapy, appears to fix permanently the ionic calcium content of the blood serum.

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ACIDIFIED WHOLE MILK AS A ROUTINE INFANT FOOD*

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Some young infants may be satisfactorily fed on whole undiluted cow's milk given in the same amounts as human breast milk. The majority, however, when so fed fail to thrive in a normal manner and develop gastro-intestinal and nutritional disturbances. This fact has led to the common practice of feeding infants lesser amounts of cow's milk than of breast milk, and making up the deficiency in calories by the addition of some form of carbohydrate. The total volume of the food is made up by the addition of water. In other words, the milk is diluted and sugar is added.

Various theoretical explanations for the necessity of such modifications of cow's milk have been given. It has been assumed, for example, that the infant is incapable of digesting protein when it occurs in a concentration of 3.5 per cent., as in cow's milk, but can digest it when its concentration amounts to only 1.25 per cent., as it occurs in breast milk and diluted cow's milk. Such an assumption is unsupported by experimental evidence. The fact remains, however, that the infant cannot ordinarily digest as great a total amount of cow's milk as of breast milk, and most systems of modification, in their ultimate analysis, merely accomplish a reduction in the total amount of milk fed and supply the necessary calories in other ways. This is true of the usual whole milk dilutions, "percentage formulas," condensed milk dilutions, Gerstenberger's "S. M. A.," Czerny-Kleinschmidt's "Buttermehlernährung," malted milk, etc.

The methods described have distinct limitations, especially in the case of infants having lowered digestive capacity, as the margin is a narrow one between the infant's ability to utilize cow's milk and the amount of milk required for satisfactory nutrition. Not infrequently the amount of milk needed is more than the amount that may be effectively cared for by the gastro-intestinal tract.

Cow's milk can be rendered more digestible by the addition of acid, and can then be given in considerably larger amounts. In another paper [1] we have pointed out some of the reasons for this fact. We have shown that sweet cow's milk is capable of neutralizing, to a great extent, the acid of the gastric juice, and in this way impairing seriously normal digestive function. Acid milk, on the other hand, does not neutralize the gastric juice, and in this respect behaves more like breast milk. Acid milk, furthermore, is usually free from pathogenic bacteria on account of the inhibiting effect of the acid on bacterial growth. The fineness of the curd has also been assumed to be an added advantage. Other theoretical explanations as to the favorable effect of acid milk have been advanced, such as denaturization of the protein; [1] stimulation of the flow of bile, pancreatic and intestinal secretions; [1] favorable effect on absorption of fat, protein and mineral matter,[2] and stimulation of the muscular construction in the gastro-intestinal tract.[3] It has also been asserted that the live lactic acid organisms present in bacterially soured milk exert a favorable action on gastro-intestinal processes. The somewhat lowered sugar content of the bacterially soured milk has also been believed to be a factor in rendering it more digestible by infants. The latter two considerations are not applicable to milk artificially soured by the addition of acid.

Whatever the explanation accepted, the favorable effects of acid milk cannot be disputed. It has long been known [4] that buttermilk is better tolerated by infants than sweet milk. This fact was empirically discovered. Buttermilk, whether alone or in combination with curds, as in protein milk, is now used as a routine by pediatricians in the treatment of intestinal disturbances of infants, with excellent results.

Some years ago, one of us [5] pointed out the value of whole lactic acid milk as a food for athreptic infants. It was shown that even young or undernourished infants could, to advantage, be fed undiluted bacterially soured whole cow's milk, enriched with considerable amounts of commercial corn syrup. The tolerance for such food was found to be very high. The reasons for this were discussed in the paper mentioned.

Such formulas were used at first only for the feeding of certain athreptic infants who failed to do well on the usual types of food. The use has gradually been extended to other infants as the advantages of this type of food became evident until, at present, approximately 90 per cent. of the infants in the St. Louis Children's Hospital are fed on lactic acid milk and corn syrup formulas. The method of preparation of the whole lactic acid milk has been improved and simplified to such an extent that it can readily be prepared in the home. This has made it possible to use the milk in dispensary and private practice. During the last two years, more than 50 per cent. of the infants attending the feeding clinics of the Washington University Dispensary have been fed on the acid milk formulas, and the results have been such that we feel that a still more general use of this type of food would be advantageous in the feeding of normal as well as of sick infants.

PREPARATION OF FORMULAS

Whole cow's milk, artificially soured by inoculation with lactic acid producing organisms, can be obtained from dairies in most large cities. Such milk is sold under various names ("Bulgarian Milk," "Fermilac," "Lactase"). The product of the better dairies is usually satisfactory for use in the feeding of infants. The cost of whole lactic acid milk, as obtained from the dairies, is usually about 5 cents a quart more than the usual pasteurized milk.

When lactic acid milk is not obtainable from dairies, it must be prepared at home. Two methods are avail-

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1. Marriott, W. M., and Davidson, L. T.: Acidity of the Gastric Contents of Infants, Am. J. Dis. Child. **26**: 542 (Dec.) 1923.

2. Klotz, M.: Milchsaüre und Säuglingsstoffwechsel, Jahrb. f. Kinderh. **70**: 1, 1909-1910.

3. Sherman, D. H., and Lohnes, H. R.: Lactic Acid Milk, Tr. Am. Pediat. Soc. **32**: 245, 1920.

4. Teixeira de Mattos: Jahrb. f. Kinderh. **55**, 1902.

5. Marriott, W. M.: Artificial Feeding of Athreptic Infants, J. A. M. A. **73**: 1173 (Oct. 18) 1919.

able, the souring with lactic acid organisms, or the addition of lactic acid to sterilized milk.

The method of preparing milk in the home by the use of lactic acid cultures was described in the preceding paper [5] and will not be detailed here. The method is not free from difficulties, and a uniform preparation is not regularly obtainable. Furthermore, contaminations of the cultures not infrequently occur.

A better method consists in the addition of lactic acid to sterilized milk. This method can easily be carried out, even by unintelligent mothers, and is, in fact, distinctly more "fool-proof" than the method of preparation of the usual sweet milk formulas.

To prepare acid milk, a good grade of cow's milk is first sterilized by boiling for five minutes. The milk is then cooled and the scum removed. When thoroughly cool, lactic acid is dropped in slowly, while the milk is gently stirred. Lactic acid, U. S. P. (75 to 85 per cent.), is used and the amount required is 1 dram (4 c.c.) to each pint (500 c.c.) of milk. This is added a drop at a time from a medicine dropper. A test tube drawn out to a fine point and graduated in drams or cubic centimeters also provides a satisfactory means of slowly adding a measured amount of acid. If the milk is warm when the acid is added, or if the acid is run in too rapidly, large clumps of curds will separate. When properly prepared, a smooth, homogeneous preparation should result. The concentration of acid is the same as that occurring in ordinary buttermilk. The taste and general physical properties are the same. The cost of lactic acid used in the preparation of a quart of milk is not more than 2 cents, at the present market price of U. S. P. lactic acid (approximately $1 a pound).

The milk prepared as described keeps well, even if not placed in a refrigerator. Its acidity is such (p_H 4) that bacterial growth is almost completely inhibited. We have inoculated such milk with pure cultures of *B. coli* and *B. dysenteriae* and have found no growth at the end of twenty-four hours. Ohta [6] has shown that, when milk of this degree of acidity is contaminated by the addition of mixed stool bacteria of infants, no growth of the organisms occurs.

In using lactic acid milk for infant feeding, dilution is not usually necessary, as the amount an infant would ordinarily take at a feeding is not in excess of the digestive capacity. Only when it is desired to limit distinctly the amount of milk taken, without at the same time decreasing the total fluid intake, as, for example, during warm weather, or in the case of infants convalescing from severe diarrhea, is dilution required. Practical experience has shown that it is neither necessary nor desirable to dilute the milk for the feeding of even newly born or premature infants.

Carbohydrate should be added to lactic acid milk, as the amount of sugar present is insufficient for the needs of the average infant. The carbohydrate of choice is commercial corn syrup, such as is obtainable in grocery stores (Karo, etc.). This syrup contains a relatively high proportion of the difficultly fermentable dextrin,[7] and can consequently be added to the lactic acid milk feedings in large amounts without the danger of producing diarrhea. The characteristics of corn syrup are discussed elsewhere.[5] This form of sugar possesses distinct advantages over sucrose or lactose, and is at least as suitable for infant feeding as the expensive proprietary malt preparations. The amount of syrup usually added to the day's feedings is 1 ounce for infants up to 2 weeks of age, and from 1½ to 2 ounces for the older infants. It is occasionally of advantage to add somewhat larger amounts in the case of infants with high caloric requirements, especially those who are undernourished. Some infants are able to take a surprising amount of the syrup without developing any diarrhea. As cereal starches are added to the diet after the age of 6 months, the amount of syrup may be decreased.

In preparing the formulas, the syrup is stirred into the lactic acid milk until thoroughly mixed. In cold weather the syrup may first be diluted with an equal volume of warm water, to facilitate mixing with the milk. The entire day's feedings are made up at one time, and preferably kept cool until used. No further sterilization is necessary. Feedings are given at four-hour intervals, six feedings a day for very young or undernourished infants, five feedings otherwise. The amount at a feeding is determined by the appetite and symptoms presented by the baby. In general, about the same amounts are taken as is customary for other regularly used formulas; that is to say, the average infant will take feedings of about 2 ounces at 1 week of age, 3 or 4 ounces at a month, 6 ounces at 4 months, and 7 or 8 ounces from the sixth month on.

It is thus seen that the infant receives a formula of approximately the same composition throughout the whole first year. There is a relatively higher proportion of sugar in the mixture for the younger than for the older infants, but the difference is not great. Indeed, we have found that a single formula may be used very satisfactorily throughout the first year. Such a formula for general use is prepared by mixing corn syrup and lactic acid milk in the proportion of 1 ounce to the pint. The infant is given about as much as he desires every four hours.

Such a procedure is, at first sight, at variance with what have been considered, by some, to be the underlying principles of scientific infant feeding. The real reason, however, for modifying milk so as to provide different formulas for different ages is the incapacity of the young infant to digest sweet cow's milk. As the infant becomes older, the digestive tract accommodates itself to cow's milk, and a larger proportion of the food intake can be given in that form. With cow's milk rendered readily digestible by addition of acid, the need for such modification largely disappears. It is well to take cognizance of the fact that the normal infant receiving his natural diet from the mother's breast gets the same formula each month and takes about all he desires.

It is, of course, at times advisable to alter the formulas to meet definite indications. This is very simply accomplished. Skimmed milk may be substituted for all or a portion of the whole milk. The amount of added syrup may be decreased. We would, however, warn against too frequent meddling with the formula, and especially against prolonged underfeeding. The great advantage of the type of food described is that it is a concentrated one and provides a means of giving the infant, in a reasonable number of ounces, sufficient calories and a sufficient amount of each of the food constituents. Dilution of the formulas defeats the object aimed at.

It is to be noted that the formulas are not of the "get fat quick" type containing a disproportionately large amount of carbohydrate. The other food elements, fat,

6. Ohta, K.: Jahrb. f. Kinderh. **85**: 358, 1917.

7. The average composition of corn syrup is: dextrin, 55 per cent.; maltose, 30 per cent.; glucose, 15 per cent. It is prepared by the acid hydrolysis of starch. One ounce by volume (two tablespoonfuls) is equivalent to 1 ounce of sugar. The caloric value is 120 an ounce.

protein and salts, are also present in considerable concentration. The gains in weight are not due to the building up of flabby, waterlogged tissues, as is the case in condensed milk feeding. The lack of resistance to infection and the sudden nutritional catastrophes seen in the case of infants fed for a prolonged period on foods of the condensed milk type are not observed in infants fed on the lactic acid milk formulas, even when these formulas are fed continuously over many months.

RESULTS OBTAINED

Aside from any theoretical considerations involved, the only real test of the value of any method of infant feeding is the behavior of the infant receiving the food. During the last two years, approximately 90 per cent. of the infants in the wards of the St. Louis Children's Hospital have been fed on undiluted whole lactic acid milk to which corn syrup has been added. The infants admitted to the hospital have, with very few exceptions, been what would ordinarily be classed as difficult feeding cases, or else have been those suffering from definite disease. It has been the policy of the institution to admit only those infants that could not be treated satisfactorily in the home or in the outpatient clinic.

The records of all infants under 1 year of age in the hospital during the last two years have been analyzed in order to ascertain the results of lactic acid milk feeding. As temporary gains in weight are common on any food, all infants fed on the formulas for less than one week were eliminated from the series analyzed. Furthermore, fictitious gains in weight due obviously to saline injection were not recorded. Infants suffering from proved tuberculous meningitis and septicemia were not included in the series. This left 142 infants for consideration.

Of the 142 infants whose records were analyzed, seventy-eight, or 55 per cent., were suffering from infections during the period of observation. These infections included otitis media, fifty-three; pneumonia, twenty; pyelitis, thirty-eight; meningitis, three; pulmonary tuberculosis, two; bacillary dysentery, ten, and osteomyelitis, two. Included in the series were also cases of congenital syphilis, pyloric stenosis, congenital malformation of the heart, and spina bifida; in short, the usual run of cases seen in the infant ward of any large hospital. A large proportion of the infants were much underweight.

The ages of the infants varied from 2 days to 1 year. Six premature infants were included in the series. More than half of the infants were under 3 months of age. The number of days the infants were on the formulas varied from seven to 120. The average was twenty-two days.

The average number of calories fed was 153 per kilogram of body weight (70 calories a pound). Seventeen of the infants received more than 200 calories per kilogram of body weight (90 calories a pound).

For the entire group, the average daily gain in weight was 28 gm. (9/10 ounce).

This satisfactory nutritional result in a group of sick infants under hospital conditions has served to confirm our original impression of the value of the food of the type described.

Gain in weight is not the sole criterion of the suitability of the diet. The infants in the series rarely developed diarrhea or vomiting. None died as the result of gastro-intestinal disturbances attributable to overfeeding. Most striking of all has been the fact that the mortality among athreptic infants in the hospital has fallen from 78 per cent. in 1919 to 26 per cent. during the past year.

In the Washington University Dispensary, more than half of the infants coming under observation during the last two years have been fed on the lactic acid milk and corn syrup mixtures, and the results in these infants have been appreciably better than in any other artificially fed group. The method has also been extensively used in a number of the municipal feeding clinics in the city of St. Louis and in the private practice of a rather large group of pediatricians. Certainly, more than 1,000 infants in St. Louis have been fed on the formulas described, and the results have been so generally satisfactory that a still wider use of the method is to be recommended.

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THE TRANSMISSION OF ARSENIC FROM MOTHER TO FETUS*

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The earliest record found on the antenatal treatment of congenital syphilis was that of Bertin[1] in 1810. Lancercaux,[1] in 1868, admitted that, in his opinion, antenatal treatment was the correct method of procedure; but there still existed, at that time, a well recognized school which taught that it was both wrong and dangerous. The treatment at that time consisted in the administration of mercury in some form plus the free use of potassium iodid. This method of treatment had only a slight degree of success. Since the introduction of arsphenamin, the antenatal treatment of congenital syphilis with arsenic and mercury has had a surprising degree of success. Greenlees[2] and Findlay[3] report complete success in their series of cases, which, although few in number (fifteen), contained some that have been followed for a period of seven years. Fordyce and Rosen[4] have obtained excellent results after adequate antenatal treatment. In their series, the newborn were and remained both clinically and serologically free from syphilis. Adams[5] reports very satisfactory results in a large series of cases.

Williams[6] shows that almost ideal results follow the efficient treatment of syphilitic pregnant women. Furthermore, surprising results may sometimes follow what would ordinarily be regarded as altogether inefficient treatment in men or nonpregnant women. This would seem to indicate that pregnant women are unusually amenable to treatment. Such a general uniformity of successful results can be attributed only to the effectiveness of the antenatal treatment. The increasing efficiency in the methods of treatment, and the more thorough routine investigation of prospective mothers, make one feel more optimistic for a future reduction in the number of abortions, stillbirths and active cases of congenital syphilis. Some mothers

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* The data are taken from the thesis of Frank G. Amatruda, M.D., presented in partial fulfilment of the requirements for the degree of M.D., Yale University, 1923.

1. Quoted by Greenlees (Footnote 2).
2. Greenlees, J. R. C.: Glasgow M. J. **96**: 270 (Nov.) 1921.
3. Findlay, L.: Brit. M. J. **2**: 887 (Nov. 26) 1921.
4. Fordyce, J. A., and Rosen, Isadore: Treatment of Antenatal and Congenital Syphilis, Arch. Dermat. & Syph. **5**: 1 (Jan.) 1922.
5. Adams, J.: Brit. M. J. **1**: 56 (Jan. 14) 1922.
6. Williams, J. W.: Bull. Johns Hopkins Hosp. **33**: 383 (Nov.) 1922.

receiving antenatal treatment continued to have a four plus Wassermann reaction post partum, although their new-born infants were and remained clinically and serologically free from syphilis. Can this be explained on the basis of some protective function of the placenta, or some vitalistic property of that organ in keeping the drug in greater concentration in the fetal circulation? Is it a greater and more direct action of the arsphenamin on the spirochetes in the placenta, because of the greater vascularity of this organ? Or must we say, because of our ignorance on the subject, that it is due to some unknown immunologic reaction? It is with these points of view in mind that this investigation was undertaken, with the hope that it might throw some light on the explanation of this more specific action of antenatal treatment of syphilis on the fetal tissues.

HISTORICAL

Fundamentally, two antagonistic theories have been developed to explain the phenomenon of placental transmission. One, the vitalistic, assumes that the chorionic epithelium takes a specific vital part in placental interchange. The other, the mechanistic, regards this wall as a passive, semipermeable membrane, conforming to the laws of osmosis and diffusion. The vitalistic view gained many adherents after several investigators demonstrated the presence of enzymes in the placenta. These lipolytic, diastatic and proteolytic enzymes were never shown to be active agents in causing placental interchange. In fact, Slemons [7] suggested that these enzymes probably have to do merely with the living processes of the cells in which they are found. Edelstein and Ylppö [8] state that placental transmission cannot be explained merely by the laws of diffusion and osmosis, since they find a greater concentration of the sodium and potassium salts in the fetal than in the maternal blood.

In behalf of the mechanistic theory an enormous amount of experimental work and literature has accumulated, and the consensus of opinion now favors this theory. The growth of the fetus offers conclusive evidence that the interchange of oxygen and nutritious material from mother to fetus, and of waste products in the opposite direction does occur. Several investigators have shown experimentally that oxygen and carbon dioxid are transmitted readily through the placenta, moving from the point of higher to that of lower concentration. Zweifel [9] and Nicloux [10] made similar observations on the transmission of chloroform and ether, respectively. The transmission of substances in solution was first demonstrated by Mayer [9] in 1817, who observed the toxic effects of potassium cyanid in the mother after injecting the salt into the fetus. Gusserow,[11] in 1878, concluded that substances were transmitted from mother to fetus. He established the fundamental fact that, provided the placenta is normal, no insoluble substance may pass it. The researches of many men have demonstrated the transmission of several other substances, as strychnin, potassium cyanid, methylene blue, nicotin, curare, potassium iodid, physostigmin, phlorizin, pilocarpin, sodium salicylate and epinephrin. Nicloux summarized the literature up to 1909 and divided substances into two groups: (1) those soluble in water and diffusible, which traverse the placenta and (2) those insoluble in water and not diffusible, which do not traverse the placenta. Wislocki,[12] experimenting with a crystalloid (phenolsulphonephthalein) and a colloid (trypan blue), also comes to similar conclusions.

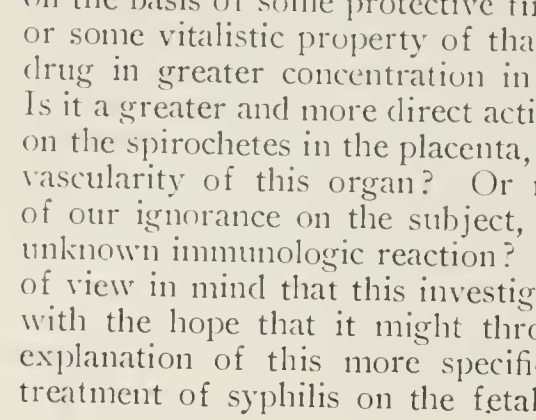


Chart 1.—Accumulation of arsenic in placenta.

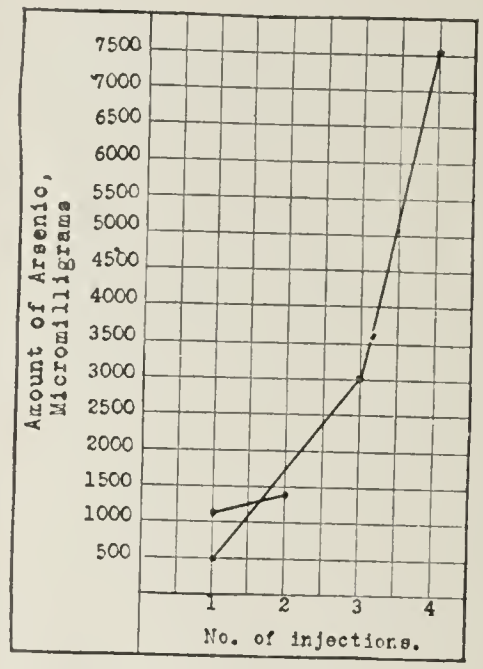


Chart 2.—Accumulation of arsenic in maternal liver after serial injections.

The normal constituents of human blood have also been examined quantitatively in the mother and the fetus at the time of delivery, and the results mostly conform to the mechanistic view. Thus, Kingsbury and Sedgwick [13] obtained the same average for uric acid. Plass [14] found that creatinin exists in the same concentration in both maternal and fetal blood. Slemons and Morriss [15] have shown that the urea and nonprotein nitrogen content is the same. Morriss [16] found the sugar content to be slightly lower in the fetal blood at the time of delivery. This he explains by the fact that the sugar content in the maternal circulation is raised during the second stage of labor. On the other hand, Morse [17] finds a constantly higher concentration of the amino-acid content of the fetal blood over that of the mother's. An excess of amino-acids amounting to about 2 mg. of nitrogen appears uniformly in favor of the fetal plasma.

Krönig and Führ [9] attempted to prove the mechanistic theory on the principles of physical chemistry. They investigated the freezing point of maternal and fetal blood, and found that the two freeze at the same temperature. This indicates that they have the same osmotic pressure; hence interchange may occur equally well in either direction.

The work of Bourquin [18] and others has shown that many toxins, antitoxins, agglutinins and hemolysins are readily transmitted through the placenta and tend to come to the same concentration. Recently, Givens and Howe,[19] working on the nutrient amino-acids and glucose, and catabolites urea and uric acid, conclude that the process of simple diffusion offers the most reasonable explanation for placental transmission. Quite different are the results of Slemons and Stander [20] on

7. Slemons, J. M.: Tr. Am. Gynec. Soc. **44**: 113-115, 1919.
8. Edelstein, F., and Ylppö, A.: Ztschr. f. Kinderh. **27**: 79 (Nov. 3) 1920; abstr., J. A. M. A. **76**: 347 (Jan. 29) 1921.
9. Quoted by Williams: Obstetrics.
10. Nicloux: Arch. mem. d'ob. et de gynéc. **2**: 840, 1909.
11. Gusserow: Arch. f. Gynäk. **13**: 56, 1878.
12. Wislocki, G. B.: Bull. Johns Hopkins Hosp. **32**: 93 (March) 1921.
13. Kingsbury, F. B., and Sedgwick, J. P.: J. Biol. Chem. **31**: 261 (July) 1917.
14. Plass, E. D.: Bull. Johns Hopkins Hosp. **28**: 297 (Sept.) 1917.
15. Slemons, J. M., and Morriss, W. H.: Bull. Johns Hopkins Hosp. **27**: 343 (Dec.) 1916.
16. Morriss, W. H.: Bull. Johns Hopkins Hosp. **28**: 140 (April) 1917.
17. Morse, A.: Bull. Johns Hopkins Hosp. **28**: 199 (June) 1917.
18. Bourquin, H.: Am. J. Physiol. **59**: 122-143 (Feb.) 1922.
19. Givens, W. H., and Howe, M. G.: Chemical Studies of Blood of Mother and Fetus, Am. J. Dis. Child. **25**: 63-75 (Jan.) 1923.
20. Slemons, J. M., and Stander, H. J.: Bull. Johns Hopkins Hosp. **34**: 7-10 (Jan.) 1923.

ne content of the nondiffusible fats and colloids. The nother's blood contains much more of these substances han does the fetal. Regarding the transmission of ormed substances, the work of Bounet,[9] Hofbauer, Vallgren, Ascoli and others clearly shows that substances such as iron, fat and albuminous substances re eventually passed into the fetal circulation after first ndergoing radical changes in the syncytium (Williams).

"Finally, the question as to whether the placenta acts s an efficient filter against bacteria has given rise to great deal of discussion, but at present the consensus f opinion regards such an occurrence as unusual and ssociated with some lesion of the organ."

TABLE 1.—*Findings in Experiment 1*

Neo-Arsphenamin Injected (Time) 1923	Amount Injected, Gm.	Animal Killed	No. of Hours After Last Injection, Hours	No. of Embryos Found at Necropsy	Total Weight Embryos, Gm.
Oct. 18 (3 p. m.)	0.15	Oct. 19 (10 a. m.)	19	8	160

TISSUES EXAMINED FOR ARSENIC

Tissue	Weight, Gm.	Amount of Tissue Examined, Gm.	Amount of Arsenic Recovered in Tissue Examined, Micro-milligrams	Total Amount of Arsenic in Tissue (Calculated) Micro-milligrams
Maternal liver	80	20	300	1,200
Maternal kidney	20	20	160	160
Placenta	60	20	140	420
1 whole embryo	20	20	None	0
7 fetal livers	15	15	None	0

Rabbit: weight, 3,600 gm.; one injection given

TABLE 2.—*Findings in Experiment 2*

Neo-Arsphenamin Injected (Time) 1923	Amount Injected, Gm.	Comment
April 13	0.15	Animal had already given birth to 4 embryos when seen the following day

TISSUES EXAMINED

Tissue	Weight, Gm.	Amount of Arsenic Found	Comment
Two whole embryos	75	Very slight trace	No other tissue examined

Rabbit: weight, 2,300 gm.

EXPERIMENTAL

As stated, this communication deals with the transmission of arsenic from mother to fetus. Rabbits and cats were injected with neo-arsphenamin, intravenously. The rabbits were injected into the ear vein without an anesthetic. The cats had to be anesthetized with ether before each injection, as these animals were uncontrollable otherwise. They were injected into the superficial femoral vein after the latter had been exposed by a small nick in the skin. After the desired number of injections had been given, the animals were killed. The time interval between injections was always about twenty-four hours, and the animals were killed about the same number of hours after the last injection.

The tissues to be examined for arsenic were oxidized by Gautier's method as simplified by Johnson and Chittenden.[21] The method for examining quantitatively the arsenic in the tissues was that of Gutzeit as modified by Sanger and Black.[22]

The maternal, fetal and placental tissues were examined for the presence of arsenic after the animals had received a varying number of injections. The results of the examinations are tabulated. A few points are interesting and worth mentioning. It will be noticed that in practically every case, traces of arsenic were detected in the fetal tissues. The amount of arsenic obtained from the fetal tissues was never more than a trace, regardless of the number of serial injections received by the animal. On the other hand, examination of the maternal liver and placenta shows that the amount of arsenic recovered from them increases with the number of serial injections the animal had received. From the results obtained there is little doubt that arsenic is stored up in the placenta and maternal liver after serial injections, as contrasted with the fetal tissues.

TABLE 3.—*Findings in Experiment 3*

Neo-Arsphenamin Injected (Time) 1923	Amount Injected, Gm.	Interval Between Injections, Hours	Animal Killed	No. of Hours After Last Injection	Comment
1st dose, Jan. 22 (11 a. m.)	0.15	..	Jan. 24, 3 p.m.	..	8 embryos found at necropsy; total wt., 225 gm.
2d dose, Jan. 23 (5 p. m.)	0.15	30	.....	22	

TISSUES EXAMINED

Tissue	Total Weight of Tissue, Gm.	Amount of Tissue Examined, Gm.	Arsenic Found in Tissue Examined, Micro-milligrams	Total Amount of Arsenic in Tissue (Calculated) Micro-milligrams
Maternal liver	100	25	350	1,400
Maternal kidney	22	22	350	350
Placenta	60	25	250	600
1 whole embryo	30	30	Trace	Trace
7 fetal livers	20	20	Faint trace	Faint trace

Rabbit: weight, 3,800 gm.; two injections given.

TABLE 4.—*Findings in Experiment 4*

Neo-Arsphenamin Injected (Time) 1923	Amount Injected, Gm.	Interval Between Injections, Hours	Comment
1st dose, April 13 (5 p.m.)	0.15	..	Animal had given birth to 5 embryos when seen the following morning, April 17
2d dose, April 14 (4 p.m.)	0.15	23	
3d dose, April 15 (4:30 p.m.)	0.15	24½	
4th dose, April 16 (5 p.m.)	0.15	24½	

TISSUES EXAMINED

Tissue	Wt., Gm.	Amount of Arsenic Found	Remarks
1 whole embryo	30	Slight trace	No other tissues examined

Rabbit: weight, 3,000 gm.; four injections given.

TABLE 5.—*Findings in Experiment 5*

Neo-Arsphenamin Injected (Time) 1923	Amount Injected, Gm.	Interval Between Injections, Hours	Animal Killed	No. of Hours After Last Injection	Comment
1st dose, March 8 (4 p. m.)	0.15	..	March 10, 1923, 7 p. m	..	4 embryos found at necropsy; total weight, 336 gm.
2d dose March 9 (4 p. m.)	0.15	30	....	27	

TISSUES EXAMINED

Tissue	Total Weight of Tissue, Gm.	Amount of Tissue Examined, Gm.	Arsenic Found in Tissue Examined, Micro-milligrams	Total Amount of Arsenic in Tissue (Calculated) Micro-milligrams
Maternal liver	90	30	175	525
Placenta	50	30	240	400
4 fetal livers	30	30	Slight trace	Slight trace

Cat: weight, 3,600 gm.; two injections given.

21. Johnson and Chittenden: Quantitative Chemical Analysis, Fresenius and Cohn **2**: 693.
22. Sanger and Black: Proc. Am. Acad. Arts & Sc. **43**: 8, 1907.

COMMENT

This communication presents several interesting points for speculation. It is obvious from the data presented that arsenic is transmitted through the placenta in small quantities, after the intravenous injection of neo-arsphenamin. Whether the drug exists in the same concentration in the maternal and fetal circulations cannot be answered, as the maternal and fetal blood were not examined separately. It is appropriate to mention here that Raiziss,[23] working on the colloidal properties of arsphenamin and its allied products, observed that these drugs were less diffusible through a semipermeable membrane than sodium chlorid. Arsphenamin was twenty-five times less diffusible, and neo-arsphenamin, the drug used in these experiments, was slightly more diffusible than arsphenamin. Since colloids are not transmitted through the placenta, one would expect to find the arsenic in greater concentration in the maternal than in the fetal circulation if the neo-arsphenamin retains its partial colloidal property after intravenous injection.

TABLE 6.—*Findings in Experiment 6*

Neo-Arsphenamin Injected (Time) 1923	Amount Injected, Gm.	Interval Between Injections Hours	Comment
1st dose, March 22 (4 p. m.)	0.15	..	Animal died, March 24, 3 p. m., 22½ hours after last injection; 3 embryos found at necropsy; total weight, 330 gm.
2d dose, March 23 (4:30 p. m.)	0.15	24½	

TISSUES EXAMINED

Tissue	Weight of Tissue Examined, Gm.	Amount of Arsenic Found	Comment
1 whole embryo	100	Faint trace	No other tissue examined
2 fetal livers	11	None	

Cat: weight, 3,500 gm.; two injections given.

TABLE 7.—*Findings in Experiment 7*

Neo-Arsphenamin Injected (Time) 1923	Amount Injected, Gm.	Interval Between Injections, Hours	Animal Killed	Comment
1st dose, March 12 (5:30 p. m.)	0.15	..	Cat found dead morning after last injection, March 15	6 embryos found at necropsy; total weight, 400 gm.
2d dose, March 13 (5:30 p. m.)	0.15	24		
3d dose, March 14 (4 p. m.)	0.15	24½		

TISSUES EXAMINED

Tissue	Total Weight of Tissue, Gm.	Amount of Tissue Examined, Gm.	Arsenic Found in Tissue Examined, Micro-milligrams	Total Amount of Arsenic in Tissue (Calculated) Micro-milligrams
Maternal liver	120	30	750	3,000
Placenta	90	30	250	750
1 whole embryo	65	65	Trace	Trace
5 fetal livers	30	30	Slight trace	Slight trace

Cat: weight, 3,500 gm.; three injections given.

The fact that arsenic is not stored in the fetal tissues is of considerable clinical importance. The drug can be safely administered in the antenatal treatment of syphilis, in the ordinary doses given to men and nonpregnant women, without any danger of its having a toxic effect on the fetus.

The best scientific explanation that can be offered to explain the greater efficiency of the antenatal treatment of syphilis, especially in the new-born, is based on two important facts: 1. The arsenic can act in greater concentration on the spirochetes in the placenta, where the spirocheticide is stored after serial injection.

23. Raiziss, G. W.: J. Pharmacol. & Exper. Therap. **19**: 271, 1922.

2. The drug has a more direct access to the spirochetes in the placenta, owing to the greater vascularity of this organ.

CONCLUSIONS

1. Arsenic is detected in small traces in the fetal tissues after the intravenous injection of neo-arsphenamin into the maternal circulation.

2. The amount of arsenic recovered from the fetal tissues does not increase in proportion to the number of serial injections given.

TABLE 8.—*Findings in Experiment 8*

Neo-Arsphenamin Injected (Time) 1923	Amount Injected, Gm.	Interval Between Injections, Hours	Animal Killed	Comment
1st dose, March 26 (5 p. m.)	0.2	..	Animal found dead following morning, March 30	4 embryos found at necropsy; total weight, 400 gm.
2d dose, March 27 (5:30 p. m.)	0.2	24½		
3d dose, March 28 (4 p. m.)	0.2	22½		
4th dose, March 29 (4:30 p. m.)	0.2			

TISSUES EXAMINED

Tissue	Total Weight of Tissue, Gm.	Amount of Tissue Examined, Gm.	Arsenic Found in Tissue Examined, Micro-milligrams	Total Amount of Arsenic in Tissue (Calculated) Micro-milligrams
Maternal liver	75	20	2,000	7,500
Placenta	70	20	200	700
1 whole embryo	100	100	Material lost	
3 fetal livers	17	17	Slight trace	Slight trace

Cat: weight, 3,400 gm.; four injections given.

TABLE 9.—*Accumulation of Arsenic in Tissues After a Varying Number of Injections*

Animal Used	Number of Injections Received	Arsenic Recovered from the Placenta, Micro-milligrams	Arsenic Found in Maternal Liver, Micro-milligrams	Arsenic Recovered from Whole Embryo	Arsenic Recovered from Fetal Liver
Rabbit	1	420	1,200	0	0
Rabbit	1	Not examined	Not examined	Very slight trace	Not examined
Rabbit	2	600	1,400	Trace	Slight trace
Rabbit	4	Not examined	Not examined	Slight trace	
Cat	2	400	525	Not examined	Slight trace
Cat	2	Not examined	Not examined	Slight trace	0
Cat	3	750	3,000	Trace	Slight trace
Cat	4	700	7,500	Material lost	Slight trace

3. Arsenic is stored in the maternal liver and placenta, the amount increasing with the number of injections.

4. The explanation offered for the efficiency of antenatal treatment of syphilis, especially on the new-born, is that the spirocheticide acts in greater concentration and more directly on the spirochetes in the placenta.

Experimental Inoculation of Man with Syphilis.—G. Thibierge and J. Lacassagne have published a historical review of forty-eight experiments of this kind (*Annales de Dermatologie*, September and October, 1923). They cite a long list of attempts, between 1835 and 1862, to cure lupus, prurigo, leprosy or syphilis by injection of syphilitic material. Later, Pellizzari demonstrated on five student volunteers that the blood can transmit syphilis, but only when fresh. It was in 1906 that Maisonneuve volunteered to prove the efficacy of calomel ointment, and later, Magian, of a French arsphenamin as a preventive of syphilitic infection. In these and other similar negative experiences, monkeys injected with the same virus all developed syphilis.

RESULTS OBTAINABLE THROUGH INSTRUMENTAL TREATMENT OF PYORRHEA

A HISTOLOGIC STUDY *

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The wide dissemination of information concerning research on focal infections in the last decade has brought the physician and the dentist into close cooperation. A great variety of conditions, from rheumatism to insanity, have been attributed by different investigators to dental infections.



Fig. 1.—Two adjacent bicuspids, their peridental membranes, the septal gum and the intervening alveolar process.

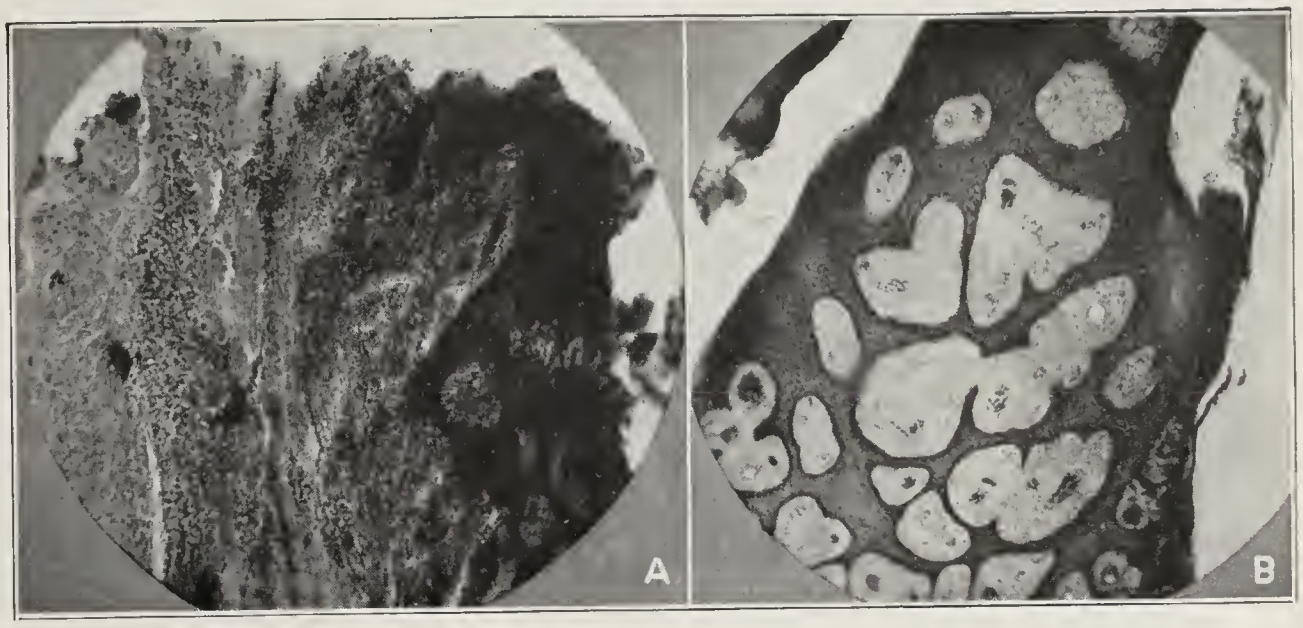


Fig. 2.—Septal gum: *A*, intense inflammation, round cell infiltration, edema, hemorrhagic elements, and almost complete destruction of epithelium; *B*, lessened inflammation, basement membrane and epithelium intact and complete.

The extremists have no difficulty in disposing of their problems. The radical adopts heroic surgery, and the skeptic disregards the teeth entirely. The man who follows the middle path (and he is representative of the bulk of the members of the two professions) finds it difficult after studying the conflicting literature and reflecting on the variability of his own experiences to orient himself satisfactorily on the relationship of teeth to health. Consequently, any data that may serve to throw additional light on this subject are of interest to him.

Pyorrhea is one of the sources of mouth infection. The physician is interested to know the amount and kind of infection in his patients' mouths, the nature of portals of entry, and the effects obtainable through treatment. He is also concerned with the rapidity with which results can be obtained and with the permanence of such results.

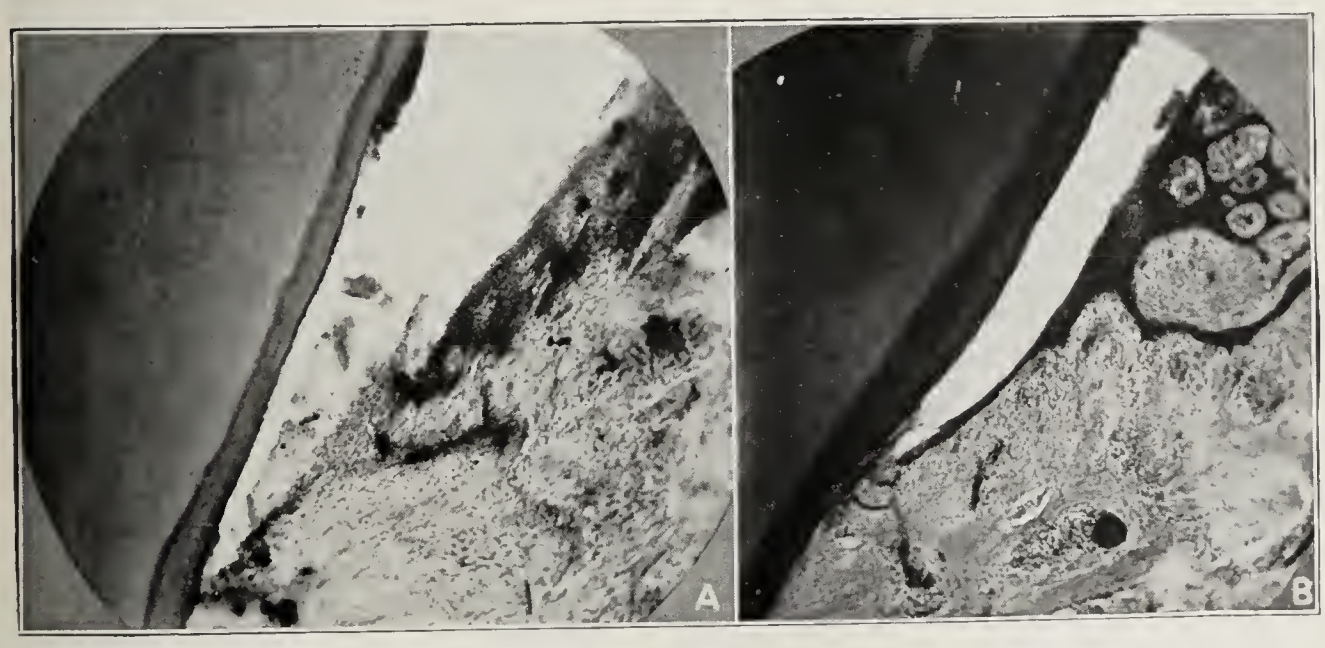


Fig. 3.—Junction of septal gum and tooth: *A*, inflammation, destruction of epithelium, and detachment: *B*, point of junction of gum and tooth: lessened, inflammation, new epithelium, reattachment (tear at bottom of subgingival sulcus probably artefact due to cutting on microtome. New sections are being prepared for a closer study of this detail.

The present study was pursued in collaboration with Dr. W. H. Hanford of Oakland, and Drs. C. O. Patten and Clayton Westbay of San Francisco. It was undertaken in an effort to determine whether a regeneration of tissue, lost through pyorrhea, was possible; whether, if new tissue was formed, it would be merely scar or a true structural rebuilding.

DISEASED TISSUE

Patients were selected from whom pyorrheic tissue might be excised for study of the disease. Roentgenograms were taken before removal of the material, and a very careful record was made of the extent of detachments (depth of pockets). Microscopic examination of the section shown in Figure 1 gave the findings illustrated in Figures 2 *A*, 3 *A*, 4 *A* and 5 *A*.

Figure 6 represents fields from a transverse section of a pyorrheic bicuspid with its circumjacent tissues. Three stages of destruction are evident. At the left is shown partial destruction of the alveolar process: osteoclastic action at *C*, osteomyelitis at *B*. The illustration in the center exhibits but one fragment remaining, *A*, and at the right the bone has completely

* From the California Stomatological Research Group; supported in part by the California State Dental Association.
* Read before the Section on Stomatology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

disappeared and an erosion of the tooth has penetrated through the cementum, *A*, into the detin, *B*.

TREATED TISSUE

A case was now selected, which roentgenographically and clinically was very similar to the preceding. That



Fig. 4.—Peridental membrane in the region of the crest of the alveolar process: *A*, inflammation of membrane, erosion of bone by osteoclasts, and osteomyelitis; *B*, general repair of bone, lessening of inflammation, absence of osteomyelitis.

is, a patient was sought presenting two pyorrheic bicuspids in which the amount of destruction was as nearly as possible the same as that in the case from which the diseased tissue was removed. (It was necessary also to find a case in which the removal of the tissue was justified by prosthetic requirements.)

Such a patient being found, a very careful instrumental examination was made. The extents of detachments were recorded on a special chart. Roentgenograms were taken with a machine which made it possible to determine the current, time of exposure,

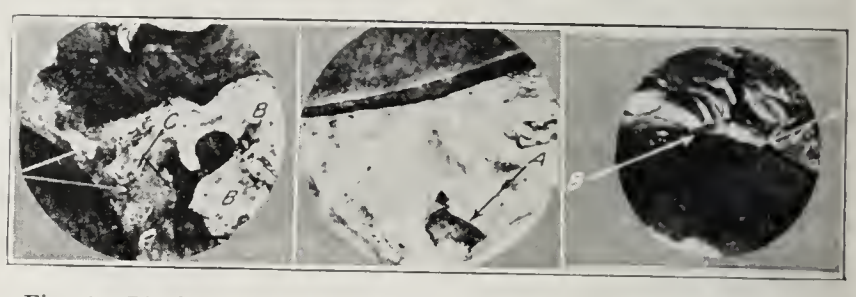


Fig. 6.—Fields from a transverse section of a pyorrhetic bicuspid with its circumjacent tissues: At left, partial destruction of alveolar process; *B*, osteomyelitis; *C*, osteoclastic action; in center, only one fragment remaining; at right, complete disappearance of bone; erosion of tooth has penetrated through cementum, *A*, into dentin, *B*.

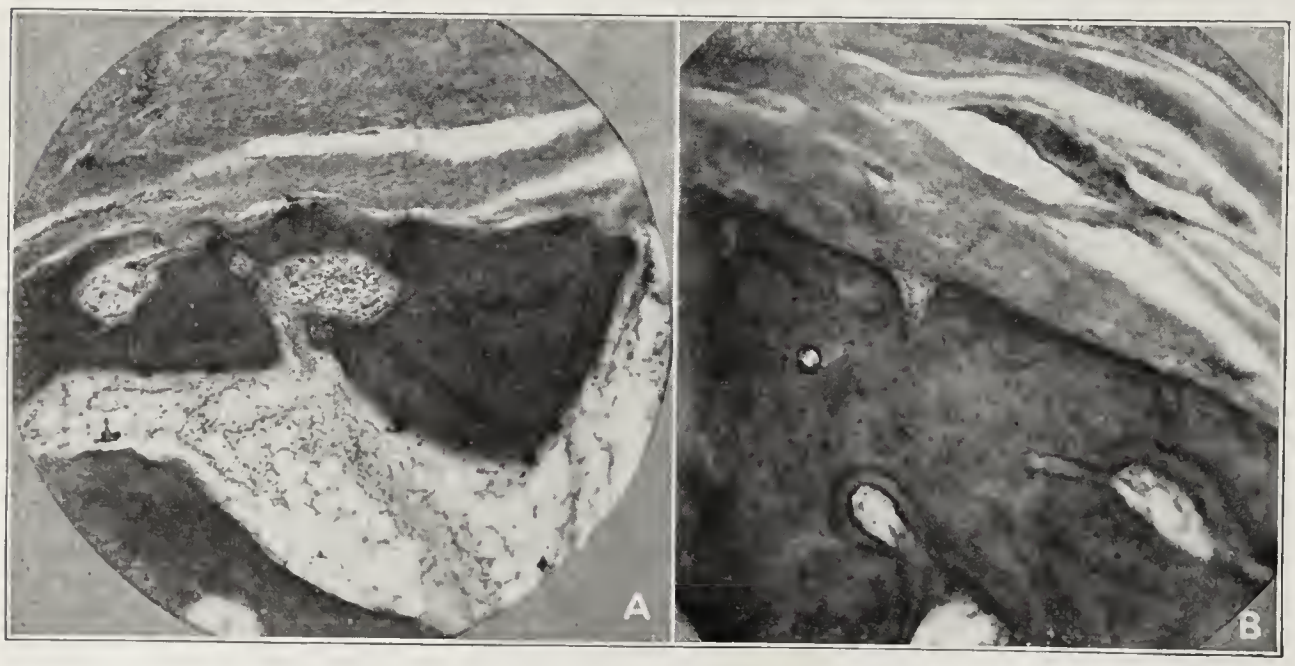


Fig. 5.—Crest of alveolar septum between the two teeth: *A*, osteoclastic action on bone and osteomyelitis; *B*, filling in of bone; one salient of destruction persisting; lessened inflammation.

angle, position, etc. Photographs were taken and models prepared. The tissues were then treated (by instrumentation, scaling roots and mechanical stimulation) for nine months. A new examination and chart were made; new roentgenograms taken (under the same exposure and from the same relative position as before). Photographs and models were again prepared. According to the data thus obtained, there was an average lessening in depth of pockets of about 2 mm. The tissue was now excised and prepared for the microscope (Figs. 2*B*, 3*B*, 4*B* and 5*B*).

CONCLUSIONS

As a result of this work, we believe that instrumental treatment of pyorrhea is beneficial, that some regeneration takes place, and that the histologic picture of the treated tissue is essentially constructive, while that of the diseased tissue is essentially destructive. The amount of regeneration possible we hope to determine by further work; we are also seeking methods for augmenting the repair. From bacteriologic studies in progress, we believe that the infection is rapidly and materially lessened by treatment.

The original staff of workers has now been increased to include three physicians, two bacteriologists, one chemist, one biochemist, four dentists and two student assistants. It is organized as the California Stomatological Research Group. A composite study of pyorrhea and allied problems is being made. The work is being carried on at San Quentin Prison, through the support of Warden James A. Johnston, and with the cooperation of Dr. L. L. Stanley, resident physician. The services of the members of the group are largely volunteer; some financial support is being received from the California State Dental Association. The work is also being strongly aided by Dean Guy S. Millberry of the University of California Dental College.

Diet.—Diseases of the large bowel are assuming increased importance owing largely to their becoming more common. This is probably to be attributed more to modern methods of dietary than to any other factor.—Mummery.

OSTEITIS FIBROSA

REPORT OF CASE *

HERBERT A. POTTS, M.D.
AND
EDWARD H. HATTON, M.D.
CHICAGO

The case here presented is of especial interest because of the disastrous cosmetic result which would of necessity follow radical surgical treatment.

On account of its slow development without influence on the general health, and the fact that a supposedly similar tumor had been successfully removed from the left maxilla seven years previously, it was thought to be not malignant, especially as no metastases had developed.

As the disease is now so wide spread, involving, as it does both sides of the lower jaw and the remaining right maxilla posterior to the first bicuspid, it is a problem to decide on proper treatment.

The previous removal of the left maxilla had left a large hole in the antrum; but, fortunately, as the natural ostium has closed there is no derangement of speech, an unusual sequence, which probably would not follow if the right maxillary tumor were removed in the same radical manner. The roentgenogram revealed narrow lines of rarefaction between the bony tumor and the cortical bone, which was very thin, suggesting a bony mass within a cyst.

INDICATIONS FOR TREATMENT

This suggested conservative surgical treatment, as at times cysts within bone disappear spontaneously or after a pathologic fracture; even puncture and aspiration for diagnostic purposes has stimulated resolution, possibly in the same manner that aspiration of a serous pleural effusion often activates a resorption. Consequently, only the mass, which was encroaching on the tongue and floor of the mouth, as well as a cherry-size tumor in the right upper first bicuspid region, was removed, and to date the condition has remained satisfactory; in fact, the roentgenogram shows the remaining bone to be more dense than before operation.

Following the operation, a portion of the tumor mass, 1 by 2 cm., became a sequestrum through infection, and was removed from the lower jaw. Nothing has been done with the three remaining tumors, situated in the rami and bodies of each side of the lower jaw, and in the upper right maxilla posterior to the bicuspid region.

The disease seems to be some disorder of metabolism, although a roentgenogram shows a normal sella turcica, and the microscope reveals a destruction of normal bone by fibrosis, with the development of new bone within the fibrous structure.

REPORT OF CASE

A woman, aged 28, had been exceptionally well. Her parents were both well, with the exception that her father suffered from "rheumatism," which was not serious. Her two brothers and nine sisters were living and well. She had diphtheria at 12 years of age, and no other illness. The Wassermann reaction was negative, and blood count normal. At 20 years of age she developed within two days a painful swelling above the roots of the upper molars of the left side; these teeth were extracted, and as the pain and swelling did not subside, the swelling was lanced; but no pus escaped. A week later, some soft tissue was cut away; this promptly healed, and she remained well for two years, when a painful red swelling developed within three days below the lower right cuspid. This was lanced on the outside and drained pus for four months. (We are inclined to think that both of these swellings were acute alveolar abscesses and bear little or no relation to the present condition.)

PHYSICAL EXAMINATION

Six years ago, a painless lump slowly developed above the apexes of the upper left bicuspids. She went to a hospital, where it was cut away. The bicuspids were extracted, leaving the antrum open. The wound gradually healed, with the exception of a large opening into the antrum.

Last summer she sought relief from gradually enlarging painless swellings on each side of the face. Physical examination revealed a hard, painless, regular bony tumor involving the anterior portion of the left ramus and body of the jaw, extending as far forward as the first molar. The mental portion of the jaw was normal, but on the right side an irregular, painless, bony mass extended toward the floor of the mouth, half the way to the midline, and interfered with speech; to the buccal, beginning in the cuspid region, the mass was more regular and extended almost to the angle and involved the ramus, as on the opposite side.

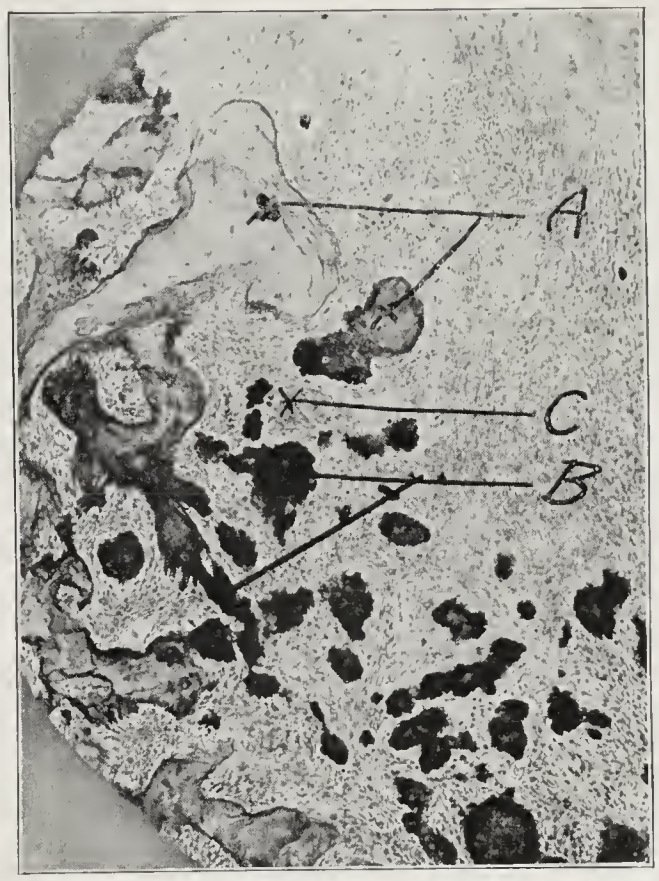


Fig. 1.—*A*, regions of lacunar bone; *B*, irregular, dense calcifications surrounded by *C*, fibrous tissue (8 mm. objective, 4 ocular; section stained with hematoxylin and eosin).

In the right side of the upper jaw was a cherry-size, smooth, similar growth in the first bicuspid region, which tooth was somewhat distorted, its root being included in a portion of the growth. Back of this growth was another one which involved the whole process and tuberosity, the second bicuspid and three molars being firmly embedded in the tumor.

PATHOLOGIC FINDINGS

The roentgenogram revealed abnormal bone of a spongy character quite "moth eaten" and cystic in places, parts of the peripheries being well defined by a narrow space of increased rarefaction. The two tumor masses, removed and examined, measured 3 by 1.5 and 2 by 1 cm., respectively, were nearly oval, and were covered by epithelium on one side; the remaining surfaces were smooth (made by surgical excision). Both were decalcified because of the bone hard nodules felt beneath the surfaces, and sections were made for immediate examination by freezing; other blocks were embedded in celloidin. No essential differences were observed

* Read before the Section on Stomatology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

in the sections made by the two methods. Hematoxylin and eosin, thionin and picric acid, and hematoxylin and van Gieson's stain were used.

The epithelial covering was unchanged mucous membrane, except for a little flattening from compression. Between it and the bone was a layer of dense fibrous connective tissue forming a sort of capsule enclosing the deeper structures. The surfaces of the bone toward this capsule were smooth, and in many places covered with thin layers of new bone and, adjacent to these lamellae, many bone-forming cells. On the

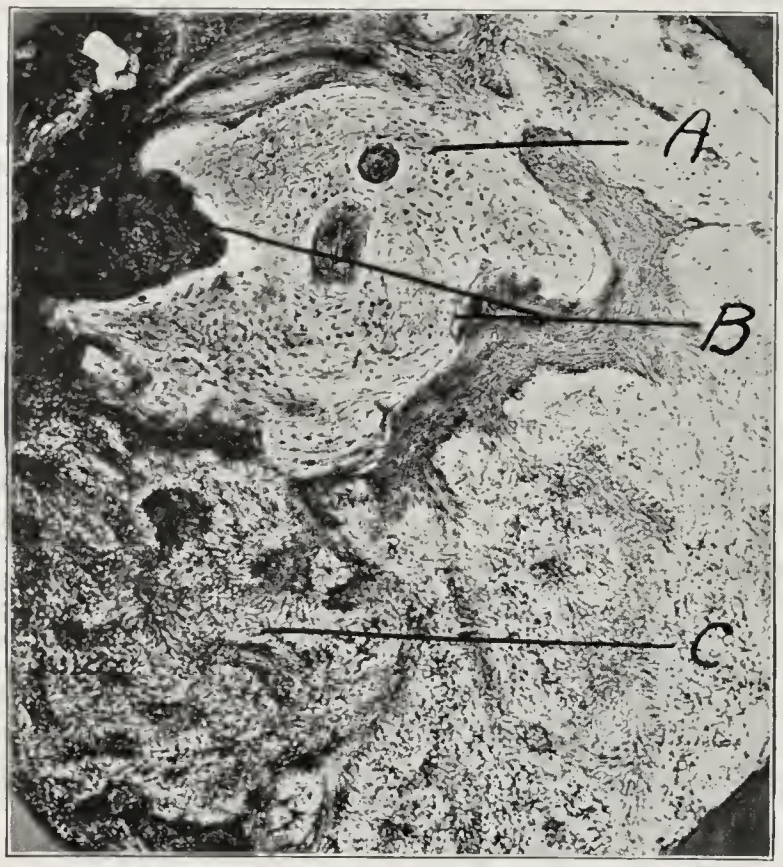


Fig. 2.—*A*, lacunar bone undergoing absorption *(B)*, surrounded by *C*, fibrous tissue with beginning calcification of its intracellular substance (8 mm. objective, 4 ocular; section stained with thionin and picric acid, Schmorl method).

opposite surfaces of this thin layer of rather cancellous bone, toward the center of the tumor masses, bone absorption was marked and many giant cells lay adjacent to the depressions so formed. The body of the swelling was made up of fibrous tissue, partly absorbed bone fragments, and spicules surrounded by thin layers of amorphous calcification, many vessels, and occasional collections of free blood or orange-yellow, rather amorphous, granular material in single or multiple cavities lined by thin, but dense, fibrous bands. In this central region, giant cells were very rare except adjacent to the cavities just described, where they were found but not at all numerous. The cystlike spaces varied from one third to one eighth of the diameter of a 16 mm. field. The calcification in this central portion was striking because it occurred in the abundant intercellular material of the fibrous connective tissue. There were occasional collections of small, round, mononuclear and plasma cells confined to the inside of the capsule.

There seemed to be three zones of change: At the periphery, a low grade inflammatory reaction with bone absorption toward the center, and compensatory new bone formation on the periphery. Second, a region made up of dense fibrous tissue with large spindle-shaped nuclei, very abundant intercellular deposits and no evidence of cell division. Calcification of the intercellular substance was frequent. Third, collections of blood more or less absorbed, resulting in the formation of cystlike cavities toward the center of the growth. Cartilage was not found in the sections examined.

COMMENT

The histologic picture is similar in many respects to that of a calcified fibroma; indeed, in this specimen the calcification is much more marked, and the number of giant cells is much less than in the majority of the instances of osteitis fibrosa described. Though the location in the bones of the face is much less common than in the long bones, this is one of the typical sites of the disease. This fact, and the localized, nearly solid, almost noncystic form of the lesions, are well worth emphasizing. The age of the patient, the location of the lesions and the clinical history suffice to distinguish it from Paget's form or leontiasis ossea. The absence of any histologic evidence of either tuberculosis or syphilis, and the negative Wassermann test, make a diagnosis of either of these conditions improbable.

Von Recklinghausen,[1] in 1891, described a disease of the bones previously confused with osteomalacia, cyst formation, fibroma and giant cell sarcoma, quite distinct from a similar bone disease found in the latter decades of life under the name of osteitis fibrosa (cystica). It is characterized by swellings arising from within the bones of young adults and children, associated with bone absorption, replacement of the absorbed bone by fibrous tissue and cystlike cavities, and more or less calcification of the newly formed fibrous tissue.

A generalized form of the disease is to be distinguished from a localized condition confined to one bone or a closely related group of small bones; and a solid type occasionally is found, in marked contrast to those in which the swelling is largely made up of one or more cystlike cavities.

These cystlike cavities seem to result from the incomplete absorption of blood extravasates; the collection of large numbers of foreign body giant cells about such regions give to these growths the appearance of a giant cell sarcoma. Occasionally, the condition may be confused with either syphilis or tuberculosis.

The rate of growth of these masses and cysts is slow; usually the etiology is not known or is unexplainable, although a single injury has preceded the onset in some cases, and, as the lesions advance and recede, the duration is a matter of years. The outcome of the localized form, especially of the single lesion, is usually favorable following treatment. But the prognosis of the generalized type is uniformly bad, death occurring from a cachexia similar to that found in malignant tumors. It is generally supposed that this is a low grade infection or some metabolic disorder rather than a tumor.[2]

31 North State Street—31 West Lake Street.

ABSTRACT OF DISCUSSION

DR. JOSEF NOVITZKY, San Francisco: I cannot tell Dr. Potts what to do with these cases. I wish that I knew. I have had two cases in the last four years which, in effect, may be comparable to this case that Dr. Potts has told us about. Microscopic examination was not made in my patients. Clinically, the picture was one due to septic teeth. Extensive cavitation of cancellous bone (abscess), complicated, in one case, by overdevelopment of subperiosteal cortical bone, caused confusion as to the etiology. In the second case, after surgical evacuation of the bone cavity, the subperiosteal cortical bone was seen to be enlarged up to two years after primary operation on the bone cavity. This patient was not a syphilitic. I wondered whether it might not be that much of

1. Von Recklinghausen, in Festschrift of Virchow's Assistant, 1891.
2. The number of articles discussing this condition is increasing with each year, so that no attempt is made here to make individual references. Further information may be found in the articles by Bloodgood, J. C.: Ann. Surg. **52**: 122, 1910. Koryjetzky: Arch. f. klin. Chir. **121**: 567, 1922; Beitr. z. klin. Chir. **68**, 1910. Rehu: Arch. f. klin. Chir. **74**: 476, 1904.

this overgrowth of subperiosteal osseous tissue could be comparable to callus which might be reabsorbed as the irritant became less and the periosteum asserted itself.

DR. GORDON NEW, Rochester, Minn.: I should like to congratulate Dr. Potts on his detailed clinical and microscopic study of this very interesting tumor. We all know that a great deal of clinical and pathologic work has been done on malignant tumors of the jaws. I think we should have more papers like Dr. Potts' on a detailed study of benign tumors so that we would have a definite pathologic picture to associate with the clinical one.

DR. H. A. TUCKEY, San Francisco: I should like to bring out the point about the pathologic laboratory and microscopic examination of these malign tumors. It seems to be the fact that laboratory examination will usually return giant cell findings which are naturally of a serious nature. I think our clinical findings should govern us more in these cases than laboratory findings, along with roentgenograms. I speak of one patient in particular who was operated on in 1920. She was a girl, aged 18. She had a tumor-like mass the size of a walnut under the lower first molar, with practically everything absorbed up to the crown of the tooth. The pulp of the tooth was vital. She manifested symptoms of mumps, swelling, and a temperature of 103 F. for two days. That was while she was in the hands of a physician. He suspected a process going on in the jaw, which was substantiated by roentgen-ray examination. Clinically, she had all the symptoms of a possible malignancy. An attempt was made to take out the cyst with a large mastoid curet. The mass was found to be hard, and proved to be an odontoma. I saw this patient, June 8, 1923, and apparently there was nothing further wrong with her. The point I want to bring out is that we cannot depend too much on the laboratory findings alone. Two laboratories reported giant cells, and Stanford Medical School reported benign odontoma.

DR. ROBERT H. IVY, Philadelphia: I have seen three cases of this disease, involving the mandible in every case. In one of them the diagnosis was easy because the patient had been a sufferer for some years from the generalized form of the disease. In the two other cases the lesions were entirely limited to the mandible. Here the question of diagnosis is important, and probably the commonest conditions to be differentiated are adamantinoma and some form of dental cyst. In the latter, one important point in diagnosis is some abnormality of the teeth. In osteitis fibrosa there is no interference by the disease with the eruption of pulp vitality of the teeth. The roentgen ray will show the typical appearance that Dr. Potts showed of a localized rarefaction of the bone with new bone formation within the rarefied area. In one of the cases we had to treat there was a localized tumor in the mandible below the molars which we thought at the time was a dental tumor. I opened it by an external incision, and removed all of the softened diseased tissue without severing the continuity of the jaw. Histologic examination showed fibrous tissue with new bone formation and no epithelial elements. There was no recurrence, and later the external deformity was corrected by a plastic operation.

DR. HERBERT A. POTTS, CHICAGO: I want to say something in defense of the pathologists. If the pathologist is going to help us, we must help him. It is beyond the power of anybody to send a heterogeneous mass of tissue to the pathologist and expect to get a reliable answer from him. We should remember that he is dealing with cells, and we have cells all over the body, similar and dissimilar. He knows, so far as the specimen is concerned, only the dead pathologic condition. The operator has to know the living pathologic condition or at least have some idea of the clinical facts and appearance at the time of operation. In fact, I think that a piece of tissue sent to a pathologist should contain a summary of the clinical history of that case, and then connect that with the case as we see it. We must not malign the pathologist. We must pity him, and he is to be pitied because of some of the things that are required of him. In regard to the cases spoken of by Dr. Novitzky, there was no evidence in these cases of infection, no pus and no cartilage, nothing to lead us to believe that the tumors were of an inflammatory nature. A giant cell sarcoma—anything with sarcoma attached to it—is destructive to life. That is not true of the giant cell sarcoma, which is a misnomer when applied to most jaw tumors containing giant cells. The giant cell sarcoma is not a sarcoma, and consequently we should not get frightened. We have giant cells almost anywhere that one can implant a silk ligature, and the giant cell sarcoma does not follow; consequently, the tumors should be handled conservatively, and the patient will get well. In this paper the treatment of this case has been omitted. We will continue to do what seems to be the best thing to do as time goes on. I will say that, in general, the treatment of bony tumors by the roentgen ray has not been satisfactory.

A MODIFIED RIB-RESECTION OPERATION FOR EMPYEMA

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Numerous articles have appeared in the literature since the war giving arguments pro and con regarding the open and closed methods of treating empyema. The report of the United States Empyema Commission gives very definite facts and data as to the best methods of treating empyema. Its work is conclusive, and has thrown much new light on the subject. Ashhurst [1] says that the conclusion of the empyema commission and the consensus of clinical experience as far as treatment is concerned may be summed up as follows: (*a*) cases of pleural effusion suspected of being purulent should be aspirated, and if the effusion is massive, most of it should be removed by aspiration one or two days before resection of the rib is undertaken; (*b*) if the fluid found on puncture is serous or seropurulent, resection usually may be postponed until frank pus has formed, as the delay will permit the formation of firm adhesions,

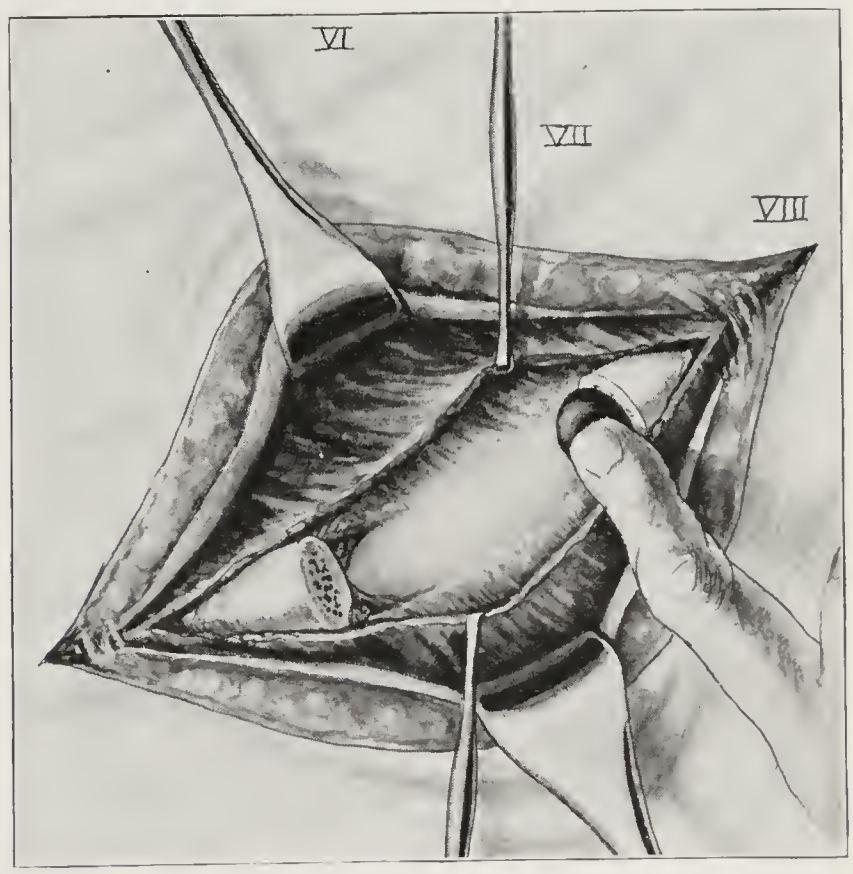


Fig. 1.—Cut ends of rib: The muscle is retracted, and both cut ends are sealed with bone-wax.

1. Ashhurst, A. P. C.: Observations on Empyema, Ann. Surg. **72:** 12 (July) 1920.

and thus prevent complete collapse of the lung when the empyema is opened. Resection of a rib is necessary for proper drainage. The empyema commission [2] emphasizes the value of antiseptics, especially surgical solution of chlorinated soda, in the sterilization of the cavity.

The adherents of the closed method of treating empyema have always advised against the resection of a rib, and one of their main arguments has been the fact that in about 4 per cent. of the cases, osteomyelitis of the rib occurs, which delays convalescence and necessitates a secondary operation. In this respect, they are right. Brown,[3] in a review of 171 cases of empyema at the Children's Hospital of Philadelphia, found that a secondary operation for osteomyelitis was necessary in 4 per cent. of the cases. Eggers [4] reviewed 192 cases of long-standing empyema, which represented a large part of the empyema residue of the United States army. In a large number of these cases, the chronicity of the illness was due to necrosis of the rib, which

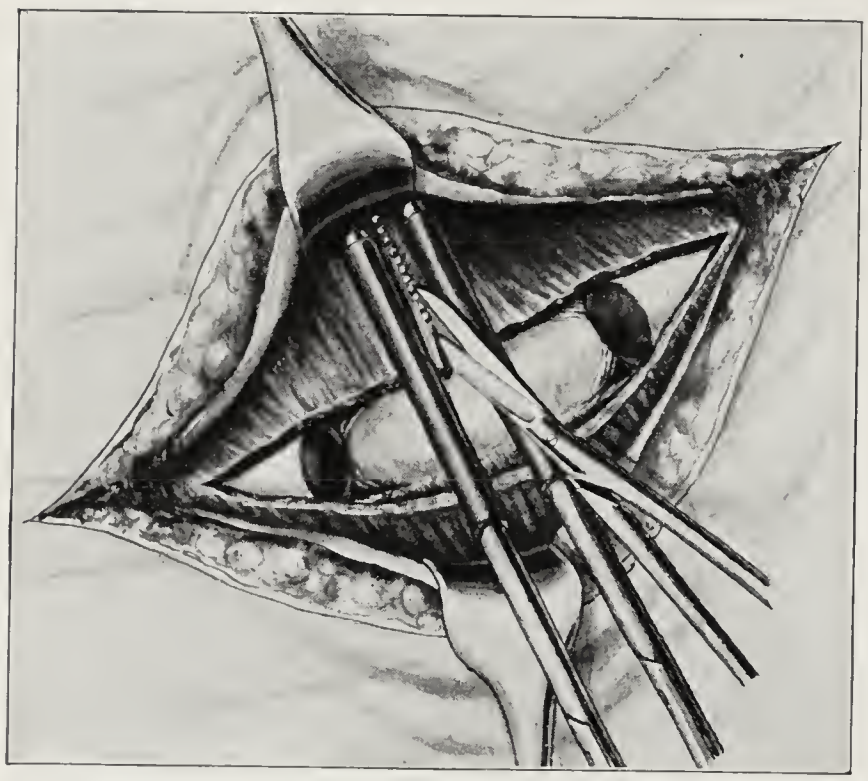


Fig. 2.—The open ends of the bone have been sealed up with bone-wax; two clamps are applied to the muscle above, and the muscle is divided between clamps.

caused long-standing elevation of temperature and a discharging sinus, and which was cured only by a secondary operation for excision of the necrotic rib.

I have often wondered why more cases of rib necrosis did not occur, when I have seen the open marrow ends of the cut rib constantly bathed in pus. The open marrow cavity of the cut rib is an open avenue for sepsis and osteomyelitis. One of the first principles of surgery is to protect exposed surfaces from contamination, and still no attempt seems to be made to protect the open rib from infection. It is a well known fact that the marrow cavity of a bone is easily infected, and these infections are extremely virulent, giving rise to long-standing fever, necrosis of the bone, sequestrum formation, sepsis, with its resulting anemia, and even death. The rib becomes necrotic through continuity of infection when no attempt is made to seal up the open ends of the cut rib. Every surgeon has had innumerable cases in which after resection of a rib for empyema, the patient continues to have a temperature higher than normal, with a progressive anemia, and the roentgen-ray examination shows the chest to be clear; but if the finger is inserted into the chest, the sharp ends of the necrotic ribs can be felt as the offending factor.



Fig. 3.—The muscle is brought down and sewed over the open end of the bone, completely burying the bone.

With the idea in mind of sealing up the open ends of the resected ribs, so as to prevent their being constantly bathed in pus, and being an open avenue for an osteomyelitis or a sepsis, I have modified the old time-honored rib resection operation.

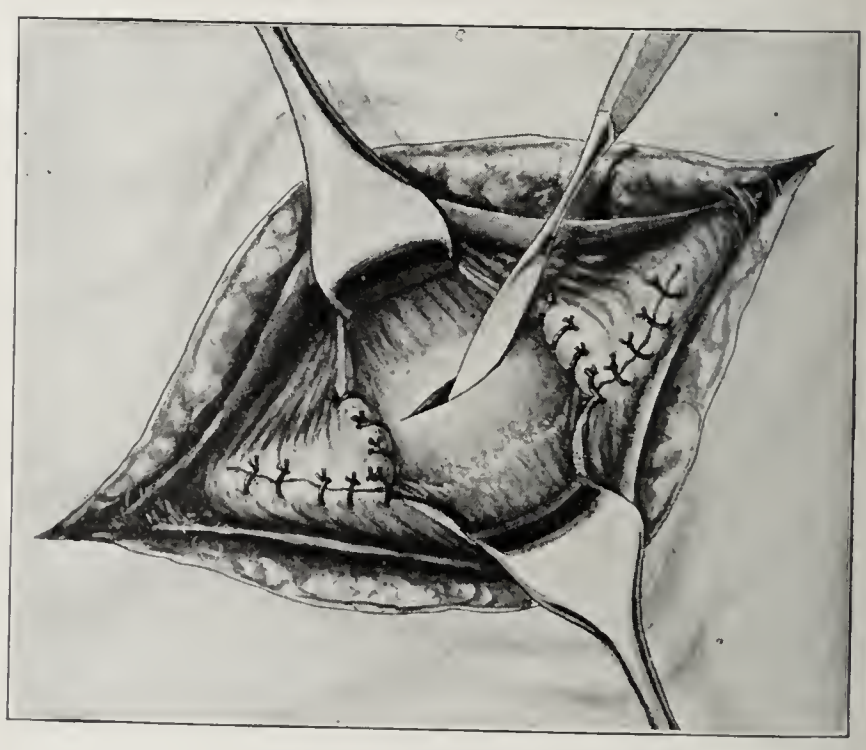


Fig. 4.—The bone has been entirely covered by the muscle flaps, and the pleura is now opened.

In the last three months I have had the opportunity of performing this operation four times. All the patients had a smooth convalescence and all are now perfectly well. So satisfactory have been the results that I shall in the future use this technic in all cases of empyema.

2. The Empyema Commission: Cases of Empyema at Camp Lee, Va., J. A. M. A. **71**: 366 (Aug. 3), 443 (Aug. 10) 1918.
3. Brown, H. P., Jr.: Empyema Thoracis, Ann. Surg. **77**: 401 (April) 1923.
4. Eggers, C.: Chronic Empyema, Ann. Surg. **77**: 142 (Feb.) 1923.

TECHNIC

Under local anesthesia, the incision is made over the rib to be resected, until the muscle is reached. If this is the eighth rib, the latissimus dorsi muscle is encountered, which is split and retracted. The periosteum is then incised and separated from the rib, and about 2½ inches (6.3 cm.) of rib is removed with the costotome. Care must be taken that the periosteum is not separated too far away from the cut edge of the bone, as the periosteum nourishes the bone, and if too much periosteum is removed, the end of the bone may become necrotic through loss of circulation. I now seal up the open ends of the cut rib with bone wax, as shown in the diagrams. I then put two clamps on the latissimus dorsi muscle, cut between the clamps, and turn the muscle flaps down to cover the open ends of the bone. The muscle is sutured to the muscle below so that the bone is entirely covered and cannot be seen. The open ends of the bone have thus been doubly protected and cannot become necrotic by continuity of the infection. The pleura is then opened, the suction apparatus introduced, the pus slowly removed and, when the pleural cavity is dry, a rubber tube is inserted and the skin closed in the usual way with silkworm-gut sutures.

CONCLUSIONS

1. To secure proper drainage in empyema, rib resection is necessary.

2. Osteomyelitis of the rib occurs in 4 per cent. of the cases, resulting in long-standing fevers, anemia and protracted convalescence, and requiring a secondary operation for a cure.

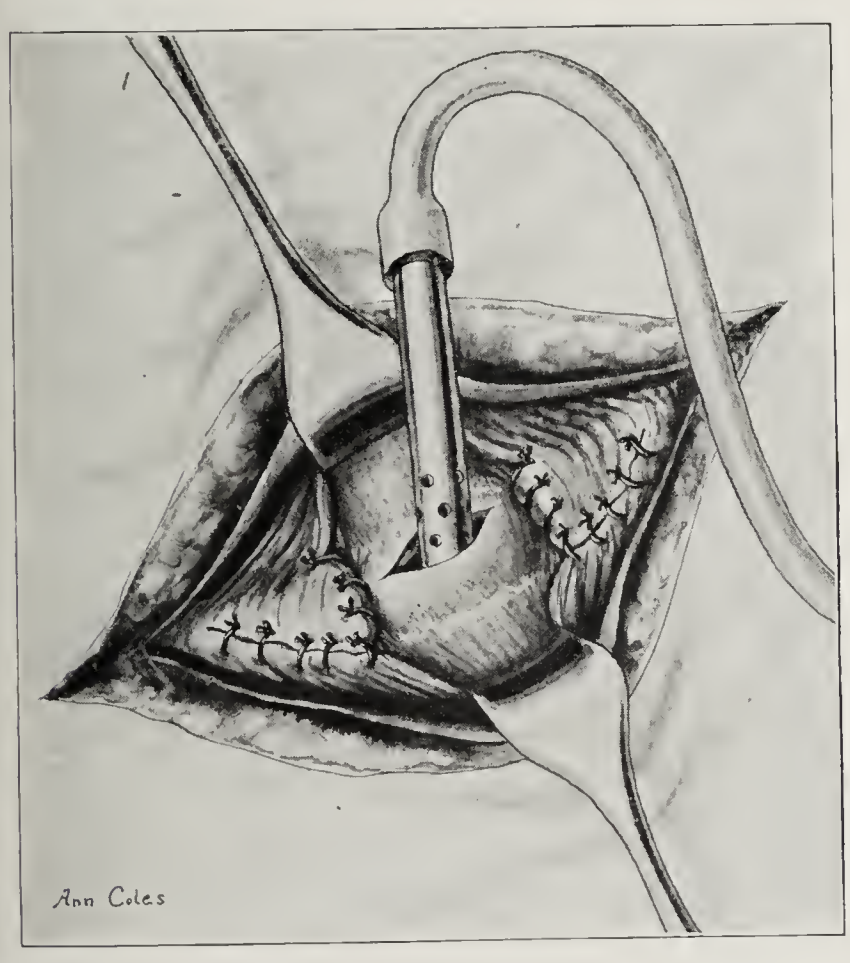


Fig. 5.—The suction apparatus is now introduced and the pus slowly evacuated.

3. The reason why necrosis of the rib occurs is that the open ends of the rib are exposed, are constantly being bathed in pus, and are involved by continuity of the infection.

4. Heretofore, no means has been devised of sealing up these open ends to prevent contamination, thus closing up an avenue of infection that gives rise to a general sepsis.

5. The operation is very simple and takes only a minute more than the usual procedure. It entirely removes the 4 per cent. chance of a rib necrosis and reoperation, and may save months in convalescence.

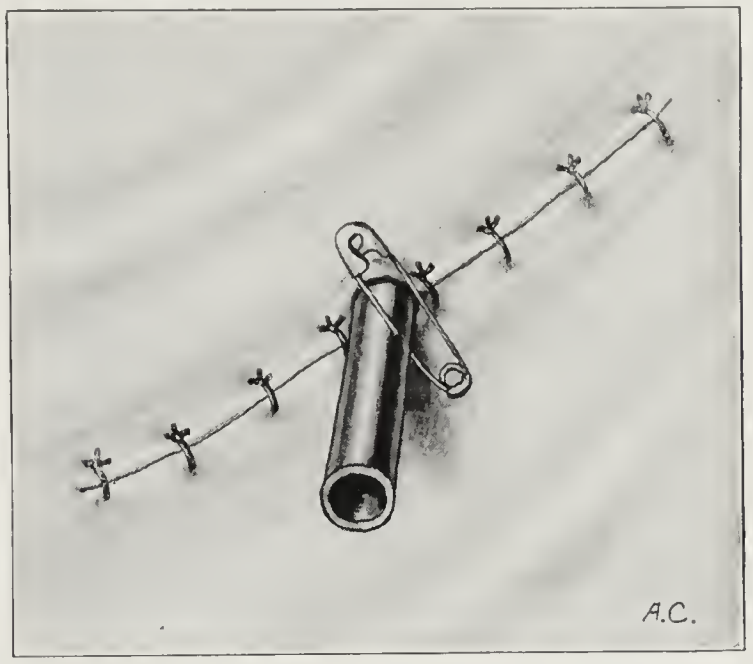


Fig. 6.—A rubber tube is inserted and the skin closed with silkworm sutures.

6. The bone-wax seals up the end of the open rib, and the muscle flap gives added protection.

143 East Twenty-First Street.

PECULIAR REACTIONS BETWEEN THE FIFTH AND SEVENTH CRANIAL NERVES

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Paralysis of the muscles of expression of the same side of the face is a not uncommon sequel of section of the root of the fifth cranial nerve, also of ganglionectomy as practiced for the cure of major trigeminal neuralgia, and it has occurred frequently as a sequel of deep alcohol injections. Although sometimes this paralysis is very marked, it fortunately seems to be always temporary; its occurrence, therefore, from a practical standpoint, is a matter not worth much consideration.

Various theories have been put forward to account for the paralysis, but it must be understood that so far they are still theories, as its cause is not definitely known. It is thought by some to be due to an error in technic; that in some way the seventh nerve is injured during the operation. In the days when it was customary to cut the zygoma and pull down the masseter, such a theory was tenable; but the condition occurs in cases in which the incision does not extend below the zygoma, and in which the zygoma is not resected.

The theory that it is due to interference with the great superficial petrosal nerve was advanced by Hutchinson. This nerve is about the size of an ordinary cotton thread. It arises from the geniculate ganglion of the facial nerve, and passes forward and inward through a canal in the petrous bone. It makes its exit through the hiatus fallopii on the anterior surface near

the apex; it then adheres to the external surface of the dura, and, passing inward behind the gasserian ganglion, leaves the skull by traversing the cartilage filling the foramen lacerum medium. Here it joins the great deep petrosal, which comes from the carotid plexus, and the two unite to form the vidian nerve. Its fibers are motor, secretory and sensory. I cannot understand how an injury to this nerve—the great superficial petrosal—could cause a facial palsy. The theory has been advanced that blood from the site of operation percolates back along the nerve to reach the geniculate ganglion and causes pressure on it. There is no room for blood to so pass alongside the nerve, as the nerve alone or accompanied by a small artery (petrosal) completely fills the canal through which it travels.



Fig. 1.—Spasm of the facial muscles following section of the sensory root of the fifth nerve; preservation of the motor root: *A*, patient trying to raise eyebrows shows inability to raise right one, probably because of pulling on branch to frontalis with retractor; *B*, patient closing eyes; right closes even more tightly than left; deep furrows from wing of nose to angle of mouth and beyond; marked herpes of upper lip.

Why some one has not suggested interference with the blood supply of the geniculate ganglion as a cause is rather strange. There is a small branch of the middle meningeal artery (petrosal) which goes to the geniculate ganglion, either along the canal traveled by the great superficial petrosal nerve or else along that of the small superficial petrosal nerve. This petrosal branch of the middle meningeal nerve anastomoses at the geniculate ganglion with a twig from the stylomastoid branch of the occipital nerve. If the latter twig were smaller than normal, or if, perchance, it did not happen to reach the geniculate ganglion at all, and the petrosal branch of the middle meningeal nerve were injured—as I believe it almost always is in this operation—then we might expect a paralysis of the facial muscle. Furthermore, we might expect this palsy to appear soon after the petrosal branch was broken. But the palsy does not always appear at once; it may not appear until five days after the operation.

Another theory ascribes as a cause the disturbance of cells in the pontile nucleus of the seventh nerve, due to the avulsion (intentional or accidental) of the root of the fifth or of some of its fibers. If this is so, why is not the sixth nerve affected? Or the fourth? And what about the hypoglossal nerve, to which I shall refer directly? Also how about the facial paralysis after deep alcohol injections? In many cases there is only a slight weakness of the muscles of expression; in others, the paralysis is total.

I just now referred to the hypoglossal nerve. In many there is an accompanying weakness of the same side of the tongue. When it is protruded, the tongue deviates slightly, its tip turning toward the operated side. In some patients this tongue deviation is more marked, but in all that I have so far examined, the tongue, by special effort, could be turned away from the operated side, showing that the paralysis was not total.

I believe that whatever the cause of this paralysis is, it is identical for both face and tongue. Is it possible that the same cause operating can produce no symptoms in one case; a slight facial weakness in another, and a complete paralysis in a third? Is it possible that the simple cutting of the root, or ganglionectomy, or alcohol injection, by depriving the same side of the face and tongue of ingoing stimuli, so lowers the tonus of the underlying muscles that they sometimes fail to respond well or in certain cases do not respond at all? All are familiar with the operation of spinal root cutting for spastic paraplegia. Undoubtedly, the tonus of the spastic muscles is lowered by that operation. The ingoing stimuli from the region of the spastic muscles are excluded.

So much for the paralysis and its cause; but how explain spasm of the facial muscles of the same side following section of the sensory root only of the fifth nerve?

REPORT OF CASES

CASE 1.—Mrs. M., aged 78, seen in September, 1922, complained of major trigeminal neuralgia. It began on the left side twenty years before; on the right side, five years before. The pain on the right side was now very severe. The patient had alcohol injections in both sides "many times" in the last twelve years. The sensory root was cut on the right side; the motor root was preserved. As soon as the sensory fibers were cut, the patient's mouth was drawn to the right side (Fig. 1). The spasm continued during the fifteen days that the patient was in the hospital. Herpes of the upper lip and inner canthus developed on the sixth day. The spasm was noticeable even during sleep, but was more marked when the patient attempted to use the facial muscles; the tongue deviated toward the operated side.

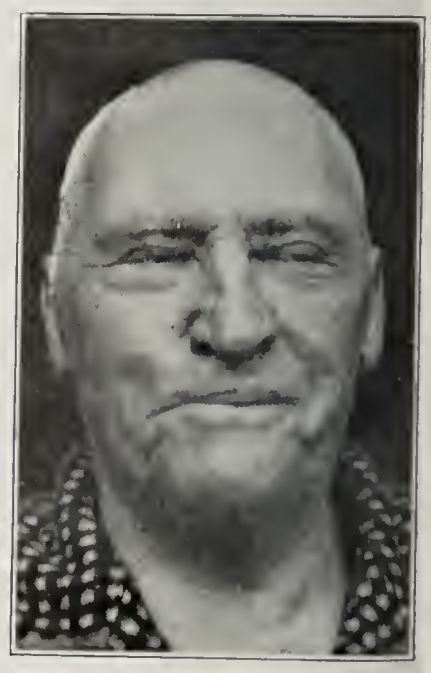


Fig. 2.—The paralysis is sometimes so slight as to escape notice altogether. Mr. G. C. G. was operated on in January, 1922, right side middle division being involved. There was weakness of the right upper lip, which could be noticed only on bringing other muscles into play. The motor root was not saved.

Another point of interest is that in no case of root section in which I am satisfied that I have preserved the motor root (five cases) have I had a weakness of the corresponding seventh nerve; on the contrary, four out of the five have had noticeable spasm of the same side of the face. In none, however, has it been so marked as in Case 1. In all it has been present at the conclusion of the operation.

In addition, the spasm is evanescent, the most marked disappearing in about six weeks; in one patient it disappeared in two days. I saw Patient 1 eight months after operation, and could detect no difference between the two sides. As there had been no muscle atrophy, it is certain that I have saved the motor root. I know of no satisfactory explanation for such spasms.

Case 2 shows that a corresponding paralysis of unknown origin of the fifth nerve can accompany a paralysis of the seventh nerve as a consequence of mastoid operation. The case is the first of the kind I have heard of. It occurred in the service of Dr. H. W. Lyman, of the Department of Otology of Washington University Medical School, who has given me permission to publish this report.

Paralysis of the fifth and seventh nerves following a radical mastoid operation.

CASE 2.—Miss C., aged 18, with a suppurating ear for ten years, had a radical mastoid operation performed, Oct. 14, 1922. At the close of the operation, the corneal reflex was present, showing that the seventh nerve had not been injured. The morning of October 17 (over sixty hours after the operation), the patient complained of irritation of the right eye and continuous lacrimation; in the afternoon of the same day (seventy-two hours after the operation), a weakness of the muscles of the right side of the face was discovered, and the patient complained of a peculiar sensation on that side of the face. A rough sensory test showed diminution of sensation to pain over the area approximating the distribution of the fifth nerve. Anestnesia of the right cornea was also demonstrated. The pupillary reflex was normal.

October 28, the facial anesthesia had disappeared, except that the right cornea was less sensitive than the left. The facial (seventh) paralysis cleared up several weeks later. There was no rise of temperature during this time. The Wassermann reaction was negative; the personal history was negative, and there was no history of any nervous disease in the family.

As remarked in the opening paragraphs, the question is of scientific rather than practical interest (as far as our present knowledge goes). There is not much under the heading of neuralgia in the literature that helps to a solution of the perplexing phenomena referred to here.

REPAIR IN HYDRONEPHROSIS

WITH REFERENCE PARTICULARLY TO EARLY AND LATE CHANGES AFTER RELIEF OF BRIEF OBSTRUCTIONS WHEN OPPOSITE KIDNEY IS NOT DISTURBED *

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SAN FRANCISCO
AND
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The power of accurate determination of the reserve or repair ability of a hydronephrotic kidney is of considerable clinical importance. In hydronephrosis following incomplete obstruction, the most frequent clinical type, estimation of the damage as determined by the usual functional tests is often deceptive and unsatisfactory. With complete obstructions, the only trustworthy guide is the accuracy of our knowledge by clinical observation of how many days the total obstruction has existed; and with either type the evidence of repair, whether good or bad, as first found on relief of obstructions, may be totally different in degree and kind in the course of several years afterward.

The significance of the difference in the early and late changes following relief of obstructions of equal duration, when the opposite kidney is undisturbed, has been emphasized by one of us [1] in several previous publications, and is best understood in comparison with the repair changes of similar experiments to which either the opposite kidney is totally removed at the time of the repair procedure or is gradually removed by some progressive injury, such as partial obstruction of its ureter. In the first place, the repair kidney is suddenly called on to do total function; in the second, the demand comes gradually.

Experimentally, it has been determined that fourteen days is about the limit of complete obstruction compatible with life after opposite nephrectomy, but that even a thirty-day complete hydronephrosis will recover total function when the shift of the burden has been gradual.

Both the fourteen and the thirty day hydronephrosis under these different circumstances eventually do the work of total function about as efficiently as a normal kidney does after compensatory hypertrophy following opposite nephrectomy, and are experimental examples of the remarkable power of hypertrophy of renal tissue.

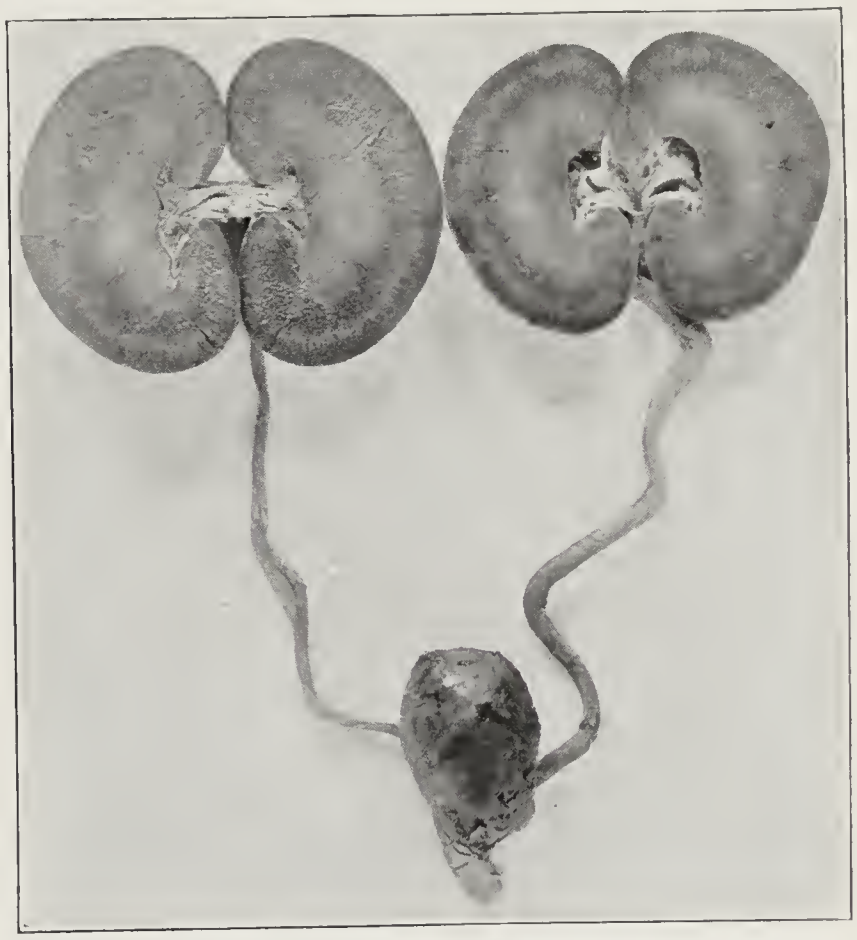


Fig. 1.—Complete left ureteral obstruction at bladder: After seven days' obstructive period, ureterocystoneostomy was performed; result after a repair period of twenty-four days (operated side on the right).

That this power manifests itself as a measure of necessity only is exemplified by the experiments of this paper, in which the opposite kidney is not injured or removed. In fact, a comparison of the repair kidney of Experiment 2, a thirty day hydronephrosis, and a twenty-four day repair, and of Experiment 3, a twenty-one day hydronephrosis and a 249 day repair, shows a change quite the opposite of a hypertrophy, namely, a marked renal atrophy.

The nature of this atrophy is of interest. Rautenberg [2] has said that hydronephrotic atrophy is a pro-

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* Read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

* From the Urological Department of the University of California Medical School, and Hooper Foundation for Medical Research, San Francisco.

1. Hinman, Frank: Renal Counterbalance: An Experimental and Clinical Study with Reference to the Significance of Disuse Atrophy, J. Urol. **60**: 289 (April) 1923; Experimental Hydronephrosis: Significance of Compensatory Hypertrophy and Disuse Atrophy to Repair, J. A. M. A. **80**: 315-319 (Feb. 3) 1923.

2. Rautenberg, E.: Die Folgen des zeitweiligen Ureterverschlusses, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **16**: 431, 1906.

gressive degeneration like nephritis, and while relief of obstruction may give temporary repair, the eventual condition is renal destruction. Johnson [3] has raised the same question of the functional recovery of hydronephrosis if the opposite compensatory kidney is not removed, and it is in confirmation of the necessity of the stimulus of compulsory function for hydronephrotic repair and hypertrophy that the present paper is presented.

EXPERIMENTAL FINDINGS

Dogs were used in the experiments, and were operated on under ether anesthesia and complete surgical asepsis. At the first operation, the left ureter was doubly ligated as near the bladder as possible, and cut between the ligatures. At the second operation, seven, fourteen, twenty-one, or twenty-eight days later, the dilated ureter was transplanted to the bladder, the simplest method possible being used. The open, dilated ureter was passed through a small incision in the posterior bladder wall and anchored, care being taken to allow no leakage of urine and no kinking of the ureter. Recovery followed promptly, with the exception of one dog, which died three days after the second operation. Five of the animals, with seven, fourteen, fourteen, twenty-one and twenty-eight days of complete ureteral obstruction, respectively, were given a drainage period each of twenty-four days, and were then killed. Two dogs with a fourteen and twenty-one day hydronephrosis, respectively, were each allowed a 249 day repair period.

Many factors other than time enter into the question of repair, of which infection and a poor surgical result are the most important. If infection leading to pyelonephritis or pyonephrosis occurs, very little repair takes place; and if the obstruction is not totally removed or the anastomosis does not function properly, a partial obstruction results, and the repair cannot be complete



Fig. 2.—Hydronephrosis that results after complete ureteral obstruction for seven days; comparison with Figure 1 shows the recovery that takes place after twenty-four days of repair.

even if the obstruction originally was of short duration. The following three experiments exemplify results, uninfluenced by either of these two factors:

EXPERIMENT 1.—In a dog weighing 19 pounds (8.6 kg.), there was complete obstruction of the ureter for seven days. After a ureterocystoneostomy, and a repair period of twenty-four days, the seven day hydronephrosis returned in twenty-four days to practically the appearance of a normal kidney. Grossly, there is still a slight dilatation of the pelvis and ureter (Fig. 1). Microscopically, other than a number of small focal intertubular accumulations of lymphocytes and plasma cells, the appearance was normal. Figure 2 shows a simple hydronephrosis of seven days, for comparison.

EXPERIMENT 2.—In a dog weighing 18½ pounds (8.4 kg.), there was a complete obstruction of the ureter for twenty-eight days. After a ureterocystoneostomy, there was a repair



Fig. 3.—Complete left ureteral obstruction at bladder: After twenty-eight days' obstructive period, ureterocystoneostomy was performed; result after a repair period of twenty-four days (operated side on the left).

period of twenty-four days. The urine showed a few hyaline and granular casts, with an occasional pus cell. At necropsy, there was no constriction at the site of the anastomosis. The repair kidney appeared somewhat smaller than the opposite normal kidney. The capsule was shrunken and the superficial veins were more prominent (Fig. 3). A simple hydronephrosis of twenty-eight days' duration is shown in Figure 4 for comparison. On section, a moderate dilatation of the renal pelvis was manifest, and the ureter remained dilated to about the same degree as was found at the second operation. Histologic study showed evidence of hydronephrotic atrophy; the tubules, particularly those just beneath the capsule, had a tendency to be flattened, and to run parallel to the surface of the kidney. In a number of places there was a rather marked focal fibrosis and infiltration with lymphocytes and plasma cells. The glomeruli varied considerably in size. Some were slightly larger than normal, while others, particularly those in the scarred areas, were small. Gross and microscopic examination showed pathologic changes, but preservation of renal tissue was remarkable in view of the degree of destruction at the time of repair, and probably would even have been sufficient to maintain life had the opposite kidney been removed.

The degree of restoration within twenty-four days of a seven and twenty-eight day hydronephrosis promises well for a longer period of repair, provided the improvement is progressive. But it must be remembered that these repair kidneys work in partnership with not only a healthy, but a compensatory, kidney, and will therefore lack progressive stimulation. The capability of the compensatory kidney is such as to leave less and less for the repair side to do. In place

3 Johnson, R. A.: Renal Function in Hydronephrosis, J. Exper. Med. **28**: 193 (Aug.) 1918.

of improvement with time, the repair side will undergo a degeneration which is of the nature of a disuse atrophy. Experiment 3 is a good example of such a disuse atrophy.

EXPERIMENT 3.—In a dog weighing 20 pounds (9 kg.), there was a complete obstruction of the left ureter for twenty-one days. After a ureterocystoneostomy, and a drainage period of 249 days, the urine was free from bacteria and pus. The dog was killed, under ether, with preliminary functional study. The appearance time of phenolsulphonephthalein was four minutes for the right kidney, and eight minutes for the left. In the first fifteen minutes, 25 per cent. of the dye was excreted by the right kidney, and 5 per cent. by the left; in the second fifteen minutes, 20 per cent. by the right kidney and 2.5 per cent. by the left, the total excretion for the first half hour being 45 per cent. for the right kidney and 7.5 per cent. for the left. At necropsy, the left kidney weighed 15 gm.; the right, 48 gm. The ureter was freely patent. There was no pelvic dilatation on section, and no evidence of infection. Figure 5 shows that the left kidney is reduced to one-third its size, and that even in the gross, cortical atrophy is quite marked.

SUMMARY

A hydronephrosis of seven days' duration from total ureteral obstruction returns anatomically and functionally to about normal. The recovery is more prompt if the opposite kidney is removed or so diseased that it is incapable of complete function. The recovery of a hydronephrosis of from fourteen to twenty-eight days' duration requires the stimulus of compulsory function which in the longer period must be gradually and not suddenly applied. If left in partnership with the normal kidney, which meanwhile has undergone compensatory hypertrophy, atrophy will replace the initial repair, an atrophy of the nature of a disuse atrophy, even in the case of hydronephrosis of shorter duration.

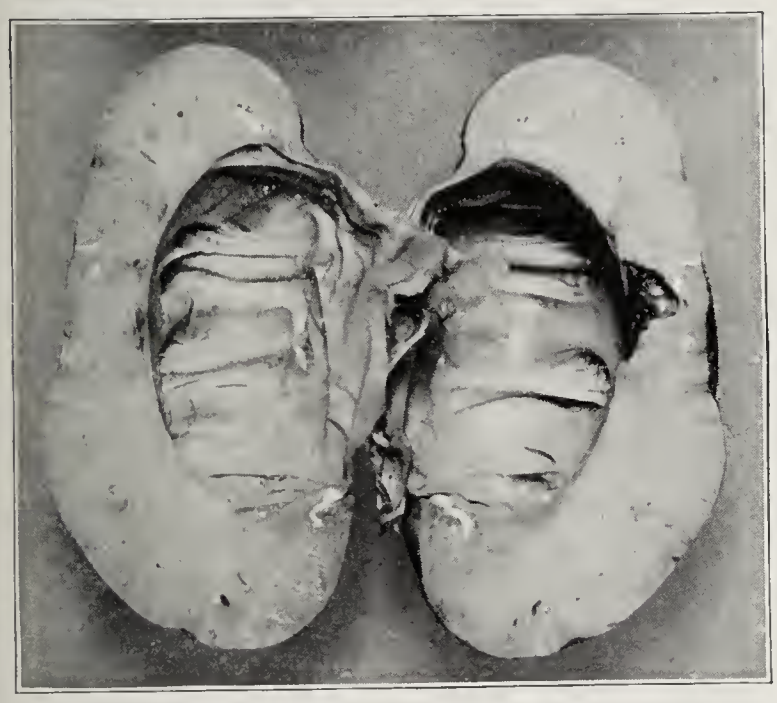


Fig. 4.—Hydronephrosis that results after complete ureteral obstruction for twenty-eight days; comparison with Figure 3 shows the recovery that takes place after twenty-four days of repair.

CONCLUSION

1. There is considerable initial recovery of function and repair hypertrophy of a kidney after relief up to twenty-eight days of total obstruction.

2. This recovery, even after shorter periods of obstruction (fourteen days), is temporary if the healthy kidney is undisturbed, and in the course of several months an atrophy of the nature of a disuse atrophy replaces it.

ABSTRACT OF DISCUSSION

DR. ALBERT E. GOLDSTEIN, Baltimore: One question that I asked Dr. Butler has not been answered conclusively. In the presence of a hydronephrosis that is uninfected, should we perform a nephrectomy, if a small percentage of phenolsulphonephthalein is being excreted? Are we justified in removing that kidney, or shall we, if a stricture is present, dilate the stricture in the hope that the kidney will return to function? Certainly in the noninfected cases I feel as if we should not be too radical. Experiments of others have apparently proved the fact that eventually it will have to come out because it will finally be so destroyed that it will be of no use. At present I have several cases of hydronephrosis in which there are strictures of the ureter. Should I go on treating these patients, dilating the ureter, or should I perform a nephrectomy?

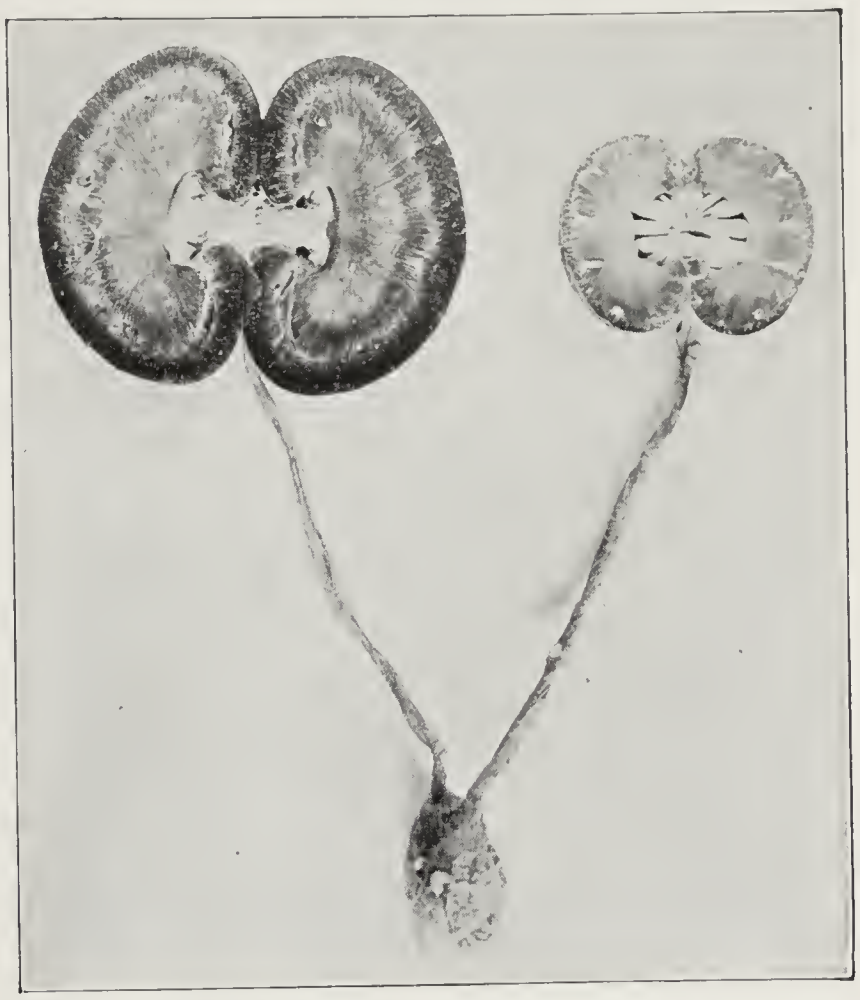


Fig. 5.—Complete left ureteral obstruction at bladder: After twenty-one days' obstructive period, ureterocystoneostomy was performed; result after a repair period of 249 days; urine free from pus and bacteria; phenolsulphonephthalein, right kidney, 45 per cent.; left kidney, 7 per cent. (operated side on the right).

DR. O. W. BUTLER, Los Angeles: Experimentally, this work tends to prove that if the kidney has been damaged to the extent that the phenolsulphonephthalein output is very low, it is useless to put that kidney back into competition with the opposite kidney if compensatory hypertrophy has taken place. We believe that it is better to do a nephrectomy rather than to attempt repair, provided the other kidney is healthy and fully compensating.

Infrequency of Tabes Dorsalis in Siam.—It may safely be estimated that between 80 and 90 per cent. of the male population in the cities suffer from venereal infection at some time, and only to a less degree in the country. Certainly more than half the females become infected before they reach the age of 21. We find eye complications that vary all the way from complete blindness to slight visual incapacitation. Sterility, invalidity of various degrees and kinds and the other venereal complexities, primary, secondary and tertiary, are common. Of many thousands of patients examined during the last five years, only two cases of tabes dorsalis have been recognized.—R. W. Mendelson: *Am. J. Pub. Health* **13**:830 (Oct.) 1923.

FASCIAE OF THE UROGENITAL TRIANGLE*

MILEY B. WESSON, M.D.
SAN FRANCISCO

Before proceeding to a discussion of the anatomy of the perineum, it is interesting to note that the pure anatomist has no counterpart for some of the terms used by the surgeon. Denonvilliers' fascia, the recto-urethralis muscle, Buck's fascia and Colles' fascia are surgical terms used to designate conveniently certain anatomic landmarks which to the anatomist are not definite structures. The lack of liaison between the dissecting room and the operating amphitheater is responsible for much of our inaccurate knowledge and bizarre perineal surgery.

Probably because of the hardened fasciae in embalmed bodies, there is a tendency for the dissector to consider the urogenital diaphragm as the keystone of the perineum, the other structures being formed secondarily, and to discredit all theories that do not

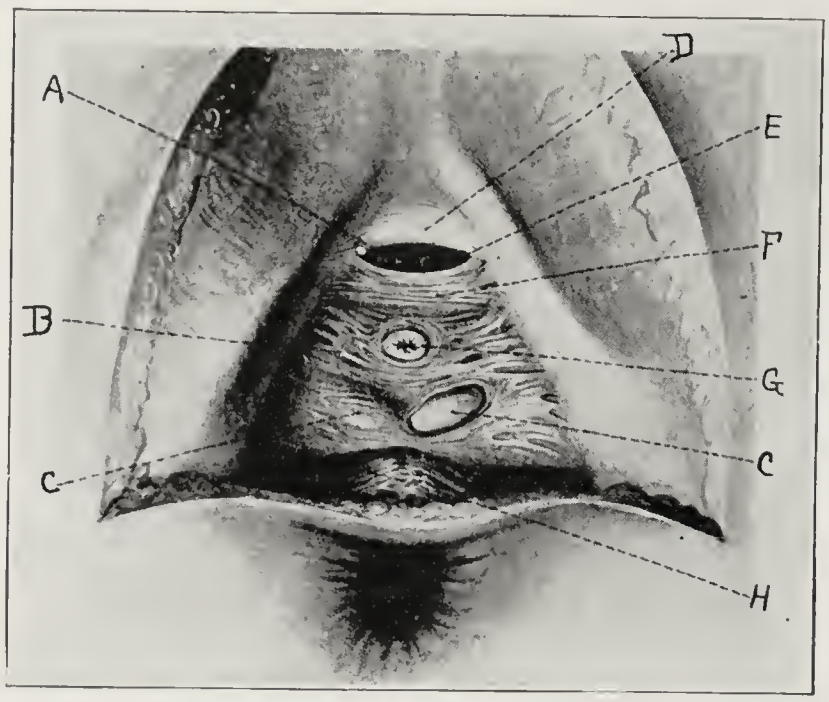


Fig. 1.—The distal layer of the urogenital diaphragm: *A*, dorsal vein of penis; *B*, urogenital diaphragm; *C*, Cowper's gland; *D*, arcuate ligament; *E*, internal pudic artery; *F*, transverse pelvic ligament; *G*, membranous urethra; *H*, anal sphincter (Tandler).

presuppose the presence of a primary rigid double walled triangular membrane perforated by the urethra. This is largely an assumption which the embryologic facts as shown in the preparation and study of the fetal pelvis to be described do not warrant, and the urogenital diaphragm is to be regarded rather as an after-development to the urethra, muscles and other structures, and derived essentially from a condensation of loose mesenchymal tissue. To this fact, and to the consideration of the anatomy of the fascia of the perineum as well as the pathologic significance of the endopelvic fascia, particularly as related to extravasation, this article is largely devoted.

MATERIAL AND METHODS

This investigation has been confined to the male perineum. The gross material used consisted of frozen cross sections and of dissections of preserved and fresh cadavers, some of which were first injected with colored fluids through an endoscope, thereby simulating extravasations of urine from a ruptured urethra. In addition, serial sections of human embryos of various stages of development were studied. A glass model was constructed of the pelvis of a term fetus cut transversely in sections 100 microns thick (Specimen 2409 Carnegie Institute of Embryology). With the aid of an Edinger projection apparatus, the important structures were traced directly on glass plates by means of various colored inks. Distortion of the model was prevented by keeping the magnification in proportion to the ratio between the thickness of the sections and that of the plates. The glass plates were then stacked, divided into packs about 4 inches thick, bound firmly with adhesive plaster, and mounted in a frame with electric lights behind, so as to give a transparent presentation of the entire region.

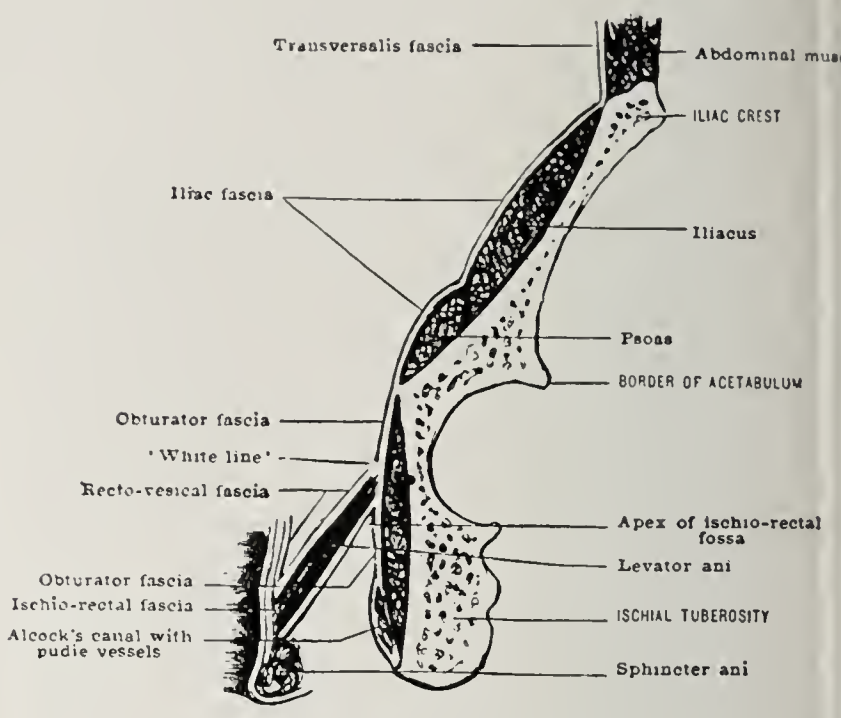


Fig. 2.—Diagram of the pelvic fascia.

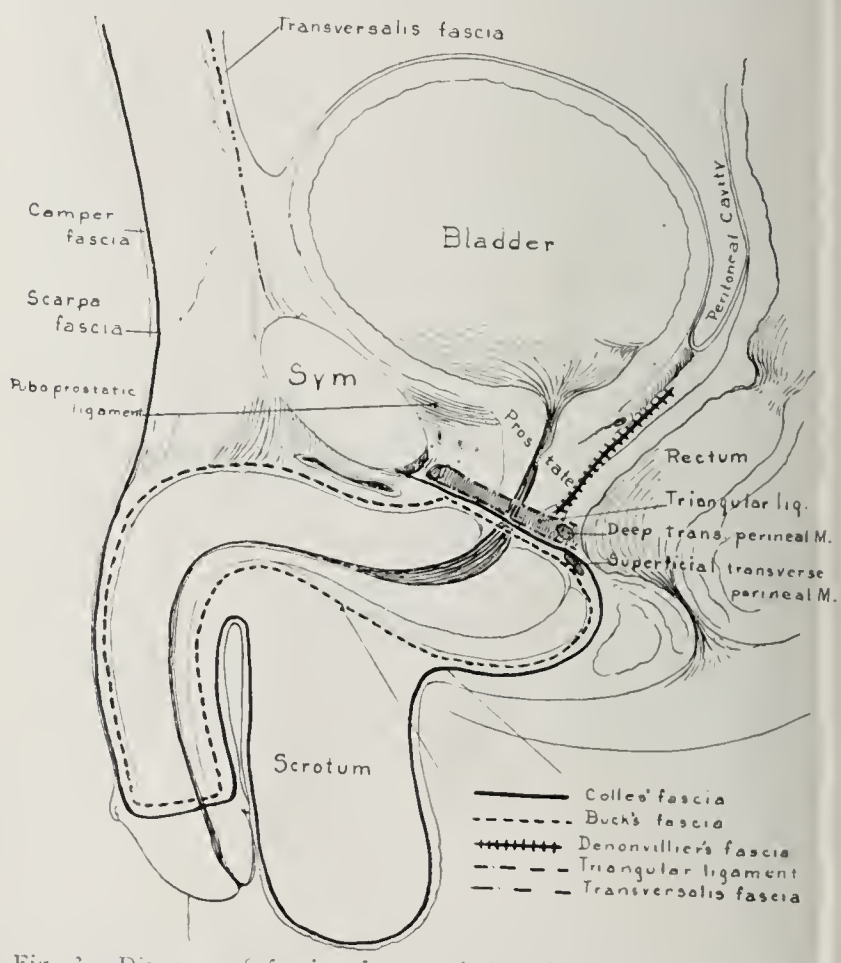


Fig. 3.—Diagram of fascia of urogenital region concerned in urinary extravasations.

* From the George Williams Hooper Foundation for Medical Research and the Department of Urology, University of California Medical School.
* Read before the Section on Urology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

PELVIC AND PERINEAL FASCIAE

For descriptive purposes, the pelvic and perineal asciae may be briefly considered as follows:

The pelvic outlet is divided into an ischiorectal egion and a urogenital triangle. The latter has the ymphysis pubis in front, the ischiopubic rami as far ack as the anterior portion of the tuberosities on the ides, and an imaginary line joining the two behind. It s closed by the urogenital diaphragm, which is gen-rally considered as consisting of proximal and distal ascial layers (Fig. 1). The anterior borders fuse and onstitute the transverse perineal ligament, separated y the dorsal vein of the penis from the subpubic or rcuate ligament, which occupies the arch of the pubes. The lateral borders of the urogenital diaphragm are ttached to the sides of the pubic arch; its superficial nd deep surfaces are associated with contiguous nuscles,[1] and its base is formed by the deep transverse erineal muscles. The superficial and deep layers of he urogenital diaphragm may blend so as to appear



Fig. 4.—Transverse section through pelvis of 26 millimeter human embryo, showing site of urogenital diaphragm: *B*, bladder; *P C*, peritoneal cavity; *R*, rectum, *U D*, urogenital diaphragm; *P*, pudic artery (embryo, Carnegie Institute 782, slide 92, row 2, section 2).

as a heavy one-layer fascia that splits to enclose the muscle structures and the pudic vessels. According to Delbet,[2] there is no deep layer of the triangular ligament. Deaver[3] suggested calling it the forward continuation of the anal fascia. Smith[4] thinks it is the aponeurosis of the levator ani. Cunningham[5] calls it the parietal layer of the pelvic fascia. Stoney[6] states that it is an extension of the visceral layer, while Campbell[7] considers it a prolongation of the obturator fascia across the pubic arch. Undoubtedly, the urogenital diaphragm consists of extensions of both parietal and pelvic fascia.

The rectovesical fascia covers the upper surface of the levator ani muscle and is an extension of the pelvic fascia (Fig. 2), which, though ending in name at the white line, in reality continues downward and at a slightly lower level again splits into two layers, one, the



Fig. 5.—Transverse section through urogenital diaphragm of term fetus: *P A*, pudic artery; *U D*, urogenital diaphragm; *R*, rectum; *S*, skin; *U*, urethra; *SC*, spermatic cord; *C*, Colles' fascia; *P*, pubes (embryo, Carnegie Institute 2409, slide 155) × 1.5.



Fig. 6.—Sagittal section through left lobe of prostate of 67 millimeter human embryo showing relation of levator ani muscle to prostate: *B*, bladder; *V*, vas deferens; *S V*, seminal vesicle; *P*, prostate; *P C*, peritoneal cavity; *R*, rectum; *S*, symphysis pubis; *G*, nerve ganglions; *L A*, levator ani muscle (embryo, Carnegie Institute 1656, slide 49); slightly reduced from a photomicrograph × 18.5.

ischiorectal or anal fascia, lying against the under side of the levator ani muscle, while the other, the obturator fascia, covers the obturator internus muscle.[8] Varied

1. Barnes, A. R.: The Pelvic Fascia, Anat. Rec. **20**: 37-56, 1921.
2. Delbet, P.: Vessie urètre, prostate, verge, perinée, in Poirier and Charpy: Traité d'anatomie humaine, Paris **5**: 74-240, 1907.
3. Deaver, J. B.: Surgical Anatomy, Philadelphia, P. Blakiston's Son & Co. **2**: 589-622, 1899-1903.
4. Smith, G. E.: Studies in the Anatomy of the Pelvis with Special Reference to the Fasciae and Visceral Support, J. Anat. & Physiol. **42**: 198-218; 252-270, 1908.
5. Cunningham, D. J.: Text Book of Anatomy, New York, William Wood & Co., 1906, pp. 1277-1278.
6. Stoney, R. A.: The Anatomy of the Visceral Pelvic Fascia, J. Anat. & Physiol. **38**: 438-477, 1904.
7. Campbell, W. F.: A Text Book of Surgical Anatomy, Philadelphia, W. B. Saunders Company, 1921, pp. 471-497.
8. Hadden, David: The Gynecology of Obstetrics, New York, the Macmillan Company, 1915, pp. 11-18.

descriptions of pelvic fasciae and perineal structures are due not so much to incorrectness of descriptions as to misinterpretations of facts, based on alterations in detail found in the postmortem and embalmed specimens. The viscera and blood vessels that supply the perineal structures are invested with the remains of mesen-

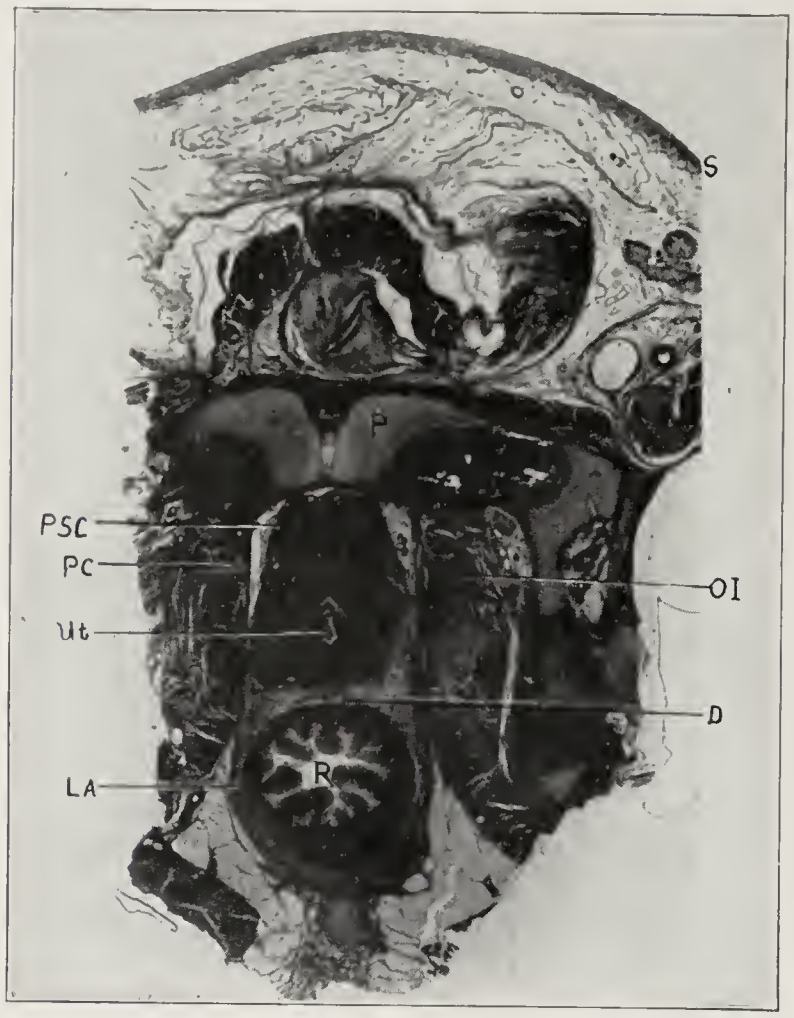


Fig. 7.—Transverse section through prostate of term fetus, showing the course of levator ani muscle: *S*, skin; *P*, pubes; *Ut*, utricle; *L A*, levator ani muscle; *P C*, pubococcygeus muscle; *P S C*, ligament pubosacrococcygeus; *O I*, obturator internus muscle; *R*, rectum; *D*, Denonvilliers' fascia (embryo, Carnegie Institute 2409, slide 98) × 1.5.



Fig. 8.—Transverse section through pelvis of 130 millimeter embryo, showing recto-urethralis muscle: From the longitudinal layer on the anterior surface of the rectum this bundle of muscle has split off and is shown passing across the rectovesical space; *E V S*, external vesical sphincter; *R U*, recto-urethralis muscle; *L A*, levator ani muscle; *R*, rectum (embryo, Carnegie Institute 1018, slide 168, row 2, section 3); slightly reduced from a photomicrograph × 54.

chymatous tissue in which they originally developed.[9] It is condensed in the perineum to form definite ensheathing layers, and then passes gradually into the general mass of subperineal tissue which fills the whole pelvic cavity and then is no longer traceable. All fasciae are made up of these visceral mesenchymatous extensions and the aponeurotic sheaths of the muscles (parietal pelvic fascia).

The source of confusion relative to the layers of perineal fascia may be avoided by a close application to the following brief scheme, based on experimental and embryologic data (Fig. 3).

PERINEAL FASCIA

A. *Superficial:*
1. Panniculus adiposus of the skin
2. Colles' fascia→dartos muscle→
   → (Anteriorly) Scarpa's fascia→fascia lata
   → (Laterally) superficial fascia of gluteal region
   → (Posteriorly) circumanal fascia

B. *Deep* (Urogenital Diaphragm):
1. Superficial or proximal layer.
2. Deep or distal layer→ (Laterally) obturator fascia. (Posteriorly) endopelvic fascia or Denonvilliers' fascia.



Fig. 9.—Sagittal section of adults pelvis, showing diagrammatically the relation existing between the external vesical sphincter (*E V S*) and the recto-urethralis muscle (*R U*).

In support of this outline and to displace plausible theory by fact, these structures have been investigated from the embryologic point of view.

EMBRYOLOGY

In an 8 weeks embryo (Fig. 4.) there is beginning muscle formation, and the site of the urogenital diaphragm, as indicated by the pudic artery, is merely a mass of undifferentiated mesenchyme cells. In the various stages of development up to the term fetus (Fig. 5) there is still no membrane marking this site, but rather a condensation of loose connective tissue about the membranous urethra. Since the upper limits are not very clearly marked, the division between the prostatic and the membranous urethra may be best

9. Derry, D. E.: On the Real Nature of the So-Called "Pelvic Fascia," J. Anat. & Physiol. **42**: 97-106, 1907; Pelvic Muscles and Fascia, ibid., pp. 107-111.

efined as the point at which the lowermost prostatic ibules leave off.[10] In the model there is a very large ansverse perineal muscle,[11] but there is no proximal yer of the urogenital diaphragm to divide it into deep nd superficial layers. Cowper's glands are rather large, nd extend well down between the rectum and the vator ani muscle. They are fairly symmetrical, and ave short ducts. The levator ani muscle (Fig. 6) pports the prostate laterally; but, contrary to the enerally accepted descriptions, it does not lie between ie prostate and the rectum (Fig. 7). The recto-rethralis muscle [12] appears as a band arising from the nterior longitudinal layer of the rectum at about the vel of the verumontanum (Fig. 8) and, passing orward and downward, fuses below the membranous

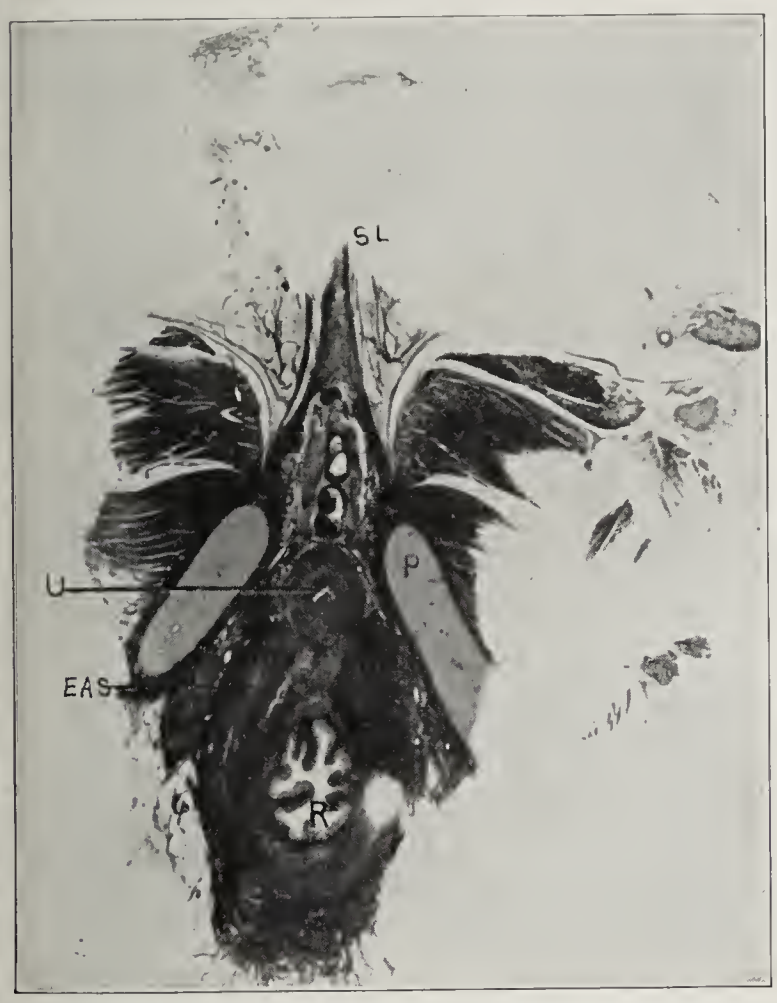


Fig. 10.—Transverse section through pelvis of term fetus, showing rigin of suspensory ligament: *P*, pubes; *R*, rectum; *U*, urethra; *E A S*, xternal anal sphincter; *S L*, suspensory ligament (embryo, Carnegie nstitute 2409, slide 147) × 1.5.

rethra with the raphé of the external vesical sphincter Fig. 9). The suspensory ligament (Fig. 10) arises rom the linea alba and the periosteum of the pubis. It asses forward as if to bisect the perineum and fuse vith the "septum scroti." [13] A dense layer encloses the enis, looser layers pass around the spermatic cords, nd still less dense layers radiate outward, forming artitions.

Colles' fascia (Fig. 12) does not show as a definite heath, but as numerous partitions or condensations of onnective tissue that pass through the loose cellular issue of the perineum, scrotum and penis. The inner ibers of the suspensory ligament, reinforced by n aponeurosis from the ischiocavernosus muscles

10. Johnson, F. P.: The Later Development of the Urethra in the Male, J. Urol. **4**: 447-502 (Dec.) 1920.
11. Holden, Luther: A Manual of Dissection of the Human Body, Philadelphia, P. Blakiston's Son & Co., 1885, pp. 525-581.
12. Wesson, M. B.: The Development and Surgical Importance of the Recto-Urethralis Muscle and Denonvillier's Fascia, J. Urol. **8**: 339-359 (Oct.) 1922.
13. Felix, W.: The Development of the Urogenital Organs, in Keibel and Mall: Manual of Human Embryology, Philadelphia **2**: 752-979, 1912.

(Fig. 13), form a penile sheath such as described by Buck, while the loose outer fibers join with the dartos to

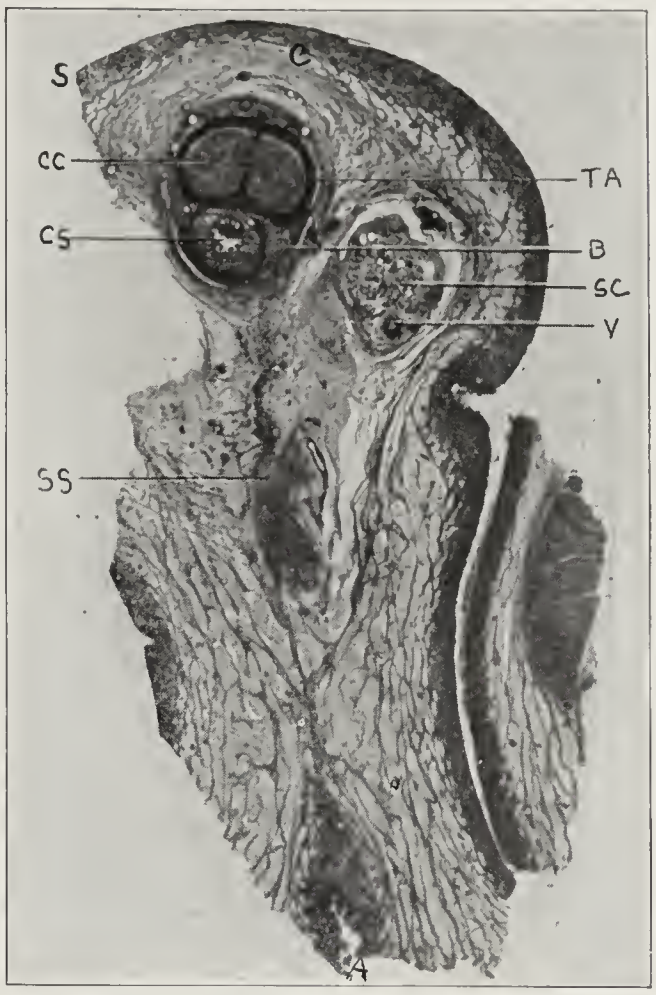


Fig. 11.—Section through perineum of term fetus, showing "septum scroti" and Buck's fascia: *S*, skin; *C C*, corpora cavernosa; *C S*, corpus spongiosum; *T A*, tunica albuginea; *B*, Buck's fascia; *S S*, septum scroti; *S C*, spermatic cord; *V*, vas deferens; *A*, anus; *C*, Colles' fascia (embryo, Carnegie Institute 2409, slide 218) × 1.5.

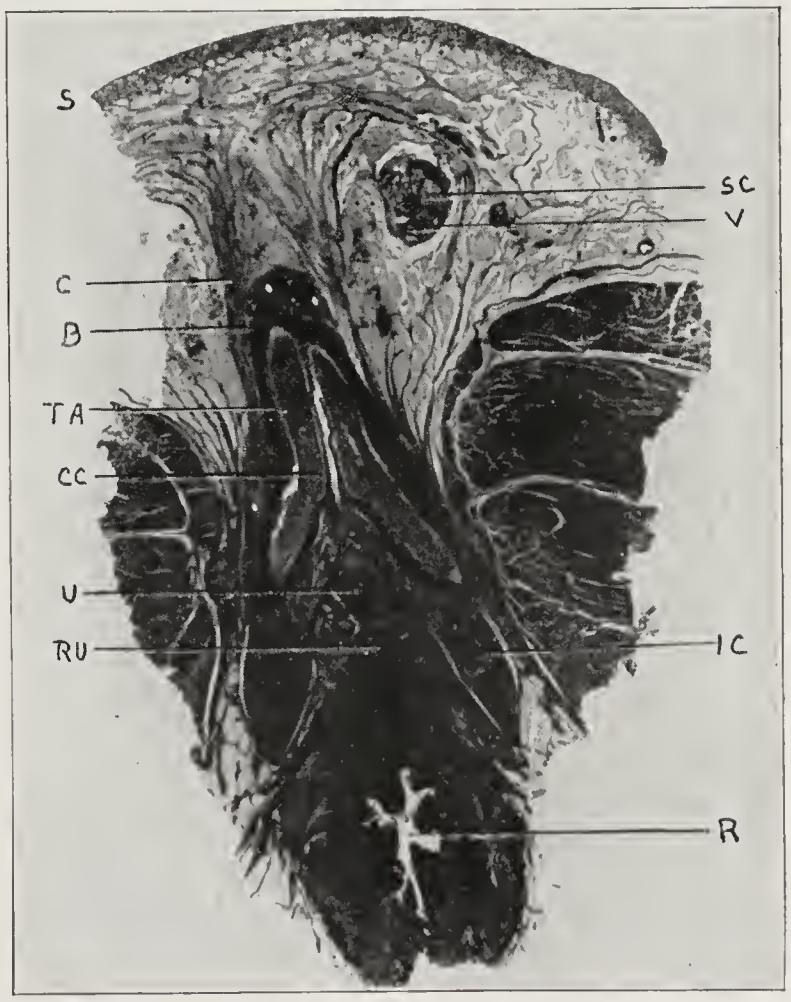


Fig. 12.—Section through pelvis of term fetus, showing Colles' fascia and Buck's fascia: *S*, skin; *C C*, corpora cavernosa; *T A*, tunica albuginea; *B*, Buck's fascia; *S C*, spermatic cord; *V*, vas deferens; *R*, rectum; *U*, urethra; *C*, Colles' fascia; *I C*, ischiocavernosus muscle; *R U*, recto-urethralis muscle (embryo, Carnegie Institute 2409, slide 166) × 1.5.

form Colles' fascia. The end-results are comparable to the occurrence of the dense anterior layer of Denon-

villiers'[14] fascia on the prostatic side of the rectovesical space, with a loose tissue as a posterior layer on the other side.

Abraham Colles[15] of the Royal College of Surgeons in Ireland, in 1811, described the fascia bearing his name. Like many of the famous beacon lights of surgery, he was interested in urology and noticed that following a rupture or ulceration of the "posterior part of the canal of the urethra," the effusion of urine formed a tumor in the perineum, but did not suppurate there because of the unyielding nature of the fascia, and that diffusion laterally toward the thighs was prevented by the close attachment of this fascia to the rami of the pubes and ischium. Hence, it passed into the loose tissue of the scrotum and there suppurated or passed up over the pubes.

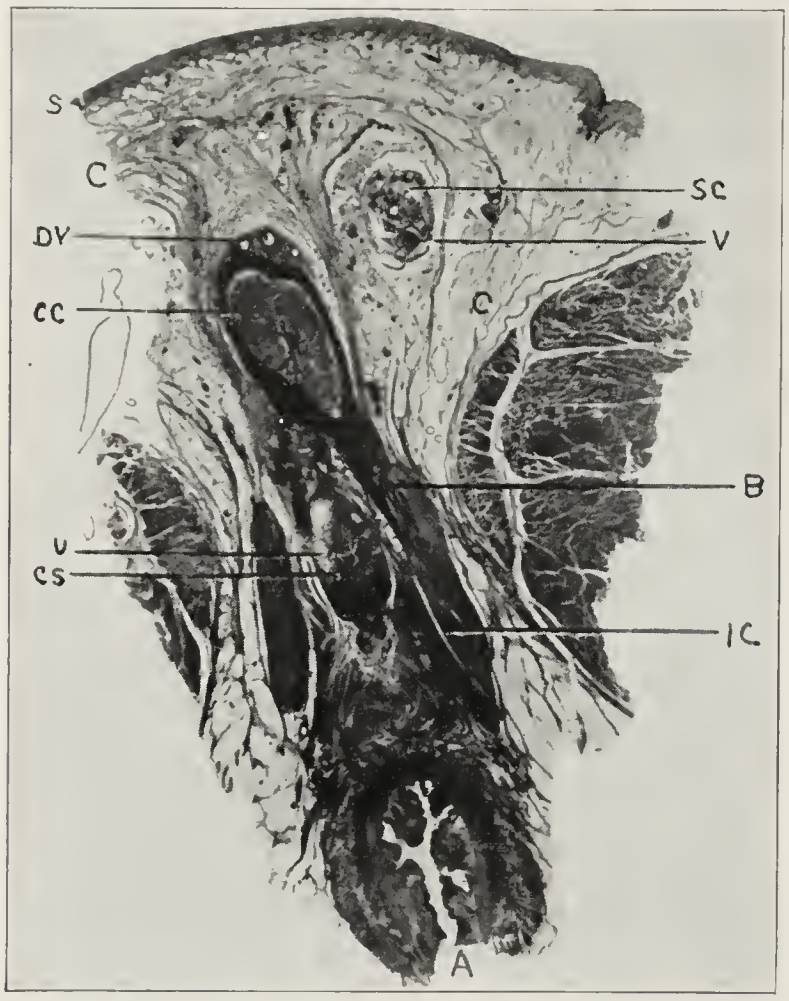


Fig. 13.—Section through pelvis of term fetus, showing relationship between Buck's fascia and sheath of ischiocavernosus muscle: *S*, skin, *C C*, corpora cavernosa; *C S*, corpus spongiosum; *B*, Buck's fascia; *S C*, spermatic cord; *V*, vas deferens; *A*, anus; *C*, Colles' fascia; *I C*, ischiocavernosus muscle; *D V*, dorsal vein of penis; *U*, urethra (embryo, Carnegie Institute 2409, slide 176) × 1.5.

In 1860, Sappey[16] described the dartos of the penis containing smooth muscle fibers, which are continuous with the scrotal dartos.

In 1848, at the first session of the American Medical Association, Gurdon Buck, Jr.,[17] surgeon to the New York Hospital, reported the discovery of a distinct membranous sheath investing the penis. Buck's fascia (Fig. 14) is a continuation of the suspensory ligament above and the perineal fascia below; it is divided into two compartments, one containing the corpora cavernosa, and the other the corpus spongiosum. "The cavity formed by the sheath and occupied by the corpus cavernosum is limited posteriorly by the triangular ligament. It also sends off, from its upper surface, membranous septa between the accelerator muscles in



Fig. 14.—Buck's fascia. A dissection of the sheath of the penis, showing: *A*, the corpus cavernosum, enucleated from the sheath; *B*, the sheath, split up through the suspensory ligament, of which it is a continuation; *C*, the relations of the sheath to the corpus spongiosum urethrae, one layer of which passes above, the other below it; *D*, its relation to the glans penis, to which the sheath adheres inseparably by its outer surface, while by its inner surface it caps the corpus cavernosum; *E*, the dorsal arteries, veins and nerves, raised with the sheath (Buck).

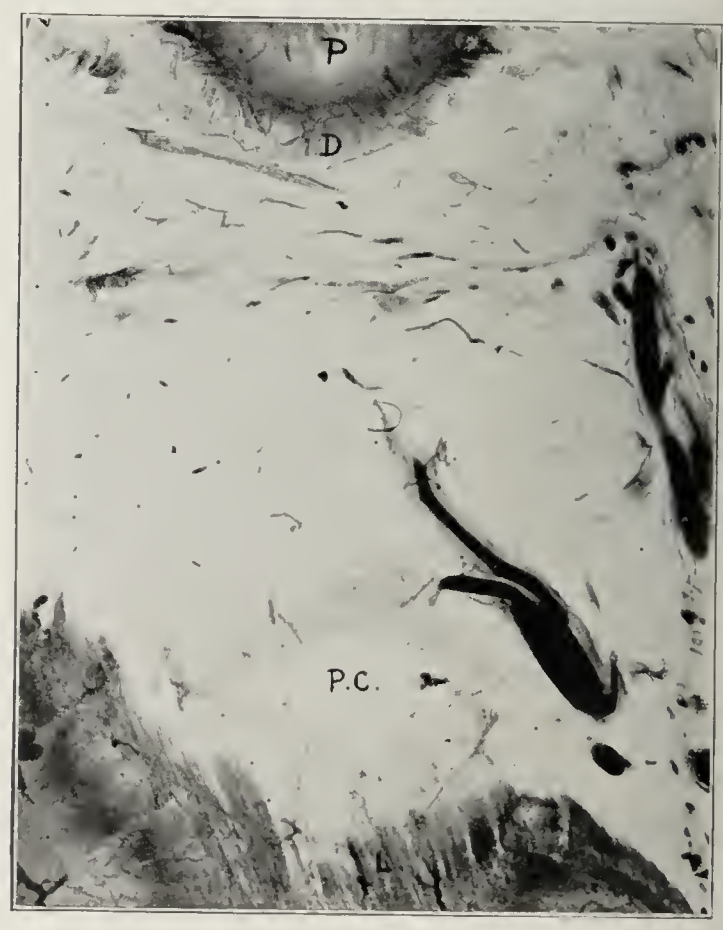


Fig. 15.—Transverse section through the pelvis of 208 millimeter human embryo, showing the most dependent part of the peritoneal cavity; there is no evidence of raphé formation of the layers of peritoneum, which ends close against the rectum; anteriorly there is a condensation of mesenchyme tissue with a resulting fascia (Denonvillier's fascia) in contact with the prostate: *PC*, peritoneal cavity; *D*, Denonvillier's fascia; *P*, prostate; *L*, levator ani (embryo, Carnegie Institute 2402, slide 250, section 1); slightly reduced from a photomicrograph × 18.5.

the middle, and the erectors on either side, to join the triangular ligament, and thus forms three distinct and

14. Denonvilliers, C.: Anatomie du périnée, Bull et mém. Soc. Anat. De Paris **2**: 105-106, 1836.
15. Colles, Abraham: A Treatise on Surgical Anatomy, Dublin, Gilbert and Hodges, 1811, pp. 151-180.
16. Sappey, P. C.: Traité d'anatomie, Paris, 1877, Adrien Delhaye **3**: 654, 1877.
17. Buck, Gurdon, Jr.: A New Feature in the Anatomical Structure of the Genito-Urinary Organs Not Hitherto Described, Tr. American Medical Association **1**: 367-372, 1848.

deep sheaths that are confounded anteriorly with the common sheath investing the corpus cavernosum."

Denonvilliers' fascia is the term applied by urologists to the sheath between the prostate and the rectum. As in the development of the other pelvic and perineal fascia, the anlage space is in the beginning filled with a syncytial mass of embryonic connective tissue cells; eventually differentiation occurs, and there is a condensation of connective tissue, anteriorly and posteriorly, with a potential space between. The anterior layer, covering the prostate, is the thicker, and elastic tissue fibrils predominate, which causes the characteristic shiny appearance of Denonvilliers' fascia (Fig. 15). A sheath of this fascia surrounds the ejaculatory ducts and utricle as they pass through the prostate. At the apex of the prostate, the fascia is continuous with the superior layer of the urogenital triangle.

There is no evidence that Denonvilliers' fascia is formed by the fusion of two layers of fetal peritoneum as described by Cuneo and Veau,[18] but rather it is apparently differentiated from a condensation of mesenchymal tissue occurring subsequent to the formation of the urethra and other definite structures. Furthermore, it is a generally accepted embryologic law that when two layers of peritoneum are permanently approximated, the constituents revert to type, and the mesothelium is absorbed and disappears, leaving only a bed of undifferentiated mesenchyme.

The fasciae of the perineum are of interest to the surgeon because of their influence in controlling the course of urinary extravasations. Buck's study was made seventy-five years ago, in an attempt to explain a "circumscribed, hard, prominent swelling of the size of a Madeira nut, in the anterior part of the scrotum, covering and closely embracing the urethra, and also extended on either side around the root of the penis, in the form of an indurated flattened band."

In order to confirm Buck's description of fascia in figure of eight, enclosing the two cavernosa bodies in one loop and the spongiosum in the other, an intraurethral injection was made through the dorsum of the urethral canal between the corpora cavernosa. At first a small lump formed; then, by using considerable force, the penis became very rigid. The pressure was increased and held at the maximum for a considerable time. An incision was then made down the dorsum of the penis, as described by Buck, and it was found that the pressure of the fluid had dissected the corpora cavernosa away from the corpus spongiosum, and from the fascia of the penis.

To determine the extent of Colles' fascia anterior to the suspensory ligament, under inspection through an endoscope, the urethra in fresh cadavers was punctured by means of a long needle, and colored fluids were injected so as to simulate a rupture of the urethra. Ventral ruptures of the bulb formed a circumscribed lump in the perineum, but with increased injections the fluid gradually spread, evidently passing between connective tissue partitions. When the force was still further increased, these partitions gave way, and one side of the scrotum became filled. Extending the amount of fluid still further caused the extravasations to rise toward the symphysis; but when its passage in that direction was prevented by means of pressure over the pubic bone, the fluid passed down into the penis between Colles' and Buck's fascia, demonstrating the continuity of Colles' fascia into the penile organ.

18. Cuneo, B., and Veau, V.: De la signification morphologique des aponeuroses périvésicales, J. Anat. **35**: 235-245, 1899.

Three types of urinary extravasation are commonly encountered: between the layers of Buck's fascia; within the superficial perineal interspace, and distal to the deep layer of the urogenital diaphragm. If the rupture occurs anterior to the urogenital diaphragm and the opening is through the dorsum of the corpus spongiosum, the fluid is confined between the layers of Buck's fascia surrounding the corpus cavernosum. However, the common pathway is ventral and the urine is confined temporarily by Colles' fascia, and because of the dense fascial partitions within the superficial perineal interspace the fluid tends to pass from the perineum down in the scrotum and then up over the pubes. In early stages, the extravasation is unilateral; later, both sides of the scrotum as well as the penis down to the glans are involved, and the fluid may pass up as far as the axilla. If the rupture occurs distal to the urogenital diaphragm, the extravasation is held forward by Denonvilliers' fascia and by dissecting up the peritoneum from the bladder passes into the space of Retzius, or it may extend posteriorly up to the diaphragm and eventually even pass through the inguinal rings and appear on the abdomen.

As evidence that Buck's fascia, Denonvilliers' fascia, and urogenital diaphragm are not the impenetrable bulwarks they are supposed to be I shall cite the following cases in respective order. Colles [15] reported a chancre of the corona that caused infiltration under the penile sheath and opened on the abdomen. Smith [4] found at necropsy a case of tuberculosis of the seminal vesicles that broke through Denonvilliers' fascia, forming a rectal fistula and leaving the bladder wall uninfected. In the clinic of Hugh H. Young, I observed an 84 year old patient with cancer of the prostate who developed a priapism because of the extension of the malignant growth into the corpora cavernosa.

If careful descriptions of the findings of a large number of ruptured urethra operations appeared in the literature, definite conclusions as to the paths followed by extravasated urine could be drawn, and theories could be replaced by facts.

SUMMARY

1. Buck's fascia has a definite given position as described by him, and which is borne out by embryologic studies and by extravasation experiments.

2. Colles' fascia has certain definite extensions anterior to the suspensory ligament, which fact also is demonstrable by embryologic and experimental study.

3. Colles' fascia in the penis bears the same relationship to Buck's fascia that the posterior layer of Denonvilliers' fascia does to the anterior layer.

4. The urogenital diaphragm occurs subsequent to the appearance of the urethra, muscles, blood vessels and pelvic viscera.

5. The pelvic and perineal fascia are made up of mesenchymal extension from the blood vessels and viscera and from the aponeurotic sheaths of the muscles, and are formed from a condensation of primarily loose undifferentiated tissue.

6. Denonvilliers' fascia is formed by a condensation of mesenchyme tissue, and not by a fusion of layers of fetal peritoneum.

7. The urogenital fascia has not the same density early in life that it later acquires, with the assumption of the upright position and the consequent strain put on it.

549 Flood Building.

ABSTRACT OF DISCUSSION

DR. E. M. WATSON, Buffalo: The formation of the structures in the perineum is extremely important, and Dr. Wesson's work will be of great value, particularly to those who are engaged in teaching. The different entities he has described have always been a little hazy, and as a means of showing the paths of extravasation and separation this paper will help us all immensely.

DR. B. A. THOMAS, Philadelphia: I agree with Dr. Watson. The fundamental work of Dr. Wesson is very illuminating. I have profited much by listening to him, but cannot add anything.

DR. HOMER G. HAMER, Indianapolis: It is certainly quite a help to have these anatomic factors brought out so clearly.

DR. M. B. WESSON, San Francisco: I wish to emphasize the plea I made in the paper that cases of rupture of the urethra be reported with detailed anatomic descriptions of the planes of extravasation. Not until the literature contains a sufficient number of such accurate portrayals can the vague theories of urinary extravasation be replaced by facts. The medical journals contain many complete case reports on subjects of questionable importance, but absolutely nothing of value has been published along this line.

HEREDITARY HEMOPTYSIS *

EMANUEL LIBMAN, M.D.
AND
REUBEN OTTENBERG, M.D.
NEW YORK

In 1918 we [1] described a family that presented what appeared to be a new form of hereditary hemorrhagic disease distinct from the two already established forms of bleeding tendency, hemophilia and multiple telangiectases. In this family, seven persons presented almost identical histories of repeated profuse hemoptyses beginning about puberty or in early adult life and occurring at intervals throughout life.

We have now kept three bleeders in this family under observation for an additional five years since our first report, (through the courtesy of Dr. S. S. Lubin, their family physician). This makes a total of seven years during which the clinical picture of the condition has been observed and has not changed. We think that this long period of observation is sufficient to exclude tuberculosis.

The first member of the family to be seen by us was admitted to the Mount Sinai hospital in 1916, while suffering from profuse hemoptysis. It developed that he had suffered from similar attacks at intervals for many years. Naturally, he had been repeatedly suspected of being a victim of pulmonary tuberculosis; but proof of such a diagnosis had never been obtained. He had never suffered from any other symptoms except the hemoptysis. Furthermore, on investigation, it was found that six other members of the family (two of whom were subsequently examined by us) gave practically identical histories. There were no cases of tuberculosis in the entire family. Not one of the family was a bleeder in any other sense; that is, none of them bled inordinately from accidental wounds or otherwise than from the lungs.

Careful examination of the blood of the patient admitted to the hospital showed that it lacked the characteristics of hemophilia; the coagulation time was normal. The characteristics of chronic purpura were also absent; the platelet count was within the normal range, and the bleeding time was normal.

The heredity of the disease in this family is not sex-limited. The disease occurs in and is transmitted by females as well as by males. The hemorrhages occur only at or after the age of puberty, the earliest hemorrhage recorded in any individual being at the age of 12 years. None of the hemorrhages have been fatal.

Considering the possibility that the condition might be one of telangiectasis similar to those of multiple hereditary telangiectasis (Osler) but situated in the bronchial tree, we secured the services of Dr. Yankauer, who performed bronchoscopy on two members of the family, with entirely negative results. If the condition is due to telangiectases, they must be localized in the finer bronchi or in the pulmonary tissue.

On the basis of physical examinations of three lung bleeders belonging to the family, as well as of roentgenologic examination of two, and tuberculin tests of one, and on the basis of the clinical fact that none of the seven individuals who suffered from hemorrhages ever developed any of the symptoms of tuberculosis, we believe that tuberculosis can be excluded as the cause of the hemorrhage.

We know of no condition described in the literature similar to the one here reported. The only comparable disease with which we are acquainted is the "idiopathic family hematuria" described by Apert,[2] which has been observed in two families.

REPORT OF CASES

CASE 1.—R. W., a man, aged 39, Jewish Russian, jeweler, first examined, Oct. 12, 1916, had been subject to attacks of hemoptysis since the age of 21. The patient's maternal grandmother (1) [3] had attacks of hemoptysis exactly like those of the patient. She lived to be 70 years of age. The patient's mother (2) died at the age of 66, of a sudden heart attack; she had suffered from attacks of hemoptysis every few months for at least ten years, to the patient's knowledge. The patient's mother had one brother and one sister. The mother's brother (3) was 60 years of age and had been subject to attacks of hemoptysis similar to those of the other members of the family for at least twenty-five years, although he had not had any hemorrhages for the last five years. One of his sons began expectorating blood in 1916, when we first became acquainted with the family and is described as Case 3.

The patient had three brothers and two sisters, of whom one brother and one sister were subject to attacks exactly like his own. His brother (4) was 55; his hemoptyses began during adult life, and letters from Russia received in 1922 indicated that he still had occasional hemoptyses, while his five children, ranging from 15 to 25 years of age, were not mentioned as having any hemoptyses. The patient's sister was 30 years old, and had had frequent attacks of hemoptysis since the age of 12. A more detailed account of her is given in the report of Case 2. The patient himself had three children, aged 11, 15 and 18 years, who had so far not suffered from hemoptysis. There had been no case of tuberculosis in the family.

During the first three years of the trouble, the patient had six attacks; then they became somewhat more frequent. In the five years before his admission to the hospital in 1916, he bled only five or six times. He had been repeatedly examined by various physicians, and pronounced not tuberculous. The attacks almost always started when he arose in the morning; he said that he was a mouth breather, and that his throat was very dry when he waked up. On this

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* From the Medical Department, Mount Sinai Hospital.

1. Contributions to Medical and Biological Research dedicated to Sir William Osler, New York **1**: 632, 1919.

2. Apert: Traité des maladies familiales et des maladies congénitales. Hurst, A. F.: Guy's Hosp. Rep. **73**: 368 (July) 1923.

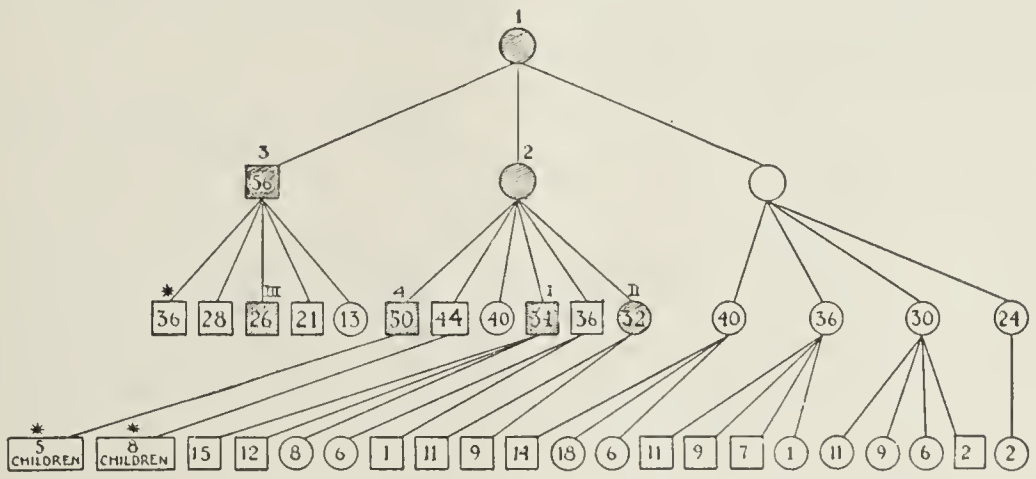
3. The roman and arabic numerals used refer to the numbers on the accompanying chart.

account he usually had to cough very hard every morning. The bleeding came on only after about ten minutes of hard coughing, and he attributed it to the coughing. At the start it was usually slight, but gradually increased. At first the blood was bright red, but by the second or third day it was generally dark. He knew by experience that when black blood appeared there was no more danger of bleeding, and returned to his work. He did not usually call a physician, as he had learned that the bleeding always stopped spontaneously. According to his estimate, he lost about a half pint of blood in an average attack, but sometimes as much as a pint and a half. Except for an attack of malaria, he never had had chills or night sweats.

We watched him from day to day during the severe attack in 1916, which was one of the most prolonged that he had ever had, lasting about fifteen days altogether.

Since then he had continued having more or less profuse hemorrhages at irregular intervals. The last year was one of the worst he had ever gone through, and he had had more than thirty hemorrhages. As a result, he was rather weak, but was still able to go on with his work.

We made repeated physical examinations, all of which were essentially negative so far as any explanation of his hemorrhages was concerned. Repeated careful examinations of the nose and throat and a bronchoscopy by Dr. Yankauer also revealed nothing beyond a chronic catarrhal laryngitis. The blood examination in 1916 showed: hemoglobin, 73 per cent.; erythrocytes, 4,200,000; leukocytes, 12,000. Differential count: polymorphonuclear neutrophils, 77 per cent.; lymphocytes, 22 per cent.; eosinophils, 1 per cent.; platelets, 300,000. The bleeding time was four minutes. The coagulation time (test tube method) was five minutes. The Wassermann reaction was negative. The urine was normal.



Genealogy: Lung bleeders indicated by shading; circles, females; squares, males; *, in Europe, no details obtainable; numbers in squares, ages in 1918; numbers above squares or circles, numerals used in text; roman numerals (I, II, III), subjects examined by us; arabic figures (1, 2, 3, 4), bleeders who were not available for examination. Several minor errors that appeared in our publication of 1918 have been corrected.

During 1916 the patient was kept in bed eleven days and a subcutaneous tuberculin test carried out, with negative result.

Roentgen-ray examinations in 1916 and 1922 showed that the lungs were normal.

CASE 2.—E. R., a woman, aged 37, sister of first patient, married, housewife, seen in 1916, had two children, aged 16 and 14, both healthy. Except for hemoptyses, she had never been seriously ill. She stated that for most of her life she had a tendency to "catch cold" and develop a hoarse voice. She coughed up blood for the first time at the age of 12, and did not have another attack until 16. The second hemorrhage occurred shortly after the onset of menstruation at 15. Since then the attacks had come on at irregular intervals, sometimes skipping several years. When they occurred, she usually bled for hours at a time. The attacks seldom lasted more than one day. She always felt a tickling sensation a day or two before an hemoptysis, so that she could almost always foretell it. The blood that was brought up was bright red.

After her first childbirth, in 1907, she was for a time in poor condition; otherwise she had always been stout and vigorous. She had been repeatedly examined by physicians, all of whom suspected tuberculosis. The sputum had been examined repeatedly, with negative results. On the whole, her hemorrhages were mild as compared with those of her brothers R. W. and L. W.

Since we first studied her, she has continued to have several hemorrhages a year. June 6, 1923, she had another hemoptysis lasting three days, the most profuse one she has ever had. She lost certainly more than a pint of blood, and the blood was bright red until it stopped. Physical examinations in 1916, 1918 and 1923 have been identical, and beyond a mild laryngitis have shown nothing abnormal. Likewise roentgen-ray examinations of the chest and blood examinations have been negative. Bronchoscopy by Dr. Yankauer failed to show the source of bleeding.

CASE 3.—R. W., a man, aged 40, married, cousin of the first patient, had typhoid fever many years ago, and was suspected of having heart trouble at the time. He had coughed a great deal for the last twelve years, but his general health had been good.

While at work in 1916, he suddenly expectorated blood. The bleeding lasted four days, but was not profuse; he estimated that it amounted to half a glass of blood in the whole time.

In 1919, shortly after his marriage, he had another hemorrhage similar to the first. His general health is good (1923). Complete physical examinations, made in 1916 and 1918, showed only unimportant abnormalities.

SUMMARY

Seven members of a family present identical histories of rather profuse hemoptyses occurring at intervals for years, beginning at puberty or in early adult life and not impairing the general health seriously. We have examined three of these bleeders at intervals over a period of seven years, and feel certain that tuberculosis can be excluded as the cause of the hemorrhages. No abnormalities of the blood and no telangiectases of the upper air passages have been found. The cause of the hemorrhages is entirely unknown.

The disease is apparently hereditary. In the small number of cases here recorded, the condition seems not to skip generations. If this continues to occur in the future generations, it will presumably turn out to be a mendelian dominant; but at present the material is too limited to afford certainty on this point.

15 West Eighty-Ninth Street.

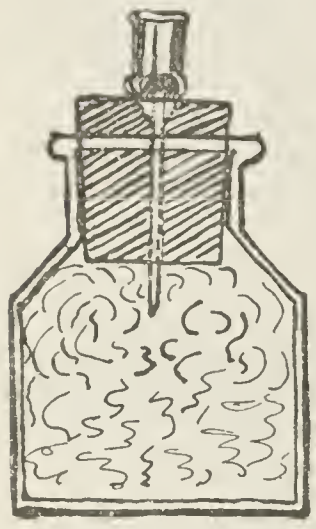
Presence of Striated and Nonstriated Muscle in Auricle Cause of Fibrillation.—The assumption that the auricle contains two kinds of muscle, the one more primitive and the other more highly organized, gives a simple explanation of many clinical facts otherwise difficult to understand. For instance, paroxysmal tachycardia becomes quite easily understood. It should be looked upon as an intermediate stage between the normal rhythm and fibrillation, the auricle responding to a stimulation which normally does not reach it. It also explains why digitalis does not act in cases showing this rhythm, as stimulation of the vagus tends, if anything, to increase the frequency of the fibrillary movement and not to slow it. It has always been difficult to understand why digitalis does not act upon the normal heart even in large doses. If one supposes that the striated muscle, with its nerve the sympathetic, is in some way weakened or poisoned in rheumatism, it is easy to understand how murmurs make their appearance and how digitalis acts. The activity of the smooth muscle is normally completely inhibited, but in rheumatism it is unmasked as it were, and exposed to the influence of drugs like digitalis.—J. M. Gill: *Guy's Hosp. Rep.* **73**:428 (Oct.) 1923.

Clinical Notes, Suggestions, and New Instruments

A USE FOR THE DISCARDED HYPODERMIC NEEDLE

CONSTANTINE L. A. ODÉN, M.S., M.D., MUSKEGON, MICH.

I have found that a hypodermic needle of small caliber is the best instrument with which to obtain blood from the ear or the finger, especially from children; it makes a clean, nearly painless cut and allows ample flow without the wound's closing, as so often happens when many other types of lancet are used.



Needle extending through cork into cotton saturated with alcohol.

It can be inserted through a cork and kept in a bottle stuffed with cotton and saturated with alcohol, so that it is always sterile when wanted. The patient sees only the cork, which causes no fear. This is advantageous especially with children. The illustration shows how the needle can be inserted through the cork for sufficient distance to allow penetration of the skin. This can easily be adjusted to suit the occasion.

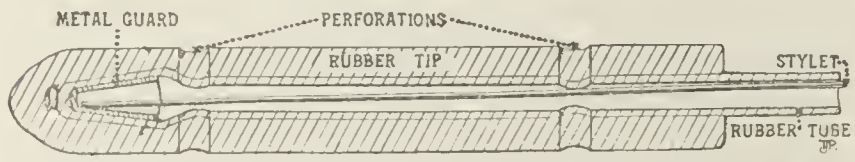
113 West Western Avenue.

A STYLETTED STOMACH-TUBE *

TRACY JACKSON PUTNAM, M.D., BOSTON

The use of a styletted duodenal tube has been suggested by Jutte[1] and by Bondi and Eisler.[2] According to Eisler's technic, a brass wire is introduced into an ordinary duodenal tube, previously oiled. Stiffened by the wire, the olive of the tube is pushed past the cardia, and guided to the antrum by palpation under the fluoroscope. This often saves many minutes in patients who find it difficult to swallow the ordinary tube, but in our experience, the time-consuming part of a duodenal intubation is persuading the olive to pass the pylorus where the wire is of little assistance.

Gastric intubation is still a much more common and useful procedure than duodenal intubation. The ordinary duodenal tube is often employed instead of the large Nélaton stomach-tube because it is less unpleasant to take; it cannot, however, be used with unconscious or uncooperative patients. A type of styletted stomach tube has been in use for more than a year on the East Surgical Service, which has proved easy to



Tip of styletted stomach-tube, about one and one-half times the actual size: The rubber tube is the size of ordinary duodenal tubing; the wire stylet is seen resting inside the metal cone.

pass and less disturbing to most patients than either of the standard models. It has been used for gastric analyses, stomach washes and gavages, and has been of particular value for very ill patients after operation with distention of the stomach or persistent vomiting. It consists of a piece of duodenal tubing 4 mm. in diameter and 70 cm. long. A cone-shaped metal tip, closed at the bottom, about 7 mm. in length and small enough to fit snugly inside the rubber tube, is tied and cemented within its lower end. A bullet-shaped rubber tip, about 7 mm. in diameter and 5 cm. in length, is cemented or vulcanized outside the rubber tubing, and is pierced by four perforations the size of its bore. It is thus much smaller and softer than the usual form of tip; but will admit any particles small enough to traverse the tube. The upper end of the tube has a bell-shaped expansion to fit a syringe, or is cemented to a short piece of larger tubing. The whole tube is filled with liquid petrolatum and a stiff brass wire, gage 22, about 0.8 mm. in diameter, is fitted into it, the end of the wire resting inside the little metal cup. The tube is kept slightly on a stretch over the stylet by a spring clip, fashioned out of the same wire at its upper end. If the tube is then pushed past the cardia still under tension, the wire cannot slip out of the metal cup; if the rubber tip is of the correct proportions, the wire cannot be made to protrude through any of the perforations, even if it is loose within the tube. When the stomach is reached, the clip is undone, and the wire at once withdrawn. This may be difficult unless the tube is thoroughly oiled and the wire is clean and straight; it should never be put away inside the tube. Fluids may be introduced or withdrawn with a syringe, or larger amounts allowed to flow in by gravity from a reservoir, or aspirated into a suction bottle without any particular discomfort to the patient.

The tube may be made at home without great difficulty, or may be obtained from the F. H. Thomas Company, Boston. Ordinary Dakin's tubing is a good size for the tip, and a rounded end may be made out of rubber tire putty.

108 Marlboro Street.

* From the East Surgical Service, Massachusetts General Hospital.

1. Jutte, cited by Weilbauer: Deutsch. med. Wchnschr., Oct. 6, 1922.
2. Bondi, S., and Eisler, F.: München. med. Wchnschr. **69**: 1573 (Nov. 10) 1922.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

IODOSTARINE-ROCHE.—Diiodotariric acid.—$C_{18}H_{32}I_2O_2$.—An iodine addition product of tariric acid, $C_{18}H_{32}O_2$, derived from the fruit of a species of *Picramnia*. Iodostarine contains 47.5 per cent. of iodine.

Actions and Uses.—Iodostarine acts in the system similarly to the inorganic iodides. It is not broken up in the stomach, but a portion of the iodine is split off when it enters the intestine. The undecomposed portion is readily absorbed and, as in the case of other fats, is largely deposited in the tissues where it is slowly split up. The action of iodostarine is exerted more slowly than that of the inorganic iodides (see Iodine Compounds, Iodized Fats and Fatty Acids, New and Nonofficial Remedies, 1923, p. 151).

Dosage.—The same as that of potassium iodide. Supplied in the form of tablets only.

Manufactured by F. Hoffmann-LaRoche & Co., Basle, Switzerland (Hoffmann-LaRoche Chemical Works, New York). U. S. patent 982,656 (Jan. 24, 1911; expires 1928). U. S. trademark 87,996.

Tablets Iodostarine-Roche 0.25 Gm.

Chocolate Tablets Iodostarine-Roche: Each contains iodostarine equivalent to iodine 0.01 Gm.

Iodostarine is a white, crystalline solid, odorless and tasteless. It is insoluble in water; slightly soluble in cold alcohol; soluble in warm alcohol, ether, chloroform, benzene and carbon disulphide. It is permanent in the air. It melts at 48 to 49 C.: at a higher temperature it decomposes with evolution of iodine.

To about 1 Gm. of iodostarine, accurately weighed, add 50 Cc. of half-normal potassium hydroxide in methyl alcohol. Heat for two hours under a reflux condenser. Remove the condenser, boil off the alcohol, taking care to avoid loss by bumping, and transfer the residue to a separator, using at first warm water, but finally a little diluted nitric acid to insure complete transfer of the iodide to the separator. Cool, add 50 Cc. of ether and sufficient diluted nitric acid to decompose the soap. If the solution becomes yellow from liberation of iodine add a little sodium sulphite to reduce the iodine. Shake thoroughly and draw off the acid layer through a wetted filter into a 500 cubic centimeter flask. Wash the ether in the separator with three separate portions of water of 25 Cc. each, adding these through the filter to the acid solution in the flask, warm to expel dissolved ether, cool, and add 5 Cc. of concentrated nitric acid and, at once, 25 Cc. of tenth-normal silver nitrate. Titrate the excess of silver with tenth-normal potassium sulphocyanate, using ferric ammonium sulphate as indicator. The volume of tenth-normal silver nitrate used indicates not less than 47.5 per cent. of iodine.

Special Article

REPORT OF COMMITTEE ON LYE LEGISLATION TO THE SECTION ON LARYNGOLOGY, OTOLOGY AND RHINOLOGY

Last year your committee submitted a report of a survey of the situation as to legislation providing for the labeling conspicuously with the word "poison" all retail packages of caustic alkalis on which survey a campaign for such legislation was to be based.

We beg now to report that such a campaign was planned and carried out in Pennsylvania in support of House Bill No. 395, a copy of which is hereto attached. This bill was introduced by Dr. Benjamin Patterson, was passed by both branches of the legislature, was signed by Governor Pinchot, and has therefore become a law.

Your committee acknowledges with gratitude the utmost courtesy and open-mindedness with which its communications were received and considered by Governor Pinchot and by the members of the legislature. The work of Hon. Benjamin Patterson is deserving of the highest commendation. Thanks for wise counsel and earnest support are due to Dr. George H. Simmons, Hon. William Potter, Dr. Fred L. Van Sickle, Dr. W. B. Chamberlain, Dr. G. A. Knowles, Dr. David A. Riesman, Dr. Martha Tracy, Dr. William C. Woodward, Dr. W. W. Keen, Dr. Ellen J. Patterson, Dr. A. M. Carr, Dr. Ross V. Patterson, Dr. George H. Meeker, Dr. William Pepper, Dr. W. O. Pearson, Dr. R. R. Huggins, Dr. Gabriel Tucker, Dr. Louis H. Clerf and to the members of the legislative committee of every County Medical Society in the state of Pennsylvania. The support of the medical profession was unanimous. The support and cooperation of the American Child Health Association is gratefully acknowledged.

Your committee acknowledges with thanks the development, by Dr. L. W. Dean, of a very important point in the economics of the lye matter, namely, the annual cost to the state of the hospitalization of children poisoned with lye.

Your committee is deeply indebted to Dr. William C. Woodward, Executive Secretary, Bureau of Legal Medicine, American Medical Association, for writing to lye manufacturers to ascertain what they might be willing to do in the matter of labeling their preparations. Dr. Woodward reports as follows:

> I have found the manufacturers of caustic acid and alkali preparations unresponsive, except one, who pretends to believe that there is no more need for legislation safeguarding the distribution of concentrated lye for household use than for legislation safeguarding the distribution of window glass or of a certain brand of condensed soups. One might cut one's hand in opening a can containing such soup, says my correspondent—and, therefore, a danger label is as much needed on a can of soup as on a can of lye.

The only comment necessary is to say that the same logic might be applied to mercuric chlorid antiseptic tablets. A person might cut himself by breaking the bottle; hence there is no more necessity of labeling it "Poison" than of so labeling a can of soup! As Dr. Woodward was very careful to point out, this individual's opinion is not to be taken as a criterion of the opinion of all packers, some of whom have voluntarily and properly labeled their packages. It proves conclusively, however, that there are and always will be individuals that cannot be convinced and that cannot be controlled except by legislative enactment.

Since the passage of the Pennsylvania law, your committee has been informed that one group of lye packers has received a report from one of its committees recommending certain improvements in the labeling of lye by the packers in that group. Such action is, of course, highly to be commended, and efforts to get commercial interests to label their products properly should be continued. But, in the opinion of your committee, such action does not lessen the necessity for legislation for the following reasons:

1. Associations of packers have no power to compel specified action by the affiliated concerns. The recommendations of the group referred to contain statements such as these:

"A specified size of type is impractical."

"to print in red ink, *if practical*."

"as plainly and conspicuously *as circumstances permit* in each instance."

All of which means that each packer in the group can do as he pleases "in each instance."

2. No commercial interest or association of interests can prevent the starting of new independent interests or control independent interests, new or old. Trade in lye can never be monopolized. Anybody can, at any time, on small capital, start packing a new brand of lye and label it as he pleases.

3. There are and always will be individual packers, like the packer quoted by Dr. Woodward, who are unconvinced of the necessity of labeling packages of lye with the word poison. Nothing but legislation will reach the unconvinced or unfair competitor.

4. There is no reason why the labeling of corrosive poisons sold by *lye packers* should be left to the option of the seller, when the *druggist* is compelled by law to attach a poison label to corrosive poison *he* sells. Such an argument would imply that the druggist is less trustworthy than the lye packer.

5. In all matters of public health, legal enactment comes first. With this solid backing, commercial cooperation and public education are developed rapidly. This, in the opinion of your committee, is the proper course to pursue in the lye matter.

6. Dr. H. M. Taylor of Jacksonville, Fla., reports that, as a result of his presenting the clinical and other facts in evidence of the necessity for protective legislation, the legislature of Florida promptly, by an almost unanimous vote, passed a bill modeled after the Pennsylvania statute, providing for proper labeling of lye. The prompt action by the legislators and governors of Pennsylvania and Florida show the unanimity of legislatively trained minds as to the necessity of legislation, just as soon as the facts in the case were brought to their attention.

7. To obtain any far-reaching results in the way of voluntary labeling would require the maintenance, forever, of an active committee on lye legislation to agitate and to police, in perpetuity, the whole United States to find, from time to time, improperly labeled packages, and to convince successive crops of new concerns, by agitation and by threat of legislation, of the necessity of proper labeling. This alternative to legislation would involve so stupendous a task, and its ultimate results seem so doubtful, that your committee regards it as unworthy of consideration.

RECOMMENDATIONS

1. Your committee recommends that an active campaign be promptly instituted in every state in the Union to obtain both federal and state legislation to protect the children from lye by conspicuous labeling with the word "Poison" in capital letters of not less than 24-point size; two readily obtained antidotes being specified in addition. These are very moderate requirements, to which no right-minded commercial interest could have the slightest objection; and they would be, in the opinion of your committee, a sufficient protection to the public.

2. Your committee begs to recommend that:

(*a*) Its membership be increased by the appointment, by the chairman of the section, of sixteen additional members to be selected from as wide a geographic distribution as possible.

(*b*) That the chairman be empowered to select, from the members so appointed, such subcommittees as may seem to him desirable, and also to select an executive committee with full power to act for the whole Committee.

Respectfully submitted,

CHEVALIER JACKSON,
GEORGE W. MACKENZIE,
FIELDING O. LEWIS.
S. IGLAUER.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, DECEMBER 15, 1923

THAT ORANGE-COLORED SLIP

The month has rolled around again in which there is slipped into the magazines a notice which usually reads something like this: "Your subscription expires with this number. Please remit." THE JOURNAL likes to be up to date, in fashion; it also believes in economy. So, three or four years ago, it too adopted the plan of inserting a subscription blank. To be strictly honest, the real reason was to save addressing between sixty and seventy thousand envelops, printing the necessary slips to go in them, and then paying Uncle Sam two cents to deliver them. It is so easy to slip a slip into THE JOURNAL. That slip will be found in this issue of THE JOURNAL. It is orange colored, but the color means nothing. The slip is rather small, and may be stuck deep in the pages, in which case it may not be seen. Look for it.

Incidentally, a subscription for *Hygeia* would be a good thing to include in making out the check. Some physicians may think it worth while to send a copy to a patient or friend as a Christmas gift.

DISEASE AS AN AFTERMATH OF WAR

When the war trumpets blow, the peoples must dance. No place so remote, no family so isolated that it may not be affected by a conflict seemingly as outside its sphere of interest as the planet Saturn. War, famine and pestilence ride together as well chosen comrades. Disease is a consequence of modern war as direct and inevitable as bullet wounds.

While it is not possible to predicate in every instance that this or that case of disease would not have occurred but for the war, the general influence of war on the mass phenomena of disease is constantly becoming clearer. There are infections that are contracted in larger proportion among the men in army camps than they would have been among the same men in civilian life. These diseases are spread by the returning soldier, and may reach out in widening circles to the remotest corners of the earth. After the Civil War in this country, typhoid became more prevalent throughout the Northern states, and, if it were possible to trace the exact genealogy of typhoid cases occurring at the present day, we should doubtless find that some typhoid in 1923 owes its origin to typhoid carriers who were themselves infected in an epidemic that resulted from the spread of typhoid which followed the Civil War. If this seems fanciful, one has only to remember the enormous improvement in the typhoid situation caused by breaking the chain of infection at some one point. The antityphoid inoculation of American soldiers in the Great War protected not only the men themselves, but also the uninoculated civilians. For the first time since typhoid was recognized as a distinct disease, a great war has not been followed by a marked increase of typhoid in the nonfighting population. In reckoning the advantages of antityphoid inoculation, this achievement must not be overlooked.

Smallpox is another disease in which a wide dissemination often occurs either during or following a war. The great extension of smallpox in Germany after the war of 1870 is a familiar example. Epidemic meningitis also, which is liable to be excessively prevalent in army camps, showed a marked increase among persons in civilian life in certain localities in this country in 1917-1918. Whether the dissemination of influenza was affected by the war other than through a somewhat more rapid and irregular dispersion than would have taken place in normal times has been a matter of dispute. Nutritional conditions do not seem to have had as much relation to the spread of influenza as sometimes assumed, and it is perhaps doubtful whether the virulence of the 1918-1919 pandemic was in any way connected with the war. The high mortality of measles in some of the army camps does not seem to have affected the death rate from this disease in the surrounding population.

Another type of disturbance of normal disease relations caused by war is the extension of certain more or less localized infections into regions previously exempt. London papers have recently dwelt on the introduction of "tropical malaria" (due to *Plasmodium falciparum*) into South Russia. This infection, brought back by famine refugees, returning from Turkestan, to the Volga Valley and from the Caucasus to South Russia and the Ukraine is said to be altering the whole character of the population. "From a healthy country, inhabited by a virile, energetic peasant and Cossack population, South Russia is changing to a highly malarial center with a corresponding physical degeneration." It is stated that anopheles mosquitoes breed freely in the tightly sealed, overheated peasants' houses in winter, and that the incidence of malaria is very high even in the colder months of the year. The outlook is pictured by certain writers for the press as extremely gloomy. Whatever may be the truth about this particular situation, there can be no doubt that the introduction of new parasites or of their insect hosts into a

previously uninfected region is a possibility that must be reckoned with as an aftermath of war. Other diseases besides malaria obtain a wider distribution in this way. The parasites of amebic dysentery are probably dispersed over a wider area of the earth's surface than ever before. Infectious jaundice, as recently pointed out by Blumer,[1] has usually appeared in this country wherever troops have been concentrated; the disease has apparently increased of late, and in 1920-1922 more than 200 epidemics occurred in New York State alone.

In some instances, the precise share of the Great War in spreading infectious disease may be difficult to trace; but enough is known to make it believable that a wide dispersal of infection is favored by the aggregation of masses of men in camps, by abnormal nutritional conditions, and by the dislocation of social and industrial relations that must follow an armed conflict. Disease knows no boundary of nationality. A tariff does not keep out disease germs. No section of the human race is sufficient unto itself.

THE ETIOLOGY OF NEPHRITIS

With the growing victory over communicable diseases and the decrease in mortality from such causes, there has come a belief that the chronic or regressive class of diseases—those involving the circulatory system and the kidneys and affecting chiefly persons in middle life and old age—has increased in prominence. Nephritis belongs in the latter group. Always a serious menace, the disease, or the category of maladies which the designation represents, has baffled the attempts to gain a clear insight into its etiology. He would be rash, indeed, who ventured to assert that even the fundamental causative features have been established beyond conjecture. Yet in the United States alone tens of thousands of deaths officially charged to nephritis challenge investigation and critical contemplation of the large mass of data accumulated since Richard Bright set apart the nonsuppurative affection of the kidney as a clinical entity.

The complicity of bacteria in the genesis of acute nephritis is generally admitted. Even without overstressing the much discussed relationship of focal infections to nephritis, one must admit that microorganisms can play a damaging part in connection with the kidneys. It matters not for the moment whether streptococci alone are the guilty offenders or whether a diversity of other members of the bacterial family—staphylococci, pneumococci, the bacilli of diphtheria and tuberculosis, for example—are ever indictable. Bacterial injury to the kidney is an acknowledged factor to be reckoned with; and the most defensible presumption is that the bacteria act through poisons which they elaborate rather than by their physical lodgment and multiplication in the renal tissue. With respect to cases of so-called subacute nephritis, however, Newburgh[2] has warned against hasty generalizations. It is not sufficient, he reminds us, to demonstrate the presence of foci of infection in nephritis, for this no more proves that the nephritis owes its origin to the infection than it does that the infection is a complication of nephritis.

With respect to the causation of chronic nephritis, Newburgh[2] has well summarized the two outstanding convictions. They are, he says, that some contracted kidneys are the end stage of an acute or subacute nephritis of bacterial origin, and that nearly all of the remaining cases are intimately related to arteriosclerosis and cannot be properly understood unless the two processes, the sclerosis of the vessels and the sclerosis of the kidneys, are studied together. Newburgh's own experimental investigations both on animals and on man have led him to assume that indulgence in high protein diets will quickly give evidence of renal injury.[3] He believes that man has not yet developed kidneys which can excrete, without suffering injury, the products of a protein ingestion little if any higher than that indulged in by great masses of humanity. If it should prove to be true that the long continued "abuse of protein" makes of the renal apparatus a "locus minoris resistentiae," as Newburgh suggests, it could more readily be understood that such a weakness would greatly increase the likelihood of further damage by infection. Chronic nephritis is comparatively rare among inhabitants of the tropics, yet is common in the temperate zones. It is well known that Europeans and North Americans have been accustomed to consume more protein in the form of animal food than do the native tropical races. Hence, Newburgh asks, may not the excessive protein metabolism of Northern peoples be partly or even largely responsible for the high incidence of chronic nephritis among them? It is a bold venture to assert that chronic nephritis is, generally speaking, caused by the combined effects of infection and abuse of protein. Such a thesis involving factors that are remediable demands respectful consideration. Can it be substantiated?

THE COCKROACH AND CHOLERA

Some of our familiar insect neighbors have acquired an unenviable reputation as trouble makers for the human family since the science of medical entomology was born in 1879. Manson's epoch-making discovery, in that year, of the rôle of the mosquito in the development of filarial worms paved the way for the discovery by Theobald Smith in 1893 of the transmission of Texas fever by the cattle tick, and by Ross in 1898 of the relation between mosquitoes and malaria. Since then the tick and the flea have been charged with responsibility for a variety of infectious maladies, while

1. Blumer, George: J. A. M. A. **83**: 353 (Aug. 4) 1923.
2. Newburgh, L. H.: Medicine **2**: 77 (Feb.) 1923.
3. Newburgh, L. H., and Squier, T. L.: Renal Irritation in Man from High Protein Diet, Arch. Int. Med. **28**: 1 (July) 1921. Newburgh, L. H., and Clarkson, Sarah: Production of Arteriosclerosis in Rabbits by Diets Rich in Animal Proteins, J. A. M. A. **79**: 1106 (Sept. 30) 1922.

the fly has been swatted as though it represented the worst of the enemies to human welfare. Despite the terms of familiarity on which they sometimes live amid our habitations, the bedbug and the cockroach somehow have managed to escape equally severe condemnation from the student of disease. It must be admitted, of course, that the bedbug has had to face numerous accusations of complicity, notably in relation to relapsing fever, kala-azar and oriental sore; but somehow it has managed in most cases to prove an alibi or secure disagreement. Chandler [1] has ventured to explain why the evidence brought forth in support of those insects being the normal transmitters of the diseases in question rests on insecure foundations. Ordinarily bugs, he remarks, are handicapped in the extent to which they are able to spread disease by their nonmigratory habits. Unlike many parasites, they are not usually carried about by human beings, but remain permanently in places occupied by their hosts. It is obvious, therefore, Chandler concludes, that bugs are limited in the spreading of disease to the occupants of the infested place.

The ubiquitous cockroach has been even more successful in escaping the detractor's snare. Now and then it has been accused of some minor offense, such as acting as an intermediate host for certain tapeworms, notably *Davainea madagascariensis*, and the roundworm *Moniliformis moniliformis*. Several years ago, while studying in the Philippines, Barber [2] found that cockroaches feeding on the feces of cholera patients may harbor the cholera vibrios in the insect intestine and discharge them on food for human consumption. The menace of a supposedly water-borne infection thus appeared to be aggravated in an unexpected manner. More recently, Toda [3] has concluded from his investigations at the Lister Institute in London that in a proportion of cockroaches which have consumed food contaminated with *V. cholerae*, the mechanism by which ingested vibrios are rapidly destroyed in the interior of the insect may fail. In such cases the feces may contain viable vibrios for periods of twenty-four, forty-eight or even seventy-two hours after the infective feed. On the whole, however, the conditions in the interior of the cockroach would appear to be as unfavorable to any prolonged sojourn of the vibrio as those in the interior of the housefly when similarly infested. The exact nature of the mechanism whereby delicate organisms such as *B. typhosus* or *V. cholerae* are destroyed in the interior of insects is not fully known, though there is considerable evidence that their survival is influenced by the presence of other bacterial species fully established in the insect hosts.

Toda ventures the opinion that the epidemiologic importance of cockroaches as a possible vector of cholera vibrios under conditions existing on shipboard or elsewhere cannot be overlooked, though the evidence incriminating these insects is purely of an experimental kind. The possible danger seems to apply in particular to vessels in which the cockroach has become the object of suspicion. At the present moment there is some uncertainty as to whether *Periplanata americana*, *Blatta germanica* or *P. orientalis* is the prevalent traveler. Let us trust that international jealousies with respect to these species will not interfere with the precautionary measures that may be deemed essential.

1. Chandler, A. C.: Animal Parasites and Human Disease, New York, John Wiley & Sons, 1922, p. 377.
2. Barber, M. A.: Cockroaches and Ants as Carriers of the Vibrios of Asiatic Cholera, Philippine J. Sc. **9**: 1, 1914.
3. Toda, T.: Cholera and the Ship "Cockroach," J. Hyg. **21**: 359 (Aug.) 1923.

Current Comment

SICKLE CELL ANEMIA

The only cases of sickle cell anemia recorded in available indexes previous to 1923 were Herrick's,[1] in 1910; Washburn's,[2] in 1911; Cook and Myer's,[3] in 1915, and Mason's,[4] in 1922. The condition was considered to be rare and was imperfectly understood. Herrick made no definite diagnosis of the first case, and drew no conclusions; other writers suggested that it was possibly a clinical entity. Emmel, experimenting on the blood of one of these patients, suggested that the peculiar transformation of cells was partly due to an abnormal activity of factors which, in normal hematogenesis, transform round red blood cells into biconcave disks. A recent report of fourteen new cases by Huck [5] seems to lead to a better understanding of sickle cell anemia. It is, he says, an hereditary disease transmitted by and occurring in males and females with equal frequency, in which the red blood cells acquire a characteristic sickle or crescent shape in vitro, and which is characterized by typical symptoms, especially anemia and ulcers on the legs. In mild cases, patients may live normal lives; but the disease has never been cured. In severe cases, those affected are unable to work and seldom live beyond 30 years of age. There are weakness, fever and pain. The course is a series of relapses and remissions. The diagnosis is established by an examination of the blood, although clinical symptoms may suggest the cause. In several cases in which fresh blood preparations were examined immediately, there was little change in the red blood cells; but when the specimen was sealed and allowed to stand from six to twenty-four hours, from 25 to 100 per cent. of the cells became sickle shaped. After from three days to six weeks' standing, these cells may again assume the spherical form. Long, threadlike projections extended from almost all of the sickle shaped cells after twenty-four hours. The coagulation time in these patients is normal; hemoglobin varies between 30 and 63 per cent., and there is a moderate polychromatophilia. Nucleated

1. Herrick, J. B.: Peculiar Elongated and Sickle-Shaped Red Blood Corpuscles in a Case of Severe Anemia, Arch. Int. Med. **6**: 517 (Nov.) 1910.
2. Washburn, R. C.: Virginia M. Semimonth. **15**: 490, 1911.
3. Cook J. E., and Myer, Jerome: Severe Anemia with Remarkable Elongated and Sickle-Shaped Red Blood Cells and Chronic Leg Ulcer, Arch. Int. Med. **16**: 644 (Oct.) 1915.
4. Mason, V. R.: Sickle Cell Anemia, J. A. M. A. **79**: 1318 (Oct. 14) 1922.
5. Huck, J. G.: Sickle Cell Anemia, Bull. Johns Hopkins Hosp. **34**: 335 (Oct.) 1923.

d cells of all kinds are present, with normoblasts most mmon. The white cells number from 10,000 to),000, and the differential count is not characteristic. ed cells are occasionally seen being engulfed by cells the large mononuclear type, and it is possible that is phagocytosis has something to do in causing the iemia. The blood platelets are increased to between)0,000 and 500,000. Experiments proved that the :rum in these cases has no effect on normal red cells, id that the sickling is an inherent property of the cells. he usual clinical features of anemia may be present, id a slight trauma on the leg may be sufficient to iuse ulceration. Attempts to transmit this disease to iimals have not been successful. Six other cases, iaking twenty in all, have been diagnosed but not yet eported. At first thought a manifestation of syphilis r tuberculosis, it was plainly shown to be familial and ansmitted according to the mendelian law. All the ises reported have been in negroes, and the disease evidently more common than was formerly supposed.

THE DIFFUSION OF MEDICAL KNOWLEDGE

Some years ago, an eminent American scientist emarked that his conception of an investigator's eaven was that of a place where experiments could be onducted without serious interruption from day to ay, and where it would never become necessary to mbody the results in the form of detailed reports. To nany students who derive real joy from the work of areful observation, the duty of presenting the outcome n some formal manuscript for publication is unquesionably irksome. Many an important clinical experince has doubtless failed to be placed on record in ermanent form because of the inertia of some physian for whom the scalpel has become mightier than the en. President Vincent of the Rockefeller Foundation as done a real service in pointing out that the rapid ontemporary progress in medical research and practical procedures is due to the prompt interchange of nformation that is recorded in the copious literature f today in many departments of modern scientific nedicine. The exchange of ideas is not confined within national boundaries. Obviously, as Vincent [1] specifically points out, international cooperation in creating nedical science depends on communication of ideas from worker to worker and from country to country. We are reminded that Hippocrates, Celsus and Galen produced a body of medical literature. Arab authors transmitted it to western Europe. Nor is the intercourse between leaders of science without great value. Medical students from many nations used to resort to the famous schools of Italy, France and Holland. In the nineteenth century the rapid progress of German medicine drew physicians and advanced students from abroad to many German and Austrian universities and clinics. Berlin, Vienna, Paris and London each attracted representatives from parts of the world where medicine was less advanced—southern Europe, Central and South America, the United States, Japan and the British dominions. The formation of international scientific associations has helped to create a sense of solidarity among medical scientists. Since 1867, seventeen international medical congresses have been held in the chief capitals of Europe, and one in Washington. Philanthropists, by granting fellowships for study outside the holders' own countries, by inviting commissions from foreign nations to visit the United States and other countries, and by enabling the health organization of the League of Nations to finance the intermigration of health officers, are helping medical scientists and practitioners of all nations to work together more effectively.

1. Vincent, G. E.: The Rockefeller Foundation, A Review for 1922, New York, 1923.

REPORT OF THE INDIAN SERVICE

The Board of Indian Commissioners has just issued its fifty-fourth annual report to the Secretary of the Interior. It defines what is apparently the government's policy toward the Indian, and toward the progress of education. A special section is concerned with the health and sanitation of the government's Indian wards. In different sections of the report, it is pointed out that for many years the commissioners have tolerated the insufficiency of the Indian Medical Service. The attention of Congress has frequently been called to the paltry salaries of the physicians and to their unattractive living and working conditions. In 1911, only $40,000 was appropriated for health work among the Indians; in 1922, this had been increased to $370,000. In 1913, the death rate was 32.24 per thousand, whereas in 1920 it was 22.33 per thousand. On the other hand, the death rate for the whole country was 13.8 per thousand. The Indian service maintains eighty-five hospitals and tuberculosis sanatoriums. Every year more and more Indians have been seeking hospital treatment, and it is emphasized that a faithful, capable physician, entirely aside from his professional value, is one of the most effective agencies in advancing Indian people on the road of progress. On June 30, 1923, there were 161 physicians, six dentists and three specialists in eye diseases in the Indian Medical Service, of whom fifty-six were contract physicians on part time. The contract service is not satisfactory, and it is the opinion of the commissioners that efforts should be made to reduce the number of such contracts to the minimum. The contract physicians naturally care for their own patients first, and the Indian patients receive attention later. The average salary of a physician in the Indian Service is around $1,200 a year. "Every commissioner of Indian affairs" says the report, "for the past quarter of a century, has urged Congress to raise the salaries of the men and women who look after the health of the Indian wards of the government. But their pleas have been futile." Here, in brief, are the medical aspects of the Indian problem. It is obvious that any physician who holds a position in the service is sacrificing himself for the good of a cause, and that the government cannot expect to receive the best quality of medical service for the money it is willing to pay. There must inevitably be, under such circumstances, a shortage, not only in the number of physicians, but also in the quality of service rendered.

Association News

DATE OF ANNUAL SESSION

Place: Municipal Pier—Time: June 9-13, 1924

The date of the next annual session in Chicago was fixed tentatively as May 19-23, 1924. Later arrangements were made to hold all of the sessions as well as the various exhibits on the Municipal Pier. However, an investigation showed that the temperature during the third week of May for the last five years—except 1921—has been too cool to insure comfort in an unheated building such as the Municipal Pier. It was impossible to select a date during June, because of the uncertainty as to the time of the Republican National Convention, which it seemed likely would be held in Chicago. Now, that it has been definitely announced that the Republican National Convention will be held elsewhere, the Board of Trustees has fixed the date as above stated.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Board of Health Substations.—Nineteen laboratory substations were established in Jefferson County, December 8, by Dr. J. D. Dowling, health officer. These will be known as board of health substations. The majority are located in drug stores.

CALIFORNIA

Professor Millikan Receives Hughes Medal.—Robert A. Millikan, Ph.D., of the California Institute of Technology, Pasadena, recent winner of the Nobel prize for physics, has been awarded the Hughes medal by the Royal Society of London, England.

CONNECTICUT

School of Pharmacy Investigation.—The scope of the grand jury inquiry into fake medical diplomas was widened to include pharmacists when State's Attorney Alcorn announced, December 1, that he is investigating the Connecticut School of Pharmacy at New Haven which advertises, it is alleged, to give a six months' course for $50, which will fit the student for examination by the state board of pharmacy. Only three hours' attendance at school a week is required. High school certificates are not necessary.

Detectives Raid Naturopath School.—Under grand jury order the Blumer College of Naturopathy, Hartford, was raided by detectives, December 3, and the president, four of the faculty and twenty-seven students were taken as witnesses before the grand jury investigating medical frauds. This college specializes in night courses for persons employed in the daytime. An insurance clerk was found to be professor of pathology at the Blumer College. Among the students in training to become doctors of naturopathy is a former hod-carrier, telegraph messenger, carpenter, watchmaker and an ex-window washer. On December 6 the entire state board of naturopathy examiners was summoned to appear before the Holden grand jury.

The Diploma Inquiry Continued.—Following the revocation of the licenses to practice medicine of eighteen "physicians" mentioned in THE JOURNAL last week, the public health council met with the state health commissioner to prepare a list of these men with their photographs to be mailed to the examining boards of every state in the Union in order to prevent their practicing elsewhere. Seven more licenses have been revoked as follows: Raymond C. Prisque of Dayville; Bernard I. Kafka, Bridgeport; Aurelius De Janis, Norwalk; William Feldman, Hartford; Michael M. J'Anthony, Torrington; Samuel Posner, formerly of New Haven, now of Brooklyn, N. Y., and George W. Cotner, Stratford. Plans for court fight to test the legality of medical license revocati by the state department of health and the constitutiona of the session of the Extraordinary Grand Jury convened Hartford were made, November 30, in behalf of the eight men whose right to practice was previously annulled by Eclectic examining board. Isador Yochelman, Bridgep stated that he would continue to practice, and Peter Koraitis announced that he will go to Chicago if stopp from practicing in Connecticut. The Attorney General stat December 1, that the health department could not lega revoke the licenses unless it was in possession of evide showing that they procured their licenses by fraud or ha been convicted of crime in the practice of their professio business or convicted of felony.

Following the testimony of Governor Templeton regardi the $37,000 alleged legislative slush fund said to have b raised by the "quack" lobby, it is reported that the ent joint legislative committee on public health and safety w be called before the grand jury. State's Attorney Alcc announced that he now has a witness (a prominent feder government official of Connecticut) who will testify that saw twenty-four hours in advance of the examinations t list of questions to be asked by the Connecticut Eclec Medical Examining Board in possession of a physician w has been named in connection with the scandal. This witne will testify the questions were offered for sale by this ma

A letter signed by "Dr." James A. Christian was plac before the grand jury addressed to Dr. Erich von Bradenste of Cuero, Texas, which read as follows:

"As secretary of the Connecticut Eclectic Medical Association, I a writing you to ask you to please send in your share of the expenses the past legislature.

"One bill was killed, one passed by the house and senate, but h not been signed by the governor, and I do not think it will be.

"The expense for correspondence, secretaries, attorneys, etc., w very large. Your part of the expenses is $125. Please send me che or money order for this amount at once as these bills have to be take care of.

"Hoping to have an early remittance by you giving this matter yo personal attention and remitting your check, we can straighten th matter out without delay, I remain."

The letter is dated June 18, 1923, and is signed by Christian.

Dr. Frederick R. Ematrudo, New Haven, elected a membe of the state eclectic examining board to replace "Dr." Jame A. Christian, November 28, resigned, November 29. O December 2, Prof. William P. Sachs was in the witness box as well as Dr. Frederick C. Waite of Western Reserve Uni versity School, Cleveland, who recently returned from Mis souri where he made a survey of the "diploma mills, recommending the revocation of their charters. Inasmuch a two of the four members of the eclectic examining board ar involved in testimony before the grand jury. Mr. Alcorn ha refused to divulge to the board any of the evidence adduced Extradition from New York of "Dr." Sam Kaplan, identifie by two witnesses as a St. Louis quack, who, it is alleged boasted that he had obtained licenses in New York City fo nearly fifty quacks, is being sought. Henry W. Nungasse of Burnside, who was summoned before the grand jury December 5, was licensed by the eclectic board in August 1893. He stated that he had graduated from the College of Hydrotherapy of Sachsen, Germany, in 1890. In January 1922, he was arrested by the Hartford police on a charge of performing an illegal operation, was convicted, and sentenced to jail for thirty days and fined $200.

With 200 suspicious death certificates already culled from the state health records—the deaths occurred chiefly in the vicinity of Bridgeport, Norwalk and Stamford—the grand jury has been handed fifty additional cards which detectives are investigating. Another death in New Britain was made the subject of a further investigation of the career of "Dr." James W. Bush, who has been subpenaed. Bush, who was admitted to practice in Connecticut in 1920, holds a diploma from the Kansas City College of Medicine and Surgery. Charles A. Gasson, describing himself as a "chromopath," was arrested at Hartford, November 28. He is already under $10,000 bail on charges relating to his practice. More than $4,000 worth of drugs was seized in a raid at his home.

DISTRICT OF COLUMBIA

Secretary Work's Annual Report.—The first annual report of Dr. Hubert Work, Secretary of the Interior, was made public, December 5. Among other things, additional employees, pupil nurses, and an appropriation of $45,000 for housing facilities for nurses at Freedman's Hospital, Washington, were recommended. Discussing proposed changes in com-

itment procedure at St. Elizabeth's Hospital, Secretary Work incorporates, in his report, a report from the District ommissioners urging commitments without formal trial in ourt unless demanded by the patients, and "voluntary" commitments whereby patients could be admitted without having o submit to a formal certification of insanity.

Bills Introduced in Congress.—The Pure Milk Bill, which ailed to pass the last Congress and which would give the ealth officer of the District of Columbia authority to safeuard the milk supply, was reintroduced, December 4, by epresentative Lampert. The workmen's compensation bill or the District of Columbia, which also failed to pass the ixty-seventh Congress, was reintroduced, by Representative itzgerald of Ohio; Representative Gilbert of Kentucky reinroduced his bill, which aims to prevent social disease in the District; a similar but more drastic measure has been preented by Representative Raker of California. A bill to egulate the practice of osteopathy in the District was introuced by Representative Smith of Idaho. Representative lark of Florida introduced a bill prohibiting the intermarriage of white persons and negroes.

Georgetown University News.—The Georgetown University School of Medicine, Washington, will award a gold medal nnually to the member of the Association of American hysicians who has rendered the greatest service in the ear to progress and achievement of medical science and reventive medicine, it was announced recently, through the eorgetown Endowment Association in connection with a 16,000 fund established by Dr. George M. Kober, dean for he medical school, in commemoration of the fiftieth anniersary of his graduation in medicine from the university. nder terms of the Kober endowment, there is also estabished an annual scholarship from the interest of $4,000, reference in the award to be given to residents of the District of Columbia and of Modoc County, California. nother gold medal will be awarded annually to the student f the medical school who attains the highest rating in ygiene. The income from $10,000 will be used in awards for annual lectures in the medical school by distinguished men. The lecturers will be chosen the first and second years from members of the Washington Academy of Sciences, the Medical Society of the District of Columbia and the Association of American Physicians. In the third year the lecturers will be chosen from the medical corps of the army, navy, U. S. Public Health Service and members of the American Public Health Association. More than $500,000 has been raised by the university toward a permanent endowment fund since the campaign started, six months ago.

ILLINOIS

Physicians Fined.—According to reports, three physicians of Harrisburg, Drs. Francis M. Hart, Samuel J. Blackman and Charles W. Walden, were fined $300 each by Judge English in the federal district court, East St. Louis, November 21, when they pleaded guilty to violation of the Harrison Narcotic Law.

Personal.—Dr. Ernest B. Downs has resigned as assistant surgeon at the Danville Soldier's Home, Danville, to take a similar position at the Indiana State Soldier's Home Hospital, Lafayette, Ind.——Dr. Clesson Atherton, formerly assistant managing officer of the Kankakee State Hospital, Kankakee, has been appointed superintendent of the Southern Wisconsin Home for the Feebleminded and Epileptic, Union Grove, Wis., to succeed Dr. Henry C. Werner, resigned.

Chicago

Typhoid Under Control.—The health department has announced that the outbreak of typhoid fever in Chicago is under control. A total of 183 cases has been reported.

Personal.—Dr. Morris Fishbein of the editorial staff of THE JOURNAL delivered a lecture on "Medicine and the Press" before the Medill School of Journalism of Northwestern University, December 6.

Institute of Medicine of Chicago.—At a meeting of the board of governors of the Institute of Medicine the following officers were elected for 1924: Drs. Cassius D. Wescott, president; Isaac A. Abt, vice president; George H. Coleman, secretary, and Joseph A. Capps, treasurer. Dr. Ludvig Hektoen was reelected chairman of the board of governors. Dr. Frank Billings presented to the institute the sum of $10,000 to be apportioned in two funds of $5,000 each known as the Lewis L. McArthur and Ludvig Hektoen funds. The income is to be spent in the promotion of investigation in internal medicine, in the payment of honorariums for lectures before the institute, or for such other purposes as the board of governors may direct. Should the institute at any time give up its charter the money is to revert to a medical school connected with a university in the state of Illinois, to be used for similar purposes.

Society News.—A dinner was given at the Hamilton Club, December 5, in honor of Dr. Martin H. Fischer, Cincinnati, who, following the dinner, read a paper before the Chicago Medical Society.——A joint clinical meeting of the Chicago Society of Industrial Medicine and Surgery with the Illinois Society of Industrial Medicine and Surgery was held in Chicago in place of the regular December meeting, December 3-4. Clinics were held at St. Luke's and the West Side Hospital, December 3, followed by a dinner at the Great Northern Hotel in the evening. December 4, a clinic was presented by Dr. William B. Fisk, chief surgeon of the International Harvester Company at the McCormick works.——The annual meeting and election of officers of the Chicago Post 216, American Legion, was held, December 6. Dr. Joseph E. Rowan, Chicago, was elected commander for the ensuing year succeeding Dr. Patrick J. H. Farrell.——At a meeting of the Society of Medical History, at the John Crerar Library, December 14, Dr. B. Barker Beeson spoke on "Alfred Fournier and the Study of Syphilis" and Dr. George H. Weaver on "Edward Mead: Pioneer Neuropsychiatrist of Illinois."——The Irving Park Branch of the Chicago Medical Society went on record, November 13, as favoring the expulsion of members of the society who are using the Abrams method of diagnosis. The resolution adopted was presented to the council of the Chicago Medical Society.

IOWA

Health Service Course.—The State University of Iowa College of Medicine, Iowa City, has been selected by the U. S. Public Health Service as one of the four universities to conduct a summer course in public health service during the summer of 1924, it was announced, November 27.

LOUISIANA

Maternity Welfare Center.—Plans for the first maternity and infancy health center in Louisiana outside of New Orleans were made at a conference in Baton Rouge, December 7. Dr. Richard L. DeSaussure, of the American Child Health Association, is in charge of the work.

Society News.—At the regular meeting of the Shreveport Medical Society, December 5, the following officers were elected: president, Dr. Willis P. Butler; vice presidents, Drs. I. Henry Smith and E. L. Sanderson; secretary, Dr. Robert T. Lucas, and treasurer, Dr. Lewis Cass Spencer.——The Tri-State Medical Association—Arkansas, Texas, Louisiana—met at Texarkana, December 5-6. Officers were elected as follows: president, Dr. E. A. Chase, Texarkana; vice president for Texas, Dr. Frank Littlejohn, Marshall; vice president for Arkansas, Dr. L. J. Kosminsky, Texarkana; vice president for Louisiana, Dr. Edgar L. Sanderson, Shreveport, and secretary-treasurer, Dr. Frank Walke, Shreveport.

MARYLAND

Baltimore Election.—The Baltimore City Medical Society elected the following officers at a meeting held December 7, in Osler Hall: president, Dr. Gordon Wilson; vice president, Dr. Charles F. Blake; secretary, Dr. John T. King, Jr., and treasurer, Dr. C. Emil Brack.

Memorial Service to Dr. Halsted.—In memory of Dr. William S. Halsted, surgeon-in-chief of the Johns Hopkins Hospital, the Johns Hopkins University and hospital will hold a public meeting, December 16, at "Homewood," the university group. Addresses will be made by Dr. Rudolph Matas, New Orleans; Dr. John M. T. Finney, and Dr. William H. Welch, both of Baltimore.

Personal.—Dr. John M. Nicklas has been appointed medical consultant of the Maryland Tuberculosis Association.——Dr. Julius Bauer, professor in the medical department of the University of Vienna, lectured before the Baltimore City Medical Society, December 7, on "The Endocrine Glands and the Individual Constitution." The discussion was opened by Dr. Lewellys F. Barker and Dr. John C. Hemmeter.

MASSACHUSETTS

Diploma Inquiry Grows.—William E. MacDougall and Joseph C. Jasper of Boston and William Chase of Wakefield have been arrested in the cleanup of irregular chiropractors

by request of the public safety department, it is reported. The charge against the men is failure to possess state certificates to practice. This marks the beginning of a statewide investigation in Massachusetts.

MICHIGAN

Chiropractor Sentenced.—According to reports, Elmer G. Green, Belding, was sentenced to three months in the county jail by Judge Hawley, November 17, for practicing without a license. The judge in pronouncing sentence said that if Green should violate the law again he would get the maximum sentence.

Physicians Guests of Dentists.—The First District Dental Society invited 1,200 physicians and their wives to hear Prof. Elmer V. McCollum, Ph.D., of Johns Hopkins University Medical School, Baltimore, lecture on "The Place of Nutrition in the Program of Preventive Dentistry," December 6, in Detroit. Dr. Arnold L. Jacoby, city psychiatrist, spoke on "Crime and Criminals" at the dinner given in connection with the meeting.

Personal.—Dr. Rollin H. Stevens, Detroit, president of the Radiological Society of America, addressed the Kent County Medical Society, November 14, on "Physiotherapy," at Grand Rapids.——Dr. Eugene S. Thornton, chairman of the board of health of Muskegon, tendered his resignation, November 26, as he will in future reside in North Muskegon.——Dr. and Mrs. Albert B. Grant, Detroit, celebrated their golden wedding, November 19.——Dr. Hugh Cabot, dean of the University of Michigan Medical School, Ann Arbor, addressed the San Francisco (Calif.) Academy of Medicine, December 7, on "Infection of the Kidneys."

Public Health Conference.—The third annual conference of health officers and public health nurses of Michigan, was held in Lansing, December 12-14, under the auspices of the department of health and the state public health association. It also marked the semicentennial of the founding of the first state board of health in 1873. Dr. W. S. Rankin, state health commissioner of North Carolina; Dr. George E. Vincent, president of the Rockefeller Foundation, and Dr. O. D. Kimball, Cleveland, addressed the sessions. It was announced that a goiter survey will be conducted in four selected counties, covering the entire school population.

MINNESOTA

Chiropractors' Certificates Refused.—It is announced that the Minneapolis Board of Education has refused to accept health certificates signed by chiropractors.

Personal.—Dr. Bruce W. Jarvis, Minneapolis, has accepted a position as medical missionary to China under the auspices of the Methodist Episcopal Church.——Dr. Henry M. Bracken, Minneapolis, formerly secretary and executive officer of the state board of health, has been appointed consultant on public health administration with the American Social Hygiene Association, an organization under the National Health Council. His headquarters will be in New York City.——Dr. Maurice G. A. Milan, for the last four and one-half years medical director of the Oakland Park Sanatorium, Thief River Falls, has resigned.

MISSOURI

Personal.—Dr. George P. Ard, state health supervisor of the eleemosynary board, resigned, December 10, to reside in Pennsylvania.——Dr. Walter R. Moore, St. Joseph, has been awarded one of the resident and travel scholarships for physicians given by the American Child Health Association.

Chiropractors Balk at Questionnaires.—Reports of the canvass being made by the police, at the instance of the state board of health, to register all licensed and unlicensed health practitioners in St. Louis, indicated that chiropractors are refusing to fill out the questionnaire on the ground that they are not properly recognized by the state board. The names of the St. Louis chiropractors refusing to fill out the questionnaire will be certified to the health commissioner along with their reasons for noncompliance.

NEBRASKA

Personal.—Dr. Andrew J. Jenison, Harvard, president pro tem. of the house of delegates of the state medical society for the last two years, has retired from active practice.——Dr. J. Jay Keegan of the University of Nebraska College of Medicine, addressed 200 students, constituting the premedical group of the state university, at a dinner, November 9.

Society News.—Drs. Theodore H. Koefoot and Charles I Mullins, both of Broken Bow, were elected president an secretary-treasurer, respectively, of the Custer County Med ical Society at the annual meeting at Broken Bow, Novembe 15.——Dr. Gerald B. Webb, Colorado Springs, Colo., gav a lecture on "Tuberculosis" before the Lancaster Count Medical Society, at Lincoln, November 3.——Dr. Bertran W. Sippy, Chicago, was guest of honor at a meeting o the Omaha-Douglas County Medical Society, at Omaha December 11.

NEW JERSEY

Physician Fined.—According to reports, Dr. Edward Ruberto, carrying an Italian diploma, was fined $25, by Judge Cleary, October 26, for practicing medicine in Bound Brook without a New Jersey state license.

NEW YORK

Physicians Buy Health Resort.—A number of Buffalo medical men of which Dr. Walter S. Goodale, superintendent of the Buffalo City Hospital, is head, have purchased the Jackson health resort at Dansville which was established in 1858 by Dr. James Caleb Jackson, and remained in the Jackson family until the World War when the government took it over.

Milbank Foundation.—Twenty-one classes in home hygiene and care of the sick with 346 in attendance have been organized in Cattaraugus County under the auspices of the Milbank Health Demonstration Fund of New York and the Olean and Salamanca Red Cross chapters. A class of eight Indian women of the Seneca tribe has been organized on the Allegheny Indian Reservation in charge of a Milbank demonstration nurse.

Quacks in New York.—Governor Smith called a conference in the Executive Chamber, Albany, December 7, to discuss measures to protect the people of his state in view of the recent disclosures concerning the diploma mills. Representatives of the state medical society were present. Dr. Matthias Nicoll, Jr., state health commissioner, recommended, December 1, that the medical practice act in New York be amended to make it more effective.

War on quack dentists was officially opened when Attorney General Sherman and Dr. Minor J. Terry, secretary of the state dental board of examiners, began an investigation of all dentists of the state, December 6. Irving Lipton, a dentist of the Bronx, was sentenced to six months in jail for practicing without a license. He had previously been fined $50 for a similar offense. He was a tailor by trade, it is alleged, and had no schooling in dentistry. It is estimated that there are from 500 to 1,000 bogus dentists in New York City alone.

In order to insure protection to the public and prevent them from falling into the hands of fake medical practitioners the Kings County Medical Society of Brooklyn is issuing cards to every one of the 1,700 members of the society, signed by the president and the treasurer, which will serve as a guarantee to the patient that he who presents it is an authorized physician. Before a physician can obtain such a card he must first get a certificate from the county clerk and present it in person to the society.

New York City

Personal.—Dr. Georges Portman, of the University of Bordeaux, arrived in this city recently to lecture in New York, Boston and Philadelphia, Montreal and Quebec.

New York Academy of Medicine Elects.—At a meeting of the New York Academy of Medicine, December 6, the following officers were elected: vice president, three years, Dr. Herbert S. Carter; corresponding secretary, three years, Dr. D. Bryson Delavan; treasurer, three years. The president is elected for a two-year term; Dr. George David Stewart continues to hold this office.

Complaints Against Quacks.—All complaints against unlicensed physicians, dentists, midwives and pharmacists received by the police and health departments and by social agencies will be turned over to the district attorney's office for investigation. This decision was reached, December 6, at a conference of officials of the two city departments and representatives of the Medical Society of the County of New York. The county medical society alone has been investigating an average of two complaints a week of unlicensed practitioners in Manhattan. The district attorney will appoint an assistant to investigate these complaints, and prosecution in special sessions will follow when evidence warrants.

OHIO

Chiropractors Jailed.—According to reports Dr. W. L. ller and Dr. Eva G. Sauer, chiropractors of Findlay, went the county jail, November 19, in preference to paying a fine $25 and costs, for practicing medicine without a license. —According to reports, J. G. Klein and David A. Stemen, iropractors of Defiance, were fined $50 and costs each by ayor Marlatt, November 21, for practicing medicine with- a license. The men were jailed on failure to pay the es.

Hospital Merger.—Announcement has been made that the ton Hospital and the Good Samaritan Hospital, Cincinnati, th operated by the Sisters of Charity, will merge. The ton Hospital will be abandoned and a new pavilion erected the grounds of the Good Samaritan Hospital in the spring a cost of $500,000. This wing will provide 200 beds and clude an outpatient department and a roof garden for tuber- lous (bone) cases; an entire floor will be devoted to goiter ses.

OKLAHOMA

State Health Officer Resigns.—Dr. Albert E. Davenport, ate health commissioner who, it is reported, was charged ith paying former Governor Walton's chauffeur from funds the state health department, has resigned.

PENNSYLVANIA

Safety Campaign for Industry.—An increase of 35 per cent. the casualty list of Pennsylvania industry in eleven months this year, as compared with the whole of 1922, was nounced, December 7, by Dr. Royal Meeker, secretary of ie state department of labor and industry. This does not clude mines and public utilities. Increase of industrial acci- nts can be attributed in part to a greater number of per- ns employed, increased production, lack of safety education r adoption of safety methods, and the "let-up of interest in fety."

Philadelphia

Children Honor Leidy.—In connection with the memorial eetings celebrating the centenary of Dr. Joseph Leidy, t the Academy of Natural Sciences and the College of hysicians, more than 350 pupils of the Joseph Leidy Public chool assembled on the west side of City Hall Plaza and laced a wreath on the statue of Dr. Leidy.

Maternity Welfare.—A committee was appointed some eeks ago by the Philadelphia County Medical Society to raft measures to reduce the mortality rate among mothers. t a meeting, November 28, it was recommended that the roblem be submitted to an organization such as the Rocke- eller Foundation for investigation.

Clinics Throughout the State.—Organization of the entire tate of Pennsylvania in the war on heart disease and the stablishment of "heart clinics" in the leading towns and ities is the program of the Philadelphia Association for the revention and Relief of Heart Disease. One "heart clinic" as been established in Pittsburgh; another in Harrisburg nd another in Reading. In its two years of existence, the hiladelphia association has established nineteen heart clinics t local hospitals. According to the executive secretary, the ortality from heart diseases has been:

1919	3,123
1920	3,275
1921	3,509
1922	3,803

TEXAS

Physician Sentenced.—Dr. W. B. Pruitt, Glen Rose physi- ian, was sentenced to two and one-half years in the state penitentiary, November 23, when he pleaded guilty to viola- tion of the Volstead Act. Dr. Pruitt will file an appeal.

Health Conference in Mexico.—Dr. William H. Beazley, state health officer, with Dr. Hinkle Garst, director of child hygiene; Dr. John R. Mahone, in charge of border control work, and a sanitary engineer left for Mexico by way of Laredo, November 25, to attend a public health conference by invitation of President Obregon (THE JOURNAL, November 10, p. 1617). The mission spent six days in conference with government officials on yellow fever control and spread of communicable diseases, the infant death rate along the border, violations of the Harrison Narcotic Law and the advancement of sanitation in border towns. Restriction of immigration of persons likely to spread communicable diseases, mosquito control and child welfare work supported by border sections were also discussed.

VIRGINIA

Physician Honored.—At the seventh annual meeting of the Association of Surgeons of the Chesapeake and Ohio Railroad, Dr. William T. Oppenheimer, Richmond, chief surgeon, was presented with an automobile by fellow members of the association.

Puerperal Deaths.—A study of all deaths in Richmond from puerperal causes has been made in the last three years. The white death rate has been gradually reduced in the last sixteen years from 22.2 per hundred thousand in 1907-1911; 20.1 in 1912-1916; 17.9 in 1917-1921 to 10.5 in 1922. The colored death rate from puerperal causes has decidedly increased, being 33.7 in 1907-1911; 42.5 in 1917-1921, and 38.4 in 1922. The death rate from septicemia has decreased from 10.6 per hundred thousand population in 1907 to 6.2 in 1922.

WASHINGTON

Hospital News.—Cushman Hospital, Tacoma, known as U. S. Veterans' Bureau Hospital No. 59, has been enlarged to care for disabled ex-service women in the Northwest. Two buildings have been set aside to care for former nurses, yeomanettes, telephone operators and other women enlisted in the army and navy. One section will be used for tuberculosis cases and the other for psychiatric cases.——A new sixteen bed ward for children has been added to Oakhurst Sanatorium, Elma, under the auspices of the Kiwanians.—— Monroe Hospital, Monroe, has been sold by Drs. Charles H. Soll and Herman K. Stockwell to Drs. Allison, Tacoma, and James A. Durant, Snohomish.——A sanatorium has been opened by Dr. Albert Lessing, Leavenworth, at the foot of the Cascade Mountains.——Dr. Leon M. Wilbor has arrived in Tacoma to take charge of the neuropsychiatric U. S. Veterans' Hospital, under construction at American Lake.

WISCONSIN

Society News.—At a meeting of the committee on public policy and legislation of the Milwaukee County Medical Society, November 26, the members favored a plan to protect the public against fake physicians and fake clinics. A subcommittee was appointed to cooperate with public officials and newspapers in bringing to light any questionable methods resorted to by practitioners.

CANAL ZONE

Bottled Milk for Zone.—A shipment of 20,000 bottles of milk to be sold at cost to milk dealers of Colon and Panama has been received by the health department of the Panama Canal. This action was taken in order to insure that only bottled milk will be sold in the terminal cities and in the Canal Zone.

Hospital News.—Capt. Henry J. Hayes, M. C., U. S. Army, has been assigned to duty at Corozal Hospital; Major J. M. White, M. C., U. S. Army, at the Ancon Hospital, and Lieut.-Col. S. J. Morris, M. C., U. S. Army, has reported for duty as department medical inspector and assistant to the department surgeon, Col. Henry Webber, M. C., U. S. Army.—— Weekly clinical meetings are held at the Ancon Hospital, on Thursdays, and once a month there is a journal review at which résumés of recent medical literature are presented. Visiting physicians are always welcome. Attendance at the clinical meetings consists of representatives of the Medical Corps of the Army and of the Navy, the U. S. Public Health Service and the local health officials and medical profession.

PHILIPPINE ISLANDS

Epidemic of Anthrax.—According to reports 1,000 carabaos (water buffalo) have died from anthrax in central Luzon during the last few weeks, which seriously interferes with agricultural activities. The Philippine government has assigned every available veterinarian to work in the area in which the epidemic is raging and the United States has been requested to detail troops to assist in the enforcement of quarantine regulations.

CANADA

Canada's Opinion of E. R. A.—The *Canadian Medical Association Journal* in a reply to an inquiry about the electronic reactions of Abrams states that in their opinion "the use of Abrams' machine by members of the medical profession, other than for the purpose of investigation and experimentation, is

unjustifiable and unethical; and that exploitation of the machine for personal and financial gain is gross quackery and fraud."

Personal.—Dr. Samuel Hanford McKee has retired as secretary of the Montreal Medico-Chirurgical Society following seventeen years' service. Members of the society presented Dr. McKee with a gold fountain pen.——Professors Archambault and Fournier are giving a course of lectures on "The Treatment of Venereal Disease" at the Notre Dame Hospital, Montreal.——Dr. V. M. MacDonald, director of the Child Welfare Association of Montreal, was selected as one of the Canadian delegates to the American Child Health Association Convention in Detroit.——Dr. Thomas J. W. Burgess, since 1890 superintendent of the Protestant Hospital for the Insane at Verdun, has retired as active manager of the institution. Dr. Carlyle A. Porteous will succeed him.——Dr. John Copeland has been appointed assistant superintendent of the Montreal General Hospital to succeed Dr. Donald C. Smelzer who has gone to Buffalo, N. Y., to assume the post of assistant superintendent of the General Hospital there.

GENERAL

Notice of Change of Address.—Physicians are reminded that it is neeessary under the present law to notify the collector of Internal Revenue, narcotic division, of any change in office address. Failure to do so means a fine of 25 cents for each month passed since removal, and an additional fine at the next registration to prescribe narcotics.

Prize for Scientific Work.—The American Association for the Advancement of Science announces that to mark the seventy-fifth anniversary of the association, a member has donated $1,000 to be awarded as a prize to the author of a paper containing a notable contribution to the advancement of science, presented at the Cincinnati meeting either before the association or before one of the affiliated societies.

Western Surgical Association.—At the annual meeting of the Western Surgical Association at Colorado Springs, Colo., December 6-8, the following officers were elected: president, Dr. Donald MacCrae, Jr., Council Bluffs, Iowa; vice presidents, Drs. Lewis H. McKinnie, Colorado Springs, and Edmund D. Clark, Indianapolis, and secretary-treasurer, Dr. Harry P. Ritchie, St. Paul. French Lick Springs was chosen as the meeting place for the 1924 convention.

Tri-State Medical Meeting.—At the annual meeting of the Tri-State Medical Society of Arkansas, Mississippi and Tennessee, held at Memphis, Tenn., November 20-22, under the presidency of Dr. Carl M. Harwell, Osceola, Ark., the following officers were elected for 1924: president, Dr. Landon A. Yarbrough, Covington, Tenn.; vice presidents, Drs. T. J. Stout, Brinkley, Ark.; William H. Anderson, Booneville, Miss., and Benjamin C. Arnold, Jackson, Tenn. Drs. Arthur F. Cooper and James A. Vaughan, both of Memphis, were reelected secretary and treasurer, respectively.

National Research Council.—The following resolutions were passed by the council at the meeting of the interim committee recently:

Whereas, An accurate knowledge of thermal effects connected with chemical processes is of the highest importance to the chemical and metallurgical industries, and whereas there does not exist in this country at the present time any bureau, laboratory or other organization devoted to investigations in this field; therefore be it

Resolved, That the National Research Council, acting on the recommendation of the division of chemistry and chemical technology, direct the secretary to bring this matter to the attention of the director of the U. S. Bureau of Standards and urge him to create within the bureau a laboratory which shall be devoted primarily to research in this field; and further, be it

Resolved, That the National Research Council assist and support the director of the Bureau of Standards in any efforts which he may make in this direction.

New Methodist Hospitals.—The Methodist Episcopal Church announces that more than $16,000,000 has been added to the properties and endowment of the hospitals, children's and old people's homes of the church since 1920. During the last year the total value of buildings dedicated was $3,450,000, and the value of buildings nearing completion is $2,445,000. Nearly $2,500,000 was raised in special campaigns during the last year. The church has today eighty-one hospitals, forty-four homes for children, thirty-nine homes for the aged and eleven other institutions of a total valuation, with endowment, of $40,000,000. During the last year 4,000 orphans and half-orphans were cared for and 1,800 men and women. Many of these hospitals are in districts where before their construction there were no such institutions within a range of 100 to 200 miles.

Society News.—The American Sanatorium Association will hold a meeting in Philadelphia, December 14-15, devoted to treatment. Among the speakers will be Dr. Lawrence F. Flick, founder and director for many years of the White Haven Sanatorium, White Haven, Pa., and Dr. T. Mill Tyson, director of the Rush Hospital for Consumptives, Philadelphia.——The fourth annual meeting of the Association fo Research in Nervous and Mental Diseases will be held New York City, December 27-28, under the presidency Dr. Walter Timme.——Section N, medical sciences, of th American Association for the Advancement of Science wi meet at Cincinnati, December 29. The morning program co sists of a symposium on "Interrelated Problems of Medica Workers" and the afternoon session a symposium on th "Endocrines." Among the speakers will be Dr. Richard Strong, director of the department on tropical diseases, Har vard University, Boston; Prof. Henry B. Ward, Universit of Illinois; Dr. John R. J. MacLeod, University of Toronto Canada, and Dr. George W. Crile, Western Reserve Univer sity, Cleveland.

Death of William Whitford.—Two hours after his retur from reporting the meeting of the Western Surgical Asso ciation at Colorado Springs, Colo., Mr. William Whitford for thirty-four years official medical stenographer for th sessions of the American Medical Association, state, district county and international societies, died suddenly in Chicago December 11, of myocarditis, at the age of 66. At the sessions of the seventy-fourth annual meeting of the American Medical Association in San Francisco last June, resolutions were passed praising the work of Mr. Whitford in reporting thirty-four consecutive meetings of the Association and the proceedings of the House of Delegates ever since its organization. A rising vote of appreciation in recognition of his services was extended by the House. At the last meeting of the Tennessee State Medical Association Mr. Whitford was made an honorary member of the society. He was passing through Chicago on his way to White Sulphur Springs, Va., to report the meeting of the Southern Surgical Association. Mr. Whitford with his quiet retiring manner, was liked and respected by all who knew him.

At its regular meeting held December 12, the Executive Committee of the Board of Trustees of the American Medical Association adopted the following resolution:

"Mr. William Whitford, who for many years, served as the official stenographer at annual sessions of the House of Delegates and at various Sections and Committees of the Association, died suddenly at his home at Oak Park, Illinois, on Monday, December 10. The Executive Committee of the Board of Trustees and the officials at the headquarters of the American Medical Assocaton wish to place on record in the minutes of the Board a sincere expression of the respect and regard for the long and efficient services which Mr. William Whitford rendered the Association, and also for his manliness and high character."

Death Rates for 1922.—The Department of Commerce announces that compilations made by the Bureau of the Census show a mortality rate for the registration area of 11.8 in 1922 against 11.6 in 1921 per 100,000 population. Six states—Michigan, Mississippi, Ohio, Pennsylvania, Virginia, Wisconsin—show lower mortality rates for 1922 than for 1921. The lowest 1922 state rate (8.1) is that of Idaho and the highest (14.7) that of Maine and Vermont. The lowest rate for cities which at the last census had populations of 100,000 or more was that of Akron (7.5); the highest (17.8) that of Memphis. Crude rates by no means tell the whole story regarding the healthfulness of different localities. Occupations, race stock, the sex and age distribution of the population, and the relative number of deaths of nonresidents must be determined before one city or state can be considered more healthful than another. For example, death rates adjusted for the age and sex composition of the populations in different states, show what the death rate would be if all states had the same proportion of males and females, and the same proportion of the total population in each age group. Thus adjusted the 1922 rates are lowest (9.1) for Nebraska and highest (13.5) for Colorado; while for cities the lowest adjusted rate (9.2) is for Akron; the highest (19.3) for Memphis.

Office of Prohibition and Narcotic Information.—Drugs valued at approximately $500,000 seized by narcotic agents throughout the country during the last three months, and which have no value for medicinal purposes, were destroyed, November 20, by a committee appointed by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury. The drugs destroyed include diacetylmorphin hydrochlorid (heroin), coca leaf powder, opium, morphin tablet tritulates, codein, ethyl morphin hydrochlorid (dionin), codein phosphate, cocain hydrochlorid, morphin, gum opium, paregoric, laudanum, toothpastes made largely of cocain, eye salves containing cocain and morphin, and other preparations

taining narcotic drugs. Under the law, every three months narcotic agents in charge list drugs which have been zed, and ship them to the head of the Narcotic Division. ese drugs are forfeitable to the government under the law er the seizure has been analyzed and has served its pur- e in court. In pursuance of law, all of these narcotic igs which are not fit for medicinal purposes are disposed by the duly appointed committee, after they have been efully checked. Such drugs as are fit for medicinal pur- es are turned over to the Public Health Service for use the various institutions and hospitals throughout the ntry.

The President's Message.—The message of President olidge touched on two points of definite interest to the med- l profession. It apparently is the purpose of the President carry out the program of the late President Harding with erence to the reorganization of the various departments and reaus of the government on a more efficient basis than at esent. In his message, the President said:

"A special joint committee has been appointed to work out plan for a reorganization of the different departments and reaus of the government, more scientific and economical an the present system. With the exception of the consolida- n of the War and Navy departments and some minor details, e plan has the general sanction of the President and the binet. It is important that reorganization be enacted into w at the present session."

He also recognized the problem presented by the education physicians for the negro, about which he said:

"Already, a considerable sum is appropriated to give the groes vocational training in agriculture. About half a illion dollars is recommended for medical courses at oward University to help contribute to the education of 500 lored doctors needed each year. On account of the migra- n of large numbers into industrial centers, it has been oposed that a commission be created, composed of members both races, to formulate a better policy for mutual under- anding and confidence. Such an effort is to be commended. very one would rejoice in the accomplishment of the results hich it seeks. But it is well to recognize that these diffi- ilties are to a large extent local problems which must be orked out by the mutual forbearance and human kindness of ch community. Such a method gives much more promise t a real remedy than outside interference."

Comment on Connecticut Medical Licensure Scandal.—As as pointed out in THE JOURNAL last week, one of the most gnificant results of the present scandal in medical licensure as been the turning to it of the editorial attention of the ress. Suddenly, the evils to which THE JOURNAL has repeat- dly called attention for years, have begun to receive the ublic attention that may possibly result in their removal. ewspaper comment has, in general, been a recognition of ie way in which the medical profession has endeavored to urge itself of the unqualified and disreputable.

The New York *Evening Post* was prompt to credit the merican Medical Association with its important work. It iscerns "a striking lesson in the propriety of setting up a ingle state examining board, and asking the medical profes- ion to keep an eye upon its standards. Connecticut has had ix boards, with a resulting lack of responsibility." And, the *ost* continues:

Standards of medical education in the United States are now at a afe height. School after school, state board after board, has adopted he rule that two years' collegiate work shall be required before dmission to the medical course, till it is in general force. The Amer- an Medical Association and the Council on Medical Education declared 1 1916 for a standard of four years' actual medical training, followed y one year in hospital, and this has been widely accepted. But we till have to guard against scoundrels who are outside the law, and gainst representatives of various pseudoscientific "isms" who try to limb over the law.

The *British Medical Journal,* in its issue for December 1, ommenting on this exposé of conditions that have existed n this country, closes its editorial:

The Journal of the American Medical Association has long carried on a very spirited fight against the degradation of the profession of nedicine by quackery, licensed and unlicensed. In one respect eformers in the United States are worse off than we are, because the icensing of practitioners of medicine is not a national matter, but one eserved to each state of the Union. The Journal, however, has pegged way, and one legislature after another has been convinced until now he backward states can be counted on the fingers of one hand.

The Boston *Transcript* recognizes that responsibility rests clearly with the state:

The quack, to be sure, we shall no doubt always have with us. There will always be a numerous class of sufferers who prefer the charlatan. No state can endow its citizens with common sense. But the state can at least prevent such wholesale exploitation of the credulity of the ignorant as now prevails.

The Pottstown, Pa., *News* seems to have considered the physician's point of view, primarily pointing out that it is the duty of the state to protect its public and its honest medical profession.

In rounding up the quack doctors who are practicing under the diplomas of fake medical schools, the state authorities are doing the public an important service, even though somewhat belated. The qualified physician spends years in preparation for his work. . . . Very often he works without pay. His certificate of graduation and his state license are his guarantees of good faith with his patients. Any wonder, then, that he should feel that when the state permits an illegal or fake practitioner to practice "right under his nose" there is something wrong and unjust about it? Why should he have been required to spend years in college and in training at great expense and personal sacrifice, while this irresponsible person can go about with but a few months' preparation and a certificate from a fake medical school and rake in the sheckels from those who are led to put their belief in him?

The Pennsylvania *Inquirer* sees in the present scandal another exemplification of the gullibility of the public.

Americans are greatly given to experimenting on themselves in cases of illness, real or imaginary. Nowhere do "remedies" for this or that disorder have a wider and more indiscriminate sale. Many are never happy without this self-dosing. The medical profession is laying stress in these days upon the prevention of disease by the observance of sanitary laws and avoiding so far as possible the use of drugs. But thousands of otherwise intelligent persons cling to the habit of "taking something" whenever their physical condition is below par.

That is one reason—perhaps the chief reason—why quackery flourishes. People not only prescribe for themselves, but they also let any one who makes a pretense of knowledge prescribe for them.

The Chicago *Evening Post* points out the fact that Illinois has had its medical scandals in the past, and that states must be ever vigilant to prevent the inroads of impostors, and says:

The outcome of the Connecticut investigation may serve to impress on the public generally the importance of supporting the medical authorities in efforts to rid the profession of those not qualified for the practice of medicine. The public and its representatives in legislatures and Congress should endeavor to make rigid the safeguards which should be thrown around the medical profession. The promoter and distributer of fraudulent securities are punished for mulcting the investor of his savings, and even more drastic penalties should be imposed upon the unscrupulous who trifle with human life.

What should be the remedy? In New York State, the health commissioner has proposed annual registration as a method of controlling medical practice. While this method has some advantages, it is also subject to most serious disadvantages. Indeed, the New York *Mail* feels that it is unfair for the state to place an additional burden on the medical profession, when it is the duty of the state to protect the profession:

If the quack will take a chance on practicing without a state license now, he will be apt to take a chance on the registration system. His patients have no means of checking up his conduct in this respect, and his chance of escaping detection would seem to be neither worse nor better than they would be at present if systematic watch were kept up by health boards and the local medical organizations.

But to the reputable practitioner the annual license is an insult and a nuisance. Why should he be singled out for such aggressions? Already he is under many vexatious requirements imposed by drug and liquor laws, and he does a considerable amount of statistical work for the state gratis. These may be necessary incidents of his calling, but at least they should be limited as far as possible. To inflict a new obligation on ten thousand honorable men on a vague chance of catching one crook seems hardly fair.

The New York *Times* considers the provision of a single nonpartisan, nonpolitical board in each state the factor of primary importance:

In no state should there be more than one medical examining board, and that one alone should issue licenses to practice medicine. . . . Not one of the men licensed by such a board would claim universal efficacy for any form of treatment. Whoever does that is instantly revealed as a quack, either ignorant or dishonest, and he is not any the less a quack because he can produce "testimonials" from grateful patients, including the familiar legislator whose close relative was saved from fast approaching death by an "irregular" after he, or more often she, had been given up by anywhere from one to a dozen "regular" doctors.

The Louisville *Herald* recognizes the importance of educating the public to understand the difference between scientific medicine and the vagaries of the cults:

The remedy for quacks lies quite as much in a more enlightened human nature as in a rigid inspection. The protection of properly qualified medical boards of examination goes a long way, but the public must do its share. The requirements of such boards cannot well be too high, nor their vigilance too alert. . . . There are numbers of people who seem to take delight in "cures" and proceed from one fake to another. For them we fear there is no remedy. They are, as it were, addicts and beyond hope.

We must not forget to quote the *Christian Science Monitor,* which, as might have been expected, makes the present incident an occasion for attack on the entire medical profession. It emphasizes the widely heralded statement of one of the men under indictment that there are "25,000 quacks scattered throughout the country," and it continues:

But chief interest will center in the involuntary confession, circumstantially made, that physicians of the "regular" school stand ready to condone and cover up the mistakes of all their brethren whom they assume to be authorized to "practice" upon their confiding victims. In this willingness to overlook "professional" mistakes, the public sees a tendency as menacing, perhaps, as that offered by so-called quacks who buy their credentials from diploma mills and their practice from established physicians.

LATIN AMERICA

Inauguration of the Peruvian Medical Society.—The *Reforma Médica* hails the foundation of the Círculo Médico Puruano as the third great milestone in the progress of the profession in Peru. The two others were the erection of the medical school in 1856 and the foundation of the Academia de Medicina in 1887.

FOREIGN

Plague in Constantinople.—The presence of plague is officially announced in Constantinople, Ecuador and Peru. The cases are not numerous.

Pro Leprosis.—This is the name of a new international society founded by Prof. V. d'Amato, of the chair of dermatology at Rome, to aid those who are willing to aid lepers in any country. Amato asks for suggestions, contributions and assistance in propaganda. His address is via Cesare Battisti, 133, Rome.

Span of Life in Japan.—A pamphlet entitled *Primary Lessons in Hygienics,* compiled by the foremost professors by order of the government, and recently issued by the Japanese Department of Home Affairs, announces that statistics show that the average life of a Japanese is as low as 30 years, while that of the European is 50 years.

Medical Days.—The success of the Brussels' "Three Medical Days" has inspired Lisbon to a similar enterprise. The *Medicina Contemporanea* announces that a "National Medical Week" is being organized at Lisbon, when the hospitals and clinics will welcome medical guests, and authorities will lecture on recent progress in medicine.

Memorial to Roentgen.—At a meeting of the British Roentgen Society, recently, it was agreed that in order to commemorate the work of the late Professor Roentgen an annual award of $50 (or its equivalent in books or apparatus) shall be presented to the member of the society whose contributions during the session relating to the science or practice of medical or general radiology, are most distinctive.

Centenary of Medical Book Club.—A dinner was held, November 14, in celebration of the hundredth anniversary of the foundation of the Lancaster (England) Medical Book Club, which was founded, Nov. 11, 1823. The original minute book was shown containing the following: "It is expedient to establish a society to be called the Lancaster Medical Book Club to consist of the gentlemen present and such other medical gentlemen resident in Lancaster as shall hereafter be elected."

Seventy-Fifth Anniversary of Belgian Medical Journal.—On the recent seventy-fifth anniversary of the foundation of the *Scalpel,* it was planned to offer a tribute of appreciation to Dr. L. Dejace who has been editor and manager for forty years. His portrait in oils will be presented to him, and all subscribing 10 francs or more to the fund will receive a large photograph of the portrait. The ceremonies are to include a banquet. Dejace is honorary president of the Féderation médicale belge.

Trachoma in Indo-China.—Reports from the French Ophthalmic Hospital, Hanoi, Tonkin, state that from 1917-1920 a large increase (in comparison to other diseases) in the number of trachoma cases coming for treatment was noticed. During that period 16,625 operations were performed, and of these 13,576 were for trachoma and its complications.——In Annam trachoma furnishes 36 per cent. of the outpatients, 50 per cent. of the inpatients, and 69 per cent. of the operations, and easily ranks first as a cause of blindness.

University News.—At a special meeting of the University of Glasgow, Scotland, Court, presided over by the Lord Rector, the establishment of the Samson Gemmell chair in medical pediatrics was approved. The chair is to be associated with the Royal Hospital for Sick Children.——The appeal for a quarter of a million pounds to erect the new science wings of the University College of South Wales and Monmouthshire at Cardiff, has resulted in £156,000 ($700,000) being subscribed. Lord Glanely gave £10,000 and Sir David R. Llewellyn, £28,000.

Anthrax in Australia.—The first case of anthrax infection in man to be reported in Australia was in 1917; since then thirty-two others have been reported. Of the thirty-three cases reported, thirty-one occurred on the shaving area; two on the forearm were traced to infected goatskins. The majority of infected brushes entered the country from Japan. Importation of brushes from certain countries was then prohibited. Japan agreed to guarantee disinfection and the embargo was lifted. No cases of anthrax has been traced since to imported brushes.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 26, 1923

Insanity and Criminal Responsibility

For many years the defense of insanity in cases of cri have given rise to acute differences of opinion in the cour Judges follow the McNaughton rules, so called because th were laid down half a century ago by a legal committee consequence of the plea of insanity in the case of McNaughto These rules make the criminal responsibility of a prison depend on the answer to two questions: Could he distingui right from wrong? Did he know the nature of the act wi which he is charged? Psychiatrists have uniformly contend that these tests are too narrow and are out of date, as th take no notice of uncontrollable impulse arising from ment disease. This defense is very repugnant to the legal min and judges have regarded it almost as an attempt to assun insanity because some heinous crime was committed. In t words of one luminary, they "refuse to take the law fro Harley Street." A committee was therefore appointed by t government to consider what changes, if any, are desirab in the existing law when the plea of insanity is raised. T committee, which consisted entirely of judges and emine lawyers, has presented a report which must be regarded as victory for the medical profession. The committee recom mends that it be recognized that a person charged with a offense is irresponsible when the act is committed under a impulse which he was by mental disease deprived of an power to resist. Save as above, the rules in McNaughton' case should be maintained. When a person is found to b irresponsible on the ground of insanity, the verdict should b that the accused did the act (or made the omission) charged but is not guilty, on the ground that he was insane so as no to be responsible, according to law, at the time. Accuse persons should not be found on arraignment unfit to plea except on the evidence of at least two physicians, save i very clear cases. Provision should be made for examinatio of an accused person by an expert medical adviser at th request of the prosecution, the defense, or the committing magistrate.

MEDICAL VIEWS AT VARIANCE

Evidence was given on behalf of the British Medical Association and the Medico-Psychological Association. Unfortunately, the views of these two bodies were, on the main question, in opposition. The British Medical Association would retain the existing law with a modification as to lack of control; the Medico-Psychological Association would sweep away the present rules and substitute other questions for the jury. The committee could not accept the recommendation of the Medico-Psychological Association and concur with the views of the British Medical Association. The conclusions arrived at by the Medico-Psychological Association were: 1. The legal criteria of responsibility expressed in the rules in McNaughton's case should be abrogated and the responsibility of a person should be left as a question of facts to be determined by the jury. 2. The judge should direct the jury to answer the questions: (*a*) Did the prisoner commit the act alleged? (*b*) If he did, was he at the time insane? (*c*) If he was insane, has it nevertheless been proved to the satisfaction of the jury that his crime was unrelated to his mental disorder? One of the difficulties of the committee as to this view was that the Association gave no clue as to what it regarded as the test of criminal responsibility. It regarded insanity and irresponsibility as coextensive. All the witnesses were, in substance, agreed that the effect of *c,* which threw

the prosecution the onus of satisfying the jury that the of the person found to be insane was "unrelated" to his ntal disorder, would be to cast a burden which could not discharged, and that the question was otiose. The vague- s of the term "unrelated" was pointed out; and the phrase ntually was altered to "the mental disorder was not cal- ated to influence the commission of the act"; but the ficulty of proof was not altered by the turn of the phrase. e far-reaching effect of granting immunity to every one o could be said to be of unsound mind was perceived when medical conception of unsoundness of mind was con- ered: "Unsoundness of mind is no longer regarded as in ence a disorder of the intellectual or cognitive faculties. e modern view is that it is something much more pro- ndly related to the whole organism—a morbid change in emotional and instinctive activities, with or without intel- tual derangement. Long before a patient manifests delu- ns or other signs of obvious insanity, he may suffer from rely subjective symptoms which are now recognized to be less valid and of no less importance in the clinical picture what constitutes unsoundness of mind than the more pal- ble and manifest signs of the fully developed disorder which ty take the form of delusions, mania, melancholia or mentia."

THE QUESTION OF PUNISHMENT

The committee holds that "the existing rule of law is sound; t a person may be of unsound mind and yet be criminally sponsible. A crime no doubt implies an act of conscious lition; but if a person intends to do a criminal act, has e capacity to know what the act is, and to know the act is e he ought not to do, he commits a crime. Whether he ould be punished for it is not necessarily the same question. vo of the objects of punishment are to deter the offender m repeating and others from committing the offense. If e mental conditions presupposed exist, punishment may be irly inflicted. It is probable that the offender and others ll be deterred.

UNCONTROLLABLE IMPULSES

It was established to the satisfaction of the committee that ere are cases of mental disorder in which the impulse to a criminal act recurs with increasing force until it is controllable. Thus, cases of mothers who have been ized with the impulse to cut the throats of, or otherwise stroy, their children, to whom they are normally devoted, e not uncommon. In practice, the accused is found guilty, t insane. In fact, the accused knows the nature of the act, d that it is wrong; and the McNaughton formula is not gically sufficient. Such cases should be brought expressly thin the law by decision or statute. The question to be termined should be, not whether the accused could control s conduct generally, but could control it in reference to the rticular act or acts charged. Lack of control would be levant to the question whether the lack of control in the rticular case was due to mental disorder or to a mere cious propensity.

FORM OF VERDICT

Juries are frequently, for brevity, instructed to return, if e facts warrant it, a verdict of "guilty but insane." This ems illogical. The verdict is one of acquittal. An accused nnot be "guilty" of a physical act which is not in itself an fense. The word "guilty" in criminal trials should connote ly criminality, the commission of a crime—the very thing nich on the finding as to the state of mind of the accused negatived. When insanity is such as to produce irrespon- bility, the accused is entitled to a verdict of acquittal of ime.

Cyanid Fumigation

Fatalities have been recorded from time to time among rsons engaged in cyanid fumigation. The ministry of health has had an investigation made by Dr. Richard J. Reece, the senior medical officer of the branch concerned with port sanitary administration. He visited the United States and also made inquiries in Holland and other European countries. He has presented a report in which he concludes that, whatever precautionary regulations are made, the safety of persons engaged in cyanid fumigation on board ship can be insured only by using a fumigating machine scientifically designed with full knowledge of the difficulties to be overcome. As the efficiency of cyanid fumigation for the destruction of rats and other vermin, the report leaves no doubt. But the law of diffusion of gases, and experiments carried out, point to the conclusion that the complete mixing of two gases by diffusion is a matter, not of minutes, but of hours. Analysis of samples of gas taken in different parts of a ship at various times during fumigation show that diffusion may be incomplete and that for thorough fumigation of large spaces it may be necessary either to increase the number of points at which the gas is generated or to arrange for artificial circulation. As diffusion is slow, the clearing of a ship from gas must depend almost entirely on the movement of air currents in the manner of ordinary ventilation. In certain circumstances it might be very difficult to clear the gas by natural ventilation without the use of fans, and pockets of gas might remain for many hours or even days in the lower part of the ship. It is therefore necessary to test the progress of ventilation systematically by means of rats or other methods, and it is dangerous to assume that a certain number of hours is sufficient for clearing under all conditions.

Comparative Death Rates and Infant Mortality

In reply to a question, the minister of health has given the following figures, which show how much we are in advance of other European countries:

Death Rate and Infant Mortality Rate of England and Wales and of Four Continental Nations

	1918	1919	1920	1921
England and Wales:				
Death rate	17.6	13.7	12.4	12.1
Infant mortality rate	97	89	80	83
Germany:				
Death rate	24.9	15.5	15.0	——
Infant mortality rate	154	121	131	134
Spain:				
Death rate	33.0	22.7	23.0	21.1
Infant mortality rate	183	156	165	147
France:				
Death rate	22.0	19.3	17.3	17.7
Infant mortality rate	140	123	99	115
Austria:				
Death rate	26.5	20.5	18.9	16.9
Infant mortality rate	193	156	147	

Research Expedition to Samoa

An important research expedition, arranged by the London School of Tropical Medicine to study in Samoa the prevention of filariasis and associated conditions, especially elephantiasis, has left England en route for New Zealand via Panama. The leader is Dr. P. A. Buxton, a physician and well known entomologist, and he is accompanied by G. W. Hopkins of Downing College, Cambridge. In New Zealand they hope to add to the expedition one or two medical students, who will be given the opportunity of studying under the best tutelage some of the problems which their government has to face in connection with its mandate over Samoa. The expedition hopes to demonstrate that the infection of man by the mosquito carrier of the filaria can be prevented by clearing away all the undergrowth round the masses of coconut palms, destroying the broken shells, thrown on one side in making copra, which harbor water, and by destroying the rhinoceros beetle, which drills into the trees, making holes that retain moisture in which the mosquito breeds. The natives will meanwhile be supplied with water from uncontaminated cisterns. Elephantiasis is largely responsible for the apathy and lack of initiative of the Polynesians, making

necessary the introduction of Chinese and Indian labor. The influenza epidemic carried off nearly a third of the people of Samoa; tuberculosis is increasing, and measles usually is fatal. All these problems are to be studied by the expedition, as well as the dysentery epidemic, which has been severe this year. It is hoped to arrange for the training of two or three women in each village in infant welfare work. Especially important will be the researches, hardly ever undertaken, into the effect of high atmospheric temperature and moisture on Europeans. Dr. Buxton also hopes to study the birds of Samoa and bring home a didunculus, a relative of the extinct dodo, which still survives in one area. A careful selection of entomological specimens will also be made.

PARIS

(From Our Regular Correspondent)

Nov. 23, 1923.

The Activities of the Optical Institute

Before the war, France was dependent on importation for its optical instruments, and Germany supplied 70 per cent. of our needs. The consequence was that, in 1914, the French optical instrument industry was not in a position to keep up with the heavy demand for optical instruments needed for national defense by the army. Impelled by necessity, France succeeded in organizing, in the midst of the war, an intensive production of instruments of precision. The geographic service of the army served as a clearing house for army orders, and in turn coordinated the efforts of the French manufacturers and distributed the orders among them. Thus the monthly production of optical lenses was increased from 4,000 kilograms in 1914 to 12,000 kilograms in 1918, or about 80 per cent. of the total production of the allies, a good result in view of the hasty character of the preparations. But a more stable organization was needed in order that France might manufacture instead of import the instruments for laboratories, factories and workshops. Convinced of this necessity, a group of leaders in science and industry, headed by M. de Gramont de Guiche, began to agitate for the creation of an optical institute to supply the optical industry with engineers and technically trained workmen, and to offer to manufacturers, when needed, the aid of its scientists and laboratories. Thus was created the Institut d'optique théorique et appliquée, the beginnings of which were announced in previous letters (The Journal, Sept. 20, 1919, p. 925, and May 8, 1920, p. 1339). At present, this institute is functioning very successfully. It is located at Boulevard du Montparnasse, No. 140; but, as it is crowded for space in its present quarters, plans have been drawn for a Maison d'optique, specially adapted to the needs of such an institute; it will contain ample lecture rooms and laboratories, and a library and archives, where students from all countries will be able to secure the information on theory and technic in the field of optics. As site for the new building, the city of Paris has donated an area of 2,700 square meters, at the corner of rue de Sèvres and boulevard Pasteur, and the national government has contributed a large subvention toward the cost of construction.

The optical institute comprises: (1) a technical school of optics, the purpose of which is to train engineers for optical industries; (2) services for the direct use of manufacturers; more particularly, the library and the laboratories; (3) a technical school for training skilled workmen employable, on leaving the school, in the manufacture of optical lenses and optical instruments of precision.

The library receives now most French and foreign periodicals devoted, either wholly or in part, to optics. With the approval of the syndicate that stands back of the manufacturers of optical instruments and instruments of precision, a monthly organ, the *Revue d'optique théorique et instrumentale,* was founded in 1921. The financial management of th review is entirely independent of outside control, but t institute supports it through the collaboration of its personn and the services of the library. The optical institute benefi in that the journal is a medium for the publication research and makes exchanges with various other publicatio which serve to enrich the library.

The laboratories serve a threefold purpose: for the pra tical training of students; for research undertaken by th personnel of the institute, and for investigations or verifica tions required by manufacturers.

The Army Medical Department

As mentioned in a previous letter (The Journal, April 1 1922, p. 1140), the army medical department is passing throug a critical stage in its development. Many members of th army medical corps are being forced to resign or are bein placed on the nonactive list. Their places are not bein refilled. The number of applicants is constantly diminishing as is shown by the accompanying table.

Recruiting in the Army Medical Corps

Years	Places Open to Competitive Examination	Number of Candidates Enrolled	Number of Candidates Accepted
1919	200	196	166
1920	200	225	158
1921	200	131	101
1922	150	149	88

In a report to parliament recently made by the Army Com mission, M. Adrien Constans dwells on the disadvantages o this situation. The regimental service as it was organized before the war, with a physician in charge of each body o troops, has had to be abandoned. A garrison medicosurgica service has been substituted, which requires less personnel several bodies of troops being assigned to one physician o surgeon. A military physician, no matter how devoted he may be to his duties, cannot be expected to attend to his services in a satisfactory and efficient manner if he is compelled to "scatter his energy" over several bodies of troops, which are sometimes garrisoned at long distances from one another. Overburdened by a multitude of duties, he is no longer able properly to perform any, and his work is inclined to become superficial where it ought to bear the character of continuity and thoroughness. Young military physicians who ought to serve at first in a subordinate capacity have perforce been placed in charge of important services for which they were inadequately prepared. In spite of their faithfulness and energy, they experience considerable difficulty, and at times their tasks prove insurmountable. The principal results of the new type of service are: an increase in the percentage of morbidity and a consequent undue number of sick leave furloughs; reduction in the number of effectives and delay in the instruction of the men; poor medical records and technical registers; hasty action by the exemption board; lack of supervision and care of the men on mobilization; almost complete absence of instruction of nurses and regimental litter bearers.

The draft of the law pertaining to the constitution of the staffs and the number of the effectives provides for the army medical corps a diminution of 121 in the average number of effectives (2,249 physicians, in place of 2,370).

Statistics on Welfare Work

M. Paul Strauss, minister of public health, charities and social welfare, has just addressed a circular letter to the prefects of the departments in regard to the progress being made by charity, welfare and public health societies. It

pears from this document that the number of hospitals and nicipal shelters in France exceeds 1,860. There are, in dition, 82 public or private psychopathic hospitals and 12 nicipal centers serving as public asylums, 22,000 bureaus charity, 170 municipal bureaus of public health, 460 anti-berculosis dispensaries, 57 public sanatoriums, 67 private natoriums, 61 preventoriums, 222 antivenereal consultation nters, 388 subsidized charitable organizations, 1,459 sub-lized societies for the protection of mothers and infants onsultation centers for infant care, free milk stations, èches, etc.), 150 housing bureaus, 627 societies for the better-nt of housing conditions, and 27,756 friendly or mutual aid cieties.

Prizes Awarded by the Academy of Sciences

Among the prizes and grants awarded by the Academy of iences, the Chaussier prize of 10,000 francs in medicine and rgery has been awarded to Dr. Justin Jolly, director of the stologic laboratory of the Ecole pratique des hautes études the Collège de France, for his histologic researches, and Dr. Maurice Nicolle, professor at the Pasteur Institute, for s researches in bacteriology; the Bréant prize of 5,000 francs is been given to Dr. Robert Sazerac, laboratory director, and Dr. Constantin Levaditi, department head, of the Pasteur stitute, for their researches on the treatment of syphilis; e Barbier prize of 2,000 francs has gone to Dr. Fontoymont, rector of the Ecole de medicine indigène of Tananarive Madagascar).

Regulations for Crèches

In a previous letter I referred to an investigation of crèches nd the desiderata that this inquiry brought to light (THE OURNAL, Sept. 22, 1923, p. 1035). M. Paul Strauss, minister public health and social welfare, has submitted to the resident of the republic for approval and signature a decree esigned to improve conditions in connection with the creation nd functioning of public and private crèches. It is provided hat crèches must not admit children who are ill, and that or children between 2 and 3 years old parents may have he choice of the crèche or the school for mothers (*école aternelle*), when both exist in the locality. A crèche closed n account of an epidemic may not be reopened until the rophylactic measures ordered by the prefect have been rried out. Among the new provisions may be mentioned he absolute prohibition of beds in certain places; the com-lete separation of the crèche from the consultation bureaus or infant care; the exaction of special sanitary guarantees, ot only with respect to the salaried personnel of the crèche ut also in regard to visitors who, for benevolent reasons, ome to show their interest in the cause or to take a practical ourse in puericulture. When anywise feasible, the cradle ooms should be separate and distinct from the rest of the rèche; if possible, with an arrangement allowing the sur-eillance of the infants through a glass partition. Children ble to walk should be separated from others. Absolutely ree care may be accorded only when the mother's complete ependence can be shown. The mother shall not be regarded, y reason of the modest sum that she pays, as a mere assistant ut rather as a partner in the care and attention that her hild receives.

Death of Prof. Edouard Meyer

Dr. Meyer, professor of physiology and dean of the medical aculty of the University of Nancy, has died at the age of 63. Meyer was born at Lauterbourg (Bas-Rhin), April 6, 1860. He graduated in medicine at the University of Lille in 1886. He became agrégé professor in 1889, but left Lille in 1891 to ake a position as instructor in physiology in the University f Toulouse. Three years later he became professor of hysiology in the University of Nancy. In 1913 he succeeded Professor Gross as dean of the medical faculty, which office e held up to a short time before his death.

BUCHAREST

(From Our Regular Correspondent)

Nov. 10, 1923.

Medical Conditions in Southern Bosnia

Sanitation in the northern part of Bosnia leaves nothing to be desired even by a western man. But conditions are different in the southern part of the province. Here, and particularly in the vicinity of the southern boundary, where the population is mainly Turkish, health conditions are far behind those in the northern districts. The people here have no confidence in doctors; they prefer to be attended by the "hodzsas" (a kind of "medicine men"), who do not need to see patients daily, and usually see them only once, after which the patients either die or recover. The Turkish hodzsa needs no suggestive apparatus for the practice of his calling, as those who ask his aid are under the influence of omens and auguries, and are dominated by the mysticism that veils the person of the hodzsa, the prophet of Allah. None but a Mohammedan may consult him; the patient is bound to the strictest secrecy. He is told that the hodzsa is the representative of Allah, and can put curses on his enemies as well as blessings on those who obey.

VISIT TO A MEDICINE MAN

At Plevlje there are many foreigners traveling to Constantinople; here the secrecy of the hodzsa breaks down before the temptation of gold, and foreigners occasionally enter. The hodzsa showed his consulting rooms, the most striking feature of which was his seat. This was a comfortable lean-to foot-stool, surrounded by the finest Turkish and Persian rugs, on which he sits with crossed legs. In front of him is the Koran, which is the storehouse of his science and knowledge. Around him are jars, filled with various herbs, plants and also animals; frogs, cats and dogs are important occupants of the hodzsa's drug store.

A Turkish woman came with a baby, aged 2, whose face was shrunken and wrinkled, like that of a person of 60, owing to the administration of opium by the mother to soothe the child whenever it cried. The mother stated that the child must be bewitched; for two weeks it had had fits of suffocation, with coughing and restlessness. The gray headed hodzsa consulted the Koran, and for a while studied in silence. Then he bade the woman call again on the morrow, bringing with the child an oka (a Turkish measure of weight) of flour, and a female cat, aged 7 weeks. In the meantime she should think continually on Allah. On the morrow woman and child came. Before the foot-stool of the hodzsa was set a great rug, on which were laid, on the right side, the flour in a brass jar, and on the left side the kitten in a cradle-like cage, looking like a tiger cub. Between the two was placed the child. Again the Koran was consulted; the hodzsa then took some herbs from a jar out of the cupboard and, taking the flour, kneaded a cake with a dexterity that might put to shame even the most skilled of French cooks. After making some signs over the child's head, he gave the cake to the cat, which devoured it with great relish. The hodzsa then took the cat out of the cage, whereon it soon began to moan, jumped hither and thither, shook itself to the right, then to the left, suddenly collapsed, and was dead. Then the hodzsa lifted up the baby from the rug, and declared that the cure was finished. The mother shouted for joy, for the cure had succeeded; the illness of her baby had wandered into the cat and killed it. The hodzsa then stated that the child must recover within a few weeks.

After the departure of the woman an old man came in, whose face spoke of suffering. The hodzsa gave him a leaf from his treasury of knowledge, the Koran, to swallow in water. The swallowing of pages from the holy book is frequently practiced here. People do it even without "medical" advice.

SPECIFIC THERAPY

It may be of interest to mention certain popular customs in regard to the treatment of particular diseases. Those, who suffer from malaria must catch a croaking frog at full moon, cut it in two, and bind the anterior half around the nape of the neck; then all will be well. Cripples and deformed children must be manipulated as follows: The patient is taken at break of day to a crossroads. The first man who passes is asked to give the child a new name; the second man who comes along baptizes it with a certain ceremony. To refuse this service is considered a great sin, and to comply is a good deed to Allah. It is believed that children who receive a second name in this way become well shaped; bent spines will straighten, and lame limbs will become corrected. Whoever carries on his person the tooth of a wolf is immune from contagious disease. Somewhat more rational is the custom of persons afflicted with some sorrow, or troubled with a bad temper, of taking castor oil. This, they believe, will make them joyful again.

On the coasts of Dalmatia, where there are as many Christians as Mohammedans, Christian beliefs have been mingled with the ancient customs in the art of healing. For example, in Ragusa and Metkovitz, on the shore of the Adriatic, it is customary, in order to protect oneself against evil spirits and witches, to await the full of the moon (this being the Turkish Hygeia), and then go in the direction of the moon until an image of the Maria Immaculata is seen. Around this one must pick up a few shellfish which abound here, take out the contents, pulverize the dry shell in a mortar, mix the powder with flour, water, salt, and red and black pepper, and then make it into a cake. By eating this cake, one acquires protection from the machinations of even the most evil minded witches.

For injuries, stabs and shot wounds, nothing excels this remedy: A sleeping dormouse is sought and, while in its deepest sleep, is stabbed to death by a single blow. The dormouse must be killed with a single blow or another dormouse must be found. Then the fat is taken out and smeared on the bleeding wound or aching part. The treatment of discharge from the ears is even more curious. Young mice are caught and cooked in table oil; they are then placed in a wooden jar on which is engraved a certain verse of the Koran. The jar is hung up in the middle of the ceiling. Earaches of minor severity may be healed in this way; but severer affections are to be cured by dropping into the ear a few drops of oil, made by melting the fat from the breast of a male rabbit; recovery is certain if this procedure is adopted after the usual evening ablutions and prayer.

FOR BELIEVERS ONLY

To deter foreigners from calling on the hodzsas for help, it is taught that remedies are effective only when adopted by true believers.

BERLIN

(From Our Regular Correspondent)

Nov. 17, 1923.

Physicians and the New Social Insurance Legislation

As was to be expected, the recent modifications in the federal social insurance law, especially that portion which deals with health insurance, which was discussed in my letter last week, have caused great excitement among physicians. Sharp protests are being published on all sides. The executive committee of the Leipzig League has issued the following manifesto: "The federal ministry of labor has promulgated several decrees which effect radical changes in health insurance legislation. Since September 1 of this year, health insurance has been badly disrupted owing to the widespread economic collapse. The benefits accorded the insured have become more and more restricted, although the capitation fees have mounted to previously unheard-of sums. Th extra benefits are being abolished by many health insuranc societies. Health insurance for families has been done awa with. Patients must pay either wholly or in part for med cines and other therapeutic agents. Many societies deman of the insured additional payments to meet the cost of medic treatment. The largest league of health insurance societie (der Verband deutscher Ortskrankenkassen) has announce in the press that the panel physicians can no longer coun on being paid for their services, and that patients, in lieu c medical treatment, are to receive cash payments from th societies. Health insurance, during recent months, has bee kept up to a certain extent by the panel physicians, who hav given their services almost gratuitously. Often they are pai according to the index established by the federal bureau fo the previous week, instead of according to the index for th week in which the services were rendered as is the case witl workingmen, employees and officials. Consequently, even th physicians whose services are most in demand receive fee reckoned in greatly depreciated currency. In recent weeks owing to the soaring of the American dollar, a consultatio fee has been the equivalent of only from 1 to 2 gold pfennigs or less than half a cent in American money. Recent legislation introduced by the ministry of labor encroaches on the freedom of the medical profession. Physicians are therefor frequently compelled to refuse to give treatment. The executive committees of the health insurance societies can dictate to the physicians what therapeutic agents and methods o treatment they shall employ; on what basis and how long the insured are to be retained on the sick list, and whether o not and, if at all, for how long they are to be treated in a hospital. If the physicians do not conduct themselves in accordance with the demands of the health insurance societies, they can be dismissed without notice, the societies having virtually the right to declare the contracts entered into between the physicians and the societies null and void. The decision as to what physicians shall be admitted to the panel has been put into the hands of the health insurance societies. The health insurance societies may introduce the system of district physicians, establishing districts in which the insured are deprived of the choice of physician. Moreover, the societies may, on their own initiative, abolish free medical treatment, giving the patients cash payments in lieu of sick benefits. As a result of this provision, the societies have the right to relieve themselves of their legal obligations to the insured by the payment of pitiful sums, and those physicians who, in the interest of their patients, insist on using the most effective medicines and methods of treatment may be dismissed without notice. If these new decrees remain in force, in the future only such physicians will be able to serve the insured as enjoy the confidence and good will of the executive committees of the health insurance societies, but not the confidence of the insured. The medical profession holds that the privileges that are left to the insured are not of a nature to preserve the health of the people, and declares that it can no longer be responsible for a system that offers the insured so few advantages, and that it must refuse to make further sacrifices in money and the right of self-determination. What is more, the physicians are no longer in a position to make further sacrifices as, in spite of their unselfish devotion to their duties, they have been brought to financial ruin by the incompetence of the health insurance societies."

Epidemic of Infantile Paralysis

The end of August, an epidemic of infantile paralysis appeared in the district of Breslau. Last year, an epidemic was announced in Wurttemberg. Later, an outbreak occurred in the North, in the district of Cassel. Thuringia was next to suffer; afterward, Westphalia and the Rhine Province were visited, and now the infection has traveled in a northeasterly

rection to Silesia. The government has demanded the nforcement, for the space of three months, of notification, olation and supervision of cases.

Welfare Work Among Refugees from the Ruhr Region

The ejection of the families of officials and others from the uhr Region and the Rhine Province has made it necessary organize welfare work on a large scale, especially in aid the children affected. The children among the refugees ot only have been given shelter and food in the unoccupied gions of Germany, but also were welcomed in the adjacent oreign territory. Some of the children were quartered in the ural sections in families; others in children's homes and in ealth centers. In some instances, large colonies of children ave been furnished temporary quarters on former military rill grounds. They are constantly under medical supervion, and are fed as well as circumstances permit. The ngth of the stay in the country or in the children's homes s at least six weeks, and, when possible, from three to four nonths. Up to September, 270,000 children from refugees' amilies had been cared for in the country, and 48,000 in hildren's homes. The families in the country usually take are of the children free of charge, and they often provide hem with clothing as well. The sojourn in children's homes osts the authorities, however, large sums. The results of his welfare work have been, in general, satisfactory. However, it remains to be seen what the final results will be. According to examinations made of 530 children, who, during he year 1922, were quartered in health centers in Mannheim, 8 per cent. of the boys and 98 per cent. of the girls showed mprovement.

Tendoplasty

At the last session of the Berliner Medizinische Gesellchaft, Professor Katzenstein, director of the surgical department of the Friedrichshain Hospital, presented patients who showed excellent results from connecting paralyzed with healthy muscles. A child whose right leg was completely paralyzed became able to walk after Katzenstein had united the paralyzed muscles with the abdominal musculature. Power is brought to the paralyzed muscles through the formation of artificial tendons from human tissue. For these tendons he uses not only muscles but also strips of skin. Good success was secured in the case of patients with muscles paralyzed by gunshot wounds, and in children with infantile paralysis. The technic of the operative procedure and the results were demonstrated by films.

Marriages

William L. Vickers, Lake Arrowhead, Calif., to Miss Minnetta Chandler of Long Beach, November 6.

John Mason Hundley, Jr., Baltimore, to Miss Emily Louise Holt of North Carolina, December 1.

Bruno A. Lungmus, Milwaukee, to Miss Martha Lucille Snyder of Oconomowoc, November 22.

John Edward Mannion, Kimball, S. D., to Miss Frances E. O'Neil of Detroit, in November.

Benjamin L. Norden to Miss Mary F. Warren, both of Portland, Ore., November 17.

Gatewood to Miss Esther Lydia Harper, both of Chicago, at Los Angeles, November 28.

Walfred Johnson, Stillwater, Minn., to Miss Sophie Koelzer of Jordan, October 1.

James Russell Driver to Miss Julia Ingram Davies, both of Cleveland, December 1.

Herbert William Salter to Miss Charlotte Benjamin, both of Cleveland, October 27.

Lewis T. Baxter to Miss Esther Bauchet, both of Chicago, November 9.

Deaths

Walter Fritz Winholt ⊕ Chicago; Rush Medical College, Chicago, 1913; member of the Chicago Pediatric Society; assistant professor of medicine and pediatrics at his alma mater; medical director of the Chicago Infant Welfare Society; served in the M. C., U. S. Army, during the World War; on the staffs of the Cook County Hospital and the Presbyterian Hospital, where he died, December 9, of chronic nephritis and heart disease, aged 35.

James Cheston Morris, West Chester, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1854; examiner and lecturer at his alma mater, 1855-1863; at one time curator of the American Philosphy Society; director of the biologic and microscopic department of the Philadelphia Academy of Natural Sciences; Civil War veteran; aged 92; died, November 29, of heart disease.

Arthur Nichols Curtis, St. Louis; Medical Department of Columbia College, New York, 1888; formerly professor of obstetrics at the St. Louis University School of Medicine and the Washington University Medical School; for ten years on the staff of St. Ann's Maternity Hospital; aged 57; died, November 22, following a long illness.

Edwin James Kennedy, Tiskilwa, Ill.; Ohio State University College of Medicine, Columbus, 1908; served in the M. C., U. S. Army, in France, during the World War; aged 48; died, November 19, at the Presbyterian Hospital, Chicago, following an operation for carcinoma of the rectum.

David Samuel Hachen, Cincinnati; University of Cincinnati College of Medicine, 1920; instructor of medicine at his alma mater; on the staff of the Cincinnati General Hospital, where he died, November 23; aged 27, of encephalitis, subsequent to an attack of streptococcus sore throat.

Wallace Winfield Potter, Seattle; Bellevue Hospital Medical College, New York, 1871; Medical School of Maine, Portland, 1871; formerly health officer of Spokane, Wash.; aged 74; died, November 17, at a local hospital, of a skull fracture, received when struck by an automobile.

James Floyd Bowman ⊕ Irvington, N. J.; Columbia University College of Physicians and Surgeons, New York, 1904; on the staff of the New York Eye and Ear Infirmary; aged 44; jumped to his death from the ninth floor of the Municipal Building, New York City, November 28.

Jewell Arthur Newman ⊕ Colorado Springs, Colo.; Medical Department of the Tulane University of Louisiana, New Orleans, 1911; formerly on the staff of the Cragmor Sanatorium; aged 37; died, November 19, at Los Angeles, of pulmonary tuberculosis.

Robert Wynne Horton ⊕ Captain, M. C., U. S. Army, Fairfield, Ohio; University of Texas Department of Medicine, Galveston, 1899; served during the World War; aged 45; died, November 15, at Wilbur Wright Field, Dayton, Ohio.

Stephen W. Stafford, New Orleans; Medical Department of the Tulane University of Louisiana, New Orleans, 1899; formerly on the staff and superintendent of the Charity Hospital; aged 50; died, December 3, of cerebral hemorrhage.

William Moody Parsons, Manchester, N. H.; Vermont Medical College, Woodstock, 1852; member of the New Hampshire Medical Society; formerly member of the board of health; aged 97; died, November 19, of pneumonia.

Elza Wyatt Burris, Indianapolis; Medical College of Indiana, Indianapolis, 1903; member of the Indiana State Medical Association; for many years president of the Citizens' State Bank; aged 48; died suddenly, November 20.

John S. Beers, St. Joseph, Mich.; Chicago (Ill.) Medical College, 1878; past president of the Berrien County Medical Society; formerly state senator and member of the city council; aged 77; died, November 18, of paralysis.

Charles Joseph Gross, Montreal, Que., Canada; Montreal School of Medicine and Surgery, 1907; served during the World War, in France, with the Canadian Army Medical Corps; aged 42; died recently, of heart disease.

James Lewis Miller, Jr., Sierra Madre, Calif.; Ensworth Medical College, St. Joseph, Mo., 1908; served in the M. C., U. S. Army, during the World War, with the rank of captain; aged 36; died, November 12, of tuberculosis.

Charles Wesley Astrop, Surry, Va.; Medical College of Virginia, Richmond, 1884; member of the Medical Society of Virginia; aged 65; died, November 20, at the Tucker Sanatorium, Richmond, following a long illness.

Edward Francis Brennan ✠ New York; New York University Medical College, 1896; on the staff of the Bronx Eye and Ear Infirmary; aged 56; died suddenly, November 29, at Larchmont, of cerebral hemorrhage.

Edgar Douglas, Halifax, N. S., Canada; McGill University Faculty of Medicine, Montreal, Que., 1904; served during the World War, in France, with the Canadian Army Medical Corps; aged 45; died, October 7.

James W. Campbell, Kingston, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1891; formerly professor of medicine and therapy at his alma mater; aged 57; died, October 11, of septicemia.

Frank A. Warren, Tekonsha, Mich.; Detroit Homeopathic Medical College, 1875; aged 72; died, November 17, at the Wade Memorial Hospital, Coldwater, of injuries received when struck by an automobile.

Arthur William Calloway ✠ Asheville, N. C.; Chicago (Ill.) Homeopathic Medical College, 1895; aged 51; was found dead, December 5, with a bullet wound in the chest, presumably self-inflicted.

Samuel Carson McCormick, Duluth, Minn.; Jefferson Medical College of Philadelphia, 1862; Civil War veteran; at one time health officer and county physician; aged 86; died, November 17, of senility.

Albert Louis Ream ✠ Chicago; Chicago Medical School, 1915; served in the M. C., U. S. Army, during the World War; aged 48; died, December 9, at the Wesley Memorial Hospital, of uremia.

Henry Herr, Washington, Ind.; Miami Medical College, Cincinnati, 1894; member of the Indiana State Medical Association and the city board of health; aged 58; died, November 20, of heart disease.

Joseph Ennalls Muse, Baltimore; Baltimore Medical College, 1898; member of the Medical and Chirurgical Faculty of Maryland; for six years member of the city council; aged 61; died, November 16.

Harrison Burgess Savage, Joplin, Mo.; Bellevue Hospital Medical College, New York, 1886; member of the Kansas Medical Society; aged 60; died, November 15, following a long illness.

David Richardson Beaver, Conshohocken, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1864; Civil War veteran; aged 81; died, November 17, of bronchopneumonia.

I. Willard Rayburn, San Diego, Calif.; Long Island College Hospital, Brooklyn, 1877; Civil War veteran; formerly a practitioner in Indiana; aged 77; died, November 19, of paralysis.

Eleanore M. Hiestand Moore, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1890; formerly demonstrator of chemistry at her alma mater; died, November 29.

Samuel G. Edwards, Los Angeles; Medical College of Ohio, Cincinnati, 1893; member of the California Medical Association; aged 55; died, November 11, following a long illness.

Leroy Stahl Kennedy, Hot Springs National Park, Ark.; Louisville (Ky.) Medical College, 1905; aged 49; died, October 21, at Mount Ida, of carcinoma of the stomach.

Leonard Edwin Gallup, Marshall, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1879; aged 72; died, November 11, of paralysis.

William C. McReynolds, Wyaconda, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1871; aged 75; died, October 30, following a long illness.

James Harvey Bogle, Sebring, Fla.; College of Physicians and Surgeons, Baltimore, 1893; formerly a practitioner in Virginia; aged 55 died, November 10.

Walter Tate Willis, Williston, S. D.; University of Maryland School of Medicine, Baltimore, 1889; aged 63; died, October 14, following a long illness.

Charles Albert J. Lignot, Jersey City, N. J.; Medical Department of the University of the City of New York, 1876; aged 73; died, October 2.

Malachi A. Carriker, Nebraska City, Neb.; Eclectic Medical Institute, Cincinnati, 1885; aged 75; died, November 7, at Kansas City.

Frank H. Knickerbocker ✠ Staples, Minn.; Detroit (Mich.) Medical College, 1879; aged 66; died in November.

Hugh Hanna, Donegal, Pa. (years of practice); aged 85; died, October 21, of senility.

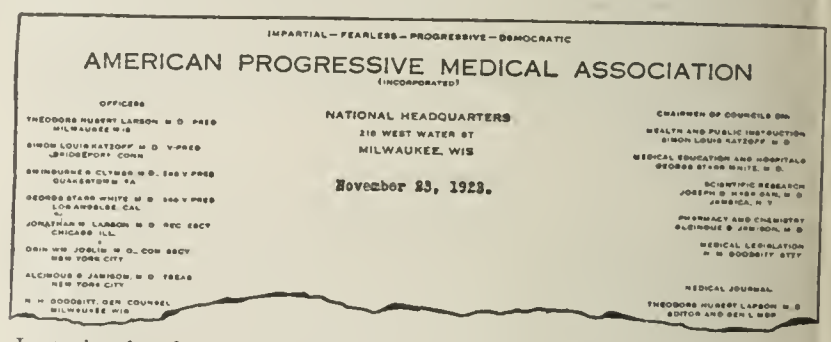
The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

THE AMERICAN PROGRESSIVE MEDICAL ASSOCIATION

Another Attempt to Organize the Twilight Zone of Professionalism

From various parts of the country THE JOURNAL is receiving requests for information about a new medical organization calling itself the "American Progressive Medical Association" and having its "National Headquarters" at Milwaukee, Wis. Physicians are receiving letters and application blanks from the "President" of this new society urging them to send in their application for membership and the annual membership fee of $5.00. According to the letterhead of the American Progressive Medical Association, which, by the way, is said to be incorporated, this organization is "Impartial—Fearless—Progressive—Democratic." It has a President, three Vice-Presidents, a Recording Secretary, Corresponding Secretary, a Treasurer and a General Counsel—to say nothing of an Editor and General Manager of its medical journal, the latter,


IMPARTIAL—FEARLESS—PROGRESSIVE—DEMOCRATIC

AMERICAN PROGRESSIVE MEDICAL ASSOCIATION

(INCORPORATED)

OFFICERS

NATIONAL HEADQUARTERS
218 WEST WATER ST
MILWAUKEE, WIS

November 23, 1923.

Letterhead of the "American Progressive Medical Association."

apparently, not yet born. It has a "Council on Health and Public Instruction," a "Council on Medical Education and Hospitals," a "Council on Scientific Research," a "Council on Pharmacy and Chemistry," a "Council on Medical Legislation," 'n ever'thing!

Applicants for membership must "agree and stipulate" that they will give their "moral support to Progressive Therapeutics." Furthermore, they "agree to stand firm for National Reciprocity for all Licensed Physicians without examination or any RED TAPE."

When physicians ask THE JOURNAL, as some have, to inform them as to the "standing of the American Progressive Medical Association," they are asking for the impossible because the Association has not yet been in existence a month. The best THE JOURNAL can do is to publish what material it has regarding the founders and officers of this new organization. From this material any physician should be able to determine whether or not he wishes to be associated with an organization so fathered. Here it is:

THE PERSONNEL

THEODORE HUBERT LARSON, M.D., Milwaukee, Wis., *President, Editor* and *General Manager:* According to our records, this man was born in 1871 and claimed a diploma, dated 1901 from the National Medical University of Chicago, a "sundown" institution now extinct. We have been unable to verify this claim. It was nothing to be proud of, in any case. In 1912 Larson received a diploma from Bennett Medical College, Chicago. He was licensed in Oklahoma in 1902 and in Wisconsin in 1911. Larson seems to have been in a good many places before settling down in Milwaukee: Oklahoma City, Cushing and Tulsa in Oklahoma; Fort Dodge, Iowa; Chicago, Illinois, and Edgerton, Waupaca, Weyauwega and Oshkosh in Wisconsin. We have in our files some clippings from the Sioux City, Iowa, papers of about twelve years ago recording the arrest of T. H. Larson on a warrant

harging him with practicing medicine without a license. ccording to one of the clippings:

"Dr. Larson . . . admitted that he had no license to practice re, and said he came here for the sole purpose of manufacturing medine. One of his remedies was said to have been a blood purifier."

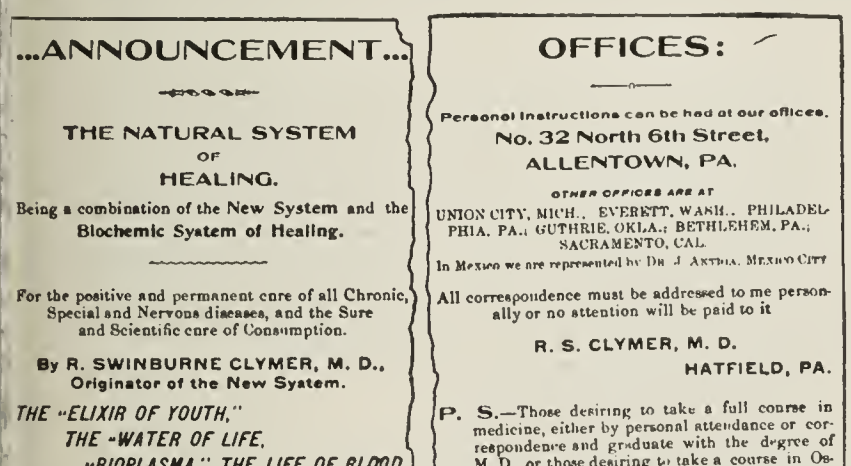
Later clippings show that this charge was dismissed and e was rearrested on the charge of being a fugitive from istice. We have no record of the outcome of this case.

Newspapers published last June reporting the convention f the National Eclectic Association stated that that organation was "seething with dissension" over a "clinic gland ransplantation performed earlier in the day by Dr. T. H. arson of Milwaukee." According to the reports Larson as scheduled to read a paper on gland transplantation and lustrated it with an actual operation. "The patient was a oman thirty-three years old and the glands used in the ransplantation were taken from a goat." Larson claims to mit his practice to abdominal surgery.

SIMON LOUIS KATZOFF, M.D., Bridgeport, Conn., *First Vice-resident* and *Chairman of the Council on Health and Public nstruction:* According to our records, Katzoff was born in 890 and was granted a diploma in 1912 by the Georgia Colge of Eclectic Medicine and Surgery of Atlanta. He was censed by the Eclectic Board of Georgia in 1912 and by the clectic Board of Connecticut in 1916.

We have in our files an article that appeared in the October, 1911, issue of an advertising sheet, the *American ournal of Mechano-Therapy*, a house-organ for a correspondence concern, the American College of Mechano-Therapy, xposed in THE JOURNAL, Aug. 28, 1909. The article was on Constipation" and is headed: "By Dr. Simon L. Katzoff." Katzoff had not graduated at the time this appeared. The rticle itself is not worth discussing.

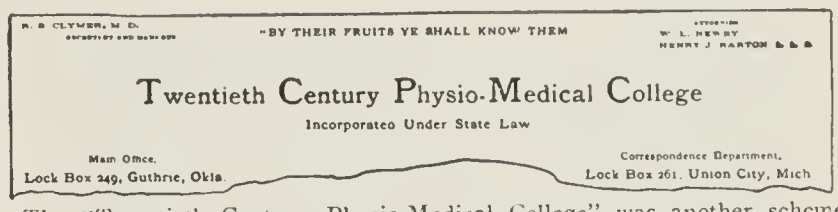
We also have in our files a clipping from the Bridgeport Conn.) *Times* of Nov. 15, 1919. The clipping is of an article ntitled "What is Vivisection?" and alleged to be written "By Simon Louis Katzoff, A.M., M.D., Author of 'Timely Truths n Human Health.'" The article is of the antivivisection ype and contains the usual number of misstatements to the unning inch. Katzoff has also written a book "Timely Truths n Human Health." It is published by the Cooperative ublishing Company, Inc., Bridgeport, Conn.



R. Swinburne Clymer is "Second Vice-President" of the "American Progressive Medical Association." Our records fail to show that he was ever graduated by a reputable medical college. Clymer's activities have been many and various. Here is reproduced (in miniature) the covers of a booklet used by Clymer in exploiting two of his schemes: "The Natural System of Healing" and the "Associated College," which granted the degree of "M.D." on the mail-order plan.

R. SWINBURNE CLYMER, M.D., Quakertown, Pa., *Second Vice-President:* Our records fail to show that this man was ever regularly graduated by any reputable medical college. In a paid notice that appeared in Polk's Medical Directory for 1906, Clymer claims the degrees of "Ph.G." and "M.D." He is classified as a "Physio-Medicist" and a graduate of the "Independent Medical College," Chicago, 1898. The Independent Medical College was a diploma mill which sold diplomas to any one who sent the cash. It was finally declared a fraud by the federal authorities and put out of business. In Polk's directory for 1908 Clymer is listed as an "Electro-Therapeutic Specialist." In the same directory for 1912 he is given as a graduate of the College of Medicine and Surgery, Chicago, 1911. Correspondence with a one-time officer of this extinct school brought the statement that in 1911 Clymer "was granted an *ad eundem* diploma"!

In 1903, Clymer was "Secretary and Manager" of the "Twentieth Century Physio-Medical College" a diploma mill whose "Main Office" was a post-office box in Guthrie, Okla., and whose "Corresponding Department" was a post-office box at Union City, Mich. Letters written to Clymer at Union City, Mich., were answered by him on stationery bearing the same address but mailed from Hatfield, Pa. Through the efforts of THE JOURNAL (see issue of Oct. 1, 1904, p. 990) the post-office department attempted to get a case on this fraud



The "Twentieth Century Physio-Medical College" was another scheme of R. Swinburne Clymer's. It was a diploma mill which did business from a post-office box in Guthrie, Okla., and a post-office box in Union City, Mich. Clymer, meanwhile, lived in Hatfield, Pa.

but Clymer discovered that the thing was being investigated and dropped that line of endeavor. However, the charter of the "college" was cancelled by the state of Oklahoma in 1904. The name of Henry J. Barton, of whom more later, appeared on the stationery of the "college" as one of its attorneys.

In 1904, R. Swinburne Clymer conducted from Hatfield, Pa., and Union City, Mich., "The International Academy of the Natural and Sacred Sciences" and at the same time exploited the "Elixir of Youth," the "Water of Life" and "Bioplasma." The "International Academy of the Natural and Sacred Sciences" offered a "course" in the "Natural System of Healing" which proposed to enable those taking the courses to "treat every known disease." Instruction was given on the mail-order plan and the degrees of "M.D." and "D.O." were granted. At the same time Clymer had offices at Allentown, Pa. Those who wanted to take the "course" were told to "address the Associated College, Union City, Mich.," and obtain a "prospectus and full information."

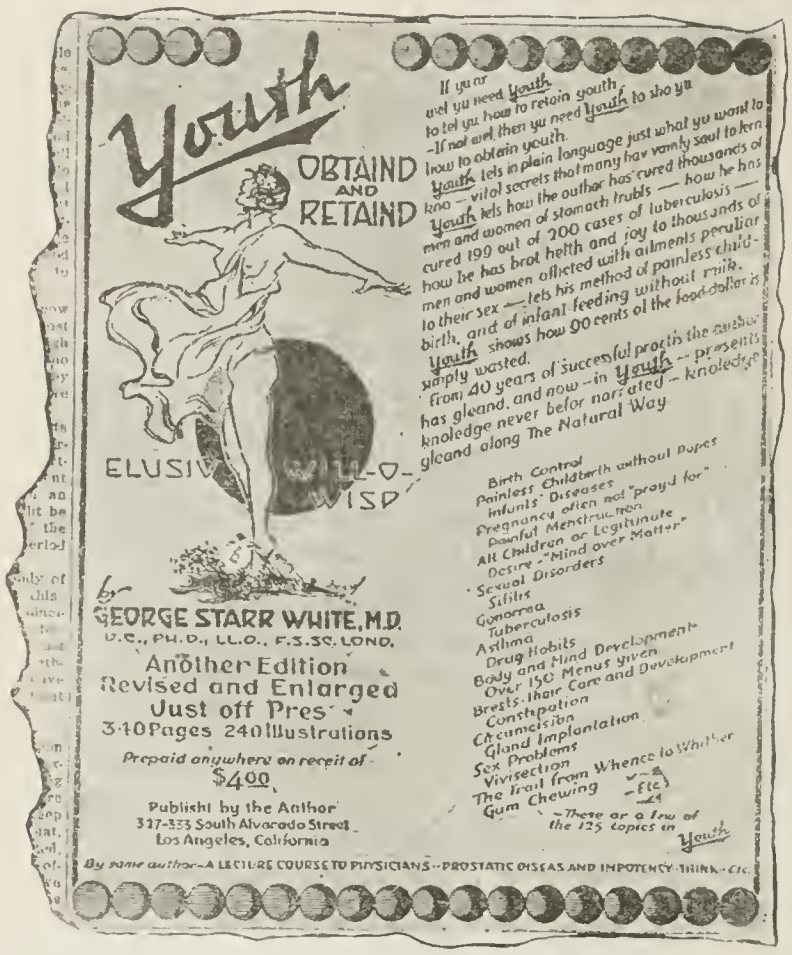
In this connection, it is of interest to refer to a fraud order that was issued by the United States postal authorities against "The Philosophers of the Living Fire" with which R. S. Clymer was connected. It was operated from Union City, Mich., the "home" of Clymer's "Associated College." The scheme consisted in obtaining money for membership in this alleged society for "degrees" in the "society." The government investigated and found that the degrees were "simply devices for obtaining additional sums of money from credulous persons." The "Philosophers of the Living Fire" was supposed to be a quasi-religious, secret order with signs, grips, obligations, passwords and similar paraphernalia. Henry J. Barton, already referred to in connection with the "Twentieth Century Physio-Medical College," was head of the concern and was known as the "Reverend Supreme Grand Rabboni." In October, 1905, the Philosophers of the Living Fire were extinguished by the fraud order which covered not only Barton but "Dr. R. S. Clymer." The fraud flared up again in 1917 and was again extinguished by a second fraud order which again covered the name of "Dr. R. S. Clymer."

A testimonial credited to R. S. Clymer from Souderton, Pa., appears in the advertising matter issued by the "Institute of Physicians and Surgeons" of Rochester, N. Y. It is to the effect that he has received the diploma from this "institute" and "It is in every respect equal to my medical or hospital diplomas." It doubtless was. The "Institute of Physicians and Surgeons" was a mail-order swindle that was put out of business by the federal authorities July 21, 1905. (See "Nostrums and Quackery," Vol. I, page 407.)

In 1910, R. Swinburne Clymer was exploiting the "International System of Magnetic (Alchemic) Therapeutics."

Advertisements were published stating that R. S. Clymer had obtained a patent from Washington for an apparatus for the magnetic treatment of diseases and that a company was "being formed by Dr. Clymer and some others interested." This venture was an outgrowth of an earlier scheme known as the "International System of Direct Medication."

Some of the later activities of Clymer concern another organization, the "Rosicrucian Aid" conducted from "Beverly Hall," Quakertown, Pa. One of the numerous activities of this organization was that of issuing a book on dietetics which is credited to "R. Swinburne Clymer, College of Medicine and Surgery, 1902." It will be remembered that Clymer has claimed graduation in the medical directories from the College of Medicine and Surgery, 1911. We have in our records still other information regarding Clymer of a more personal character, which need not be gone into at this time.



Reproduction, greatly reduced, of a typical advertisement of George Starr White, "Third Vice-President" and chairman of the "Council on Medical Education and Hospitals" of the "American Progressive Medical Association." White claims in this advertisement to have had "40 years of successful practice." Actually he graduated in medicine in 1908 when he was 42 years old. White also sells a "patent medicine."

GEORGE STARR WHITE, M.D., Los Angeles, Cal., *Third Vice-President* and *Chairman of the Council on Medical Education and Hospitals:* According to our records, George Starr White was born in 1866 and obtained a diploma from the New York Homeopathic Medical College and Hospital in 1908 when he was forty-two years old. Ever since his advent in the medical field White seems to have been interested in various medical fads and fakes. For a while it was "Spondylotherapy" then "Zonetherapy" and still later a new brand of diagnosis "Bio-Dynamo-Chromatic Diagnosis." In 1915 he advertised that he was giving "courses" in Spondylotherapy in various cities and in the advertisement emphasized that he was a member of the American Medical Association. He is no longer a member as he was expelled from membership in the Los Angeles County Medical Association in February, 1916.

In May, 1915, White was arrested in Chicago and fined $100 and costs for violation of the Medical Practice Act. During the influenza epidemic in 1918 White put out a "patent medicine" "Valens Essential Oil Tablets" which were said to be for "Gripping the Flu out of Influenza" and were also claimed to benefit or cure incipient tuberculosis, hayfever, and some other things.

White tacks the letters "F.S.Sc., Lond." after his name. They mean "Fellow of the Incorporated Society of Science, Letters and Arts of London, Ltd." This is a serio-com fake; the fellowships cost one guinea ($5.00). Not a f "patent medicine" exploiters in the United States are "Fe lows." George Starr White was an active official in anoth "twilight zone" society, the "Allied Medical Associations America." White was also the State Vice-President California of the "American Medical Liberty League," a organization of "patent medicine" quacks and faddist devoted to the task of blackguarding scientific medicine general and the American Medical Association in particula White in his writings, and they are as voluminous as the are unscientific, affects phonetic spelling. In writing to TH JOURNAL about a year ago chiding it for dubbing him disciple of Abrams, he said, more in sorrow than in anger "I feel that yu ar honest in your statement tho, so I hav n hard feelings."

JONATHAN M. LARSON, M.D., Chicago, Ill., *Recordin Secretary:* According to our records, Larson was born i 1873 and in 1905 received a diploma from the National Med ical University of Chicago. This "university" was a low grade school of the "sundown" variety. It is now out o existence and for some time before it went out of existenc was not recognized either by the Board of Health of the stat in which it operated or by the boards of the majority of th other states in the Union. L. D. Rogers, the exploiter o "Lazy Serum," the "Japanese Treatment for Tuberculosis," "Auto-Hemic Serum," etc., was the head and chief owne of the National Medical University. J. M. Larson is a disciple of the Abrams cult. He advertises in local publications that he has "secured an Abrams Oscilloclast and introduced it" into his practice. He warns the public against those who are not using the simon-pure, one hundred per cent. "Electronic Reactions of Abrams," but some imitation thereof

ORIN WM. JOSLIN, M.D., New York City, *Corresponding Secretary:* According to our records, Joslin was born in 1875 and received a diploma in 1903 from the Milwaukee Medical College. Joslin seems to be a "joiner." His name appears on the program of the "American Association for Medico-Physico Research." He is credited with being a member of the "Pioneer Spectro-Chrome Therapeutic Class," and of the "Executive Board of the American Association for the Study of Spondylotherapy." Also his name appears as indorsing the outrageous fake "Auto-Hemic Therapy" of L. D. Rogers.

Remodeled, newly furnished and equipped thruout, and really reopened for regular hospital business only two weeks ago, now practically full—WHY?

BECAUSE

We are now able to *diagnose* almost every known disease from its very beginning—and then—CURE IT.

Just recently we cured two of the worst cases of BRIGHTS DISEASE that could exist, and did it in two weeks. There is now practically no disease that stops us, or that we cannot stop.

We have the most wonderful treatment ever discovered for ECZEMA and ALL OTHER SKIN DISEASES. BIRTH-MARKS quickly cured by a new method that is entirely painless. HAYFEVER and ASTHMA as well. We realize that these statements sound strong, but we believe that no one would credit us with being so short sighted as to pay for a full page in this valuable paper just to represent ourselves as doing anything that we cannot do. If you doubt us, talk with our patients cured, or try us out. If you don't doubt us, again we say try us out.

Write for our New Free Illustrated Booklet.

The Dodgeville General Hospital ORIN W. JOSLIN, M. D. Pres. and Medical Director

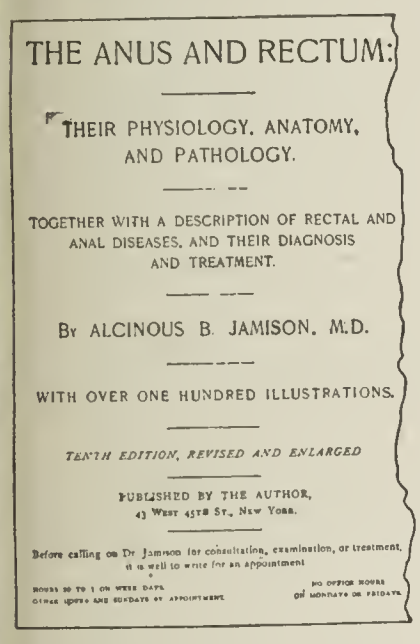
The Dodgeville General Hospital was the creation of Orin W. Joslin, the "Corresponding Secretary" of the "American Progressive Medical Association." Joslin is an advocate of various methods of treatment and diagnosis: "Auto Hemic Therapy," "Spectro-Chrome Therapy," "Bio-Dynamo-Chromatic Diagnosis," "Electronic Reactions of Abrams," etc.

Joslin practiced for some time in Wisconsin. From 1904 until 1912 he was in Milwaukee; in 1914 at Linden and in 1917 at Dodgeville. While at Dodgeville, Wis., he conducted an institution known as the "Dodgeville General Hospital" (situated over a dry-goods store) and carried on an extensive advertising campaign in the local papers. One of these advertisements, a full page affair, contained among other things, a testimonial purporting to be from a physician and puffing the Bio-Dynamo-Chromatic fake. It was repudiated by the physician in question and Joslin has practically admitted that it was fabricated.

Joslin was also "President, Medical Director and Founder" of the "Pine Grove Sanatorium" at Dodgeville, Wis. This was "for the exclusive treatment of Cancer and Tuberculosis." According to Joslin: "Our treatments for Cancer and Tuberculosis are all very pleasant to take." It seems that "the main part" of the "treatment" was the "inhalation of Condensed Mountain Air . . . Tropical Sunlight . . Alpine Sun Light . . . and the Intermittent Chromatic Radiant Ray as given to the world by Dr. George Starr White, the Wizard Scientist of Los Angeles, Calif." In addition, Joslin also employed such therapeutic marvels as "Osteopathy, Chiropractic, Zone Therapy . . . including the latest and most wonderful of all serums known to progressive physicians is the 'Auto-Hemic Serum' as discovered by Dr. L. D. Rogers of Chicago."

For fear, possibly, that some sufferers might be overlooked Joslin admitted that he treated other diseases and urged the sick to "Send For Free Booklet on Other Chronic Diseases." Then followed a list of "Diseases that we are particularly successful in treating." These ran through Asthma, Acne, Aneurism, Appendicitis, Burns, Birthmarks, Chorea and Coryza with Epilepsy, Fissures, Gastritis, Gout and Gray Hair, also Leucorrhea, Leukemia and Locomotor Ataxia along down the alphabet to Varicose Ulcers, Warts and Whooping Cough. For some reason he omitted Xeroderma, Yaws and Zoonosis. Altogether Orin W. Joslin seems to be a most versatile individual. No wonder he left Dodgeville, Wis., for New York City.

ALCINOUS B. JAMISON, M.D., New York City, *Treasurer* and *Chairman of the Council on Pharmacy and Chemistry:* According to our records, this man was born in 1851 and received a diploma in 1878 from the Medical College of Fort Wayne, Ind. A few years ago Jamison seems to have written a book called "Intestinal Ills" that was issued by the Tyrrell Hygienic Institute, the exploiters of a device (with a "patent medicine" adjunct) for giving rectal enemas. This was exposed in THE JOURNAL, Jan. 6, 1917: Another concern in the same line of business calling itself the Eager Colon Cleanser Company issued an advertising brochure puffing its enema and entitled "Dr. A. B. Jamison's Fourteen Reasons 'Why the Internal Bath.'"


THE ANUS AND RECTUM:

THEIR PHYSIOLOGY, ANATOMY, AND PATHOLOGY.

TOGETHER WITH A DESCRIPTION OF RECTAL AND ANAL DISEASES, AND THEIR DIAGNOSIS AND TREATMENT.

By ALCINOUS B. JAMISON, M.D.

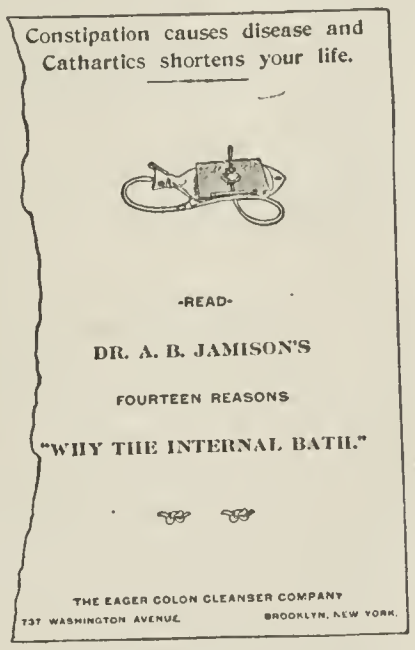
WITH OVER ONE HUNDRED ILLUSTRATIONS.

TENTH EDITION, REVISED AND ENLARGED

PUBLISHED BY THE AUTHOR,
43 West 45th St., New York.

Before calling on Dr Jamison for consultation, examination, or treatment, it is well to write for an appointment

HOURS 10 TO 1 ON WEEK DAYS. OTHER HOURS AND SUNDAYS BY APPOINTMENT. NO OFFICE HOURS on MONDAYS OR FRIDAYS.


Constipation causes disease and Cathartics shortens your life.

-READ-

DR. A. B. JAMISON'S

FOURTEEN REASONS

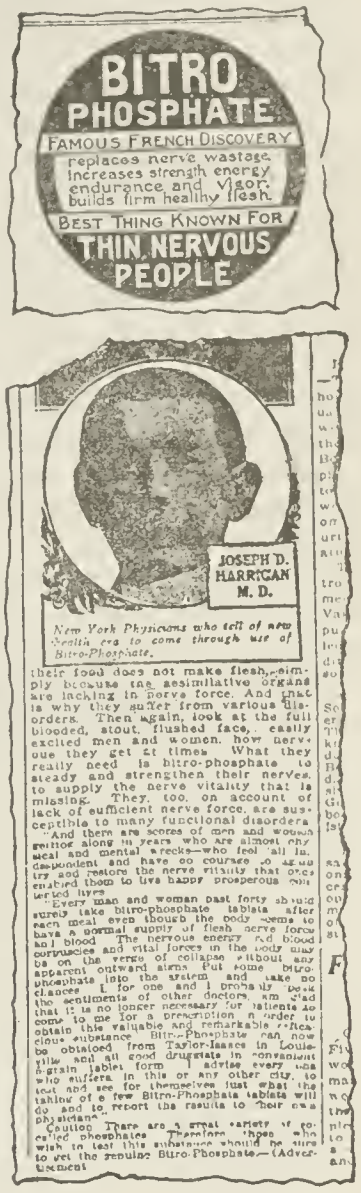
"WHY THE INTERNAL BATH."

THE EAGER COLON CLEANSER COMPANY
737 WASHINGTON AVENUE. BROOKLYN, NEW YORK.

Alcinous B. Jamison, "Treasurer" and chairman of the "Council on Pharmacy and Chemistry" of the "American Progressive Medical Association," seems to specialize on "Diseases of the Bowels." Here are reduced reproductions of the title-pages of (1) an advertising booklet describing the dangers of the usual methods of treating diseases of the rectum and anus and the overwhelming superiority of the Jamison method, and (2) of a booklet describing the "Eager Colon Cleanser."

Jamison has also issued an advertising booklet of his own entitled "How to Become Strong." In the preface Jamison states that he has "for thirty-six years devoted his entire professional time and attention to Diseases of the Bowels." This, doubtless, qualifies him for the chairmanship of the Council on Pharmacy and Chemistry. He states that his experience "enables him to speak authoritatively concerning the best system of treatment for intestinal diseases." The booklet has a frontispiece showing what is presumably meant to be Jamison's office with Jamison himself giving a treatment for some rectal trouble. This is described as "The New Scientific Method of Operating upon Hemorrhoids, Fissure, Ulcer, Fistula, etc." A large part of the booklet is devoted to "scare stuff." Various surgical instruments, scalpels, scissors, cauteries, clamps, etc., are shown, and, apparently, for the purpose of impressing the victim with the dangers he will run in going to surgeons for the treatment of his ailments. The booklet also shows certain devices for giving rectal enemas and the reader is told that every purchaser of one of these devices also gets "free" a copy of Dr. Jamison's new book "Intestinal Irrigation; or 'Why, How and When to Flush the Colon.'" Finally, Jamison's name appears as "Chairman of the Section on Gastro-Enterology" of the "Allied Medical Associations."

JOSEPH R. HARRIGAN, M.D., Jamaica, N. Y., *Chairman of the Council on Scientific Research:* According to our records, Joseph D. Harrigan was born in 1860 and received a diploma in 1883 from Bellevue Hospital Medical College. Harrigan's name appears as a member of the Advisory Board of that now extinct organization "The National League for Medical Freedom." The "league," as readers will remember, was exposed by THE JOURNAL as an organization engineered and inspired by "patent medicine" exploiters and those opposed to pure food laws. It led a hectic and turbulent existence while the money lasted and then flickered and went out. We also find the picture of Jos. D. Harrigan, M.D., adorning a newspaper advertisement of "Bitro-Phosphate," a widely advertised "patent medicine." Harrigan is described in the advertisement as a New York physician "who tells of a new health era to come through the use of Bitro-Phosphate." Thus we read:


BITRO PHOSPHATE
FAMOUS FRENCH DISCOVERY
replaces nerve wastage, increases strength energy endurance and vigor; builds firm healthy flesh.
BEST THING KNOWN FOR THIN NERVOUS PEOPLE

JOSEPH D. HARRIGAN M.D.

New York Physicians who tell of new health era to come through use of Bitro-Phosphate.

their food does not make flesh, simply because the assimilative organs are lacking in nerve force. And that is why they suffer from various disorders. Then again, look at the full blooded, stout, flushed face, easily excited men and women, how nervous they get at times. What they really need is bitro-phosphate to steady and strengthen their nerves, to supply the nerve vitality that is missing. They, too, on account of lack of sufficient nerve force, are susceptible to many functional disorders.

"And there are scores of men and women entering along in years who are almost physical and mental wrecks—who feel all languid and dependent and have no courage to struggle and restore the nerve vitality that once enabled them to live happy prosperous contented lives.

"Every man and woman past forty should regularly take bitro-phosphate tablets after each meal even though the body seems to have a normal supply of flesh, nerve force and blood. The nervous energy and blood corpuscles and vital forces in the body may be on the verge of collapse without any apparent outward signs. But some bitro-phosphate into the system and take no chances. I for one, and I speak for both the sentiments of other doctors, am glad that it is no longer necessary for patients to come to me for a prescription in order to obtain this valuable and remarkable medicinal substance. Bitro-Phosphate can now be obtained from Taylor-Issacs in Louisville and all good druggists in convenient 5-grain tablet form. I advise every man who suffers in this or any other city, to test and see for themselves just what the tablets of a few Bitro-Phosphate tablets will do, and to report the results to their own physicians".

Caution: There are a great variety of so-called phosphates. Therefore those who wish to test this substance should be sure to get the genuine Bitro-Phosphate.—(Advertisement)

Part of an advertisement (reduced) of a "patent medicine," Bitro Phosphate, with a testimonial of Dr. Jos. D. Harrigan, who is chairman of the "Council on Scientific Research" of the "American Progressive Medical Association."

"Joseph D. Harrigan, Former Visiting Specialist to North Eastern Dispensatory, says: 'Let those who are weak, thin, nervous, anaemic, or run-down, take a natural, unadulterated substance such as bitro-phosphate and you will soon see some astonishing results in the increase of nerve energy, strength of body and mind and power of endurance.'"

This should qualify Dr. Harrigan to fill with distinction the chairmanship of the Council on Scientific Research.

So much for the personnel of the "American Progressive Medical Association." The letterhead of that organization carries the admonition: "Investigate everything—select the best." We commend this suggestion to our readers. Look over the list here published and "select the best."

Chemical Light.—Practically we have only two sources that contain a quantity of chemical light worth mentioning; namely, the carbon arc light and the mercury-vapor arc light. The difference between these two kinds of lights is in reality very considerable. The carbon arc light contains all the rays of the spectrum, while the mercury light mainly contains the ultraviolet and particularly the short-waved ultraviolet rays with but slight power of penetrating.—Reyn, A.: Artificial Light Treatment of Lupus and Other Forms of Tuberculosis, *Brit. M. J.*, Sept. 22, 1923.

Correspondence

"CONNECTICUT INVESTIGATION OF MEDICAL DIPLOMA SCANDAL"

To the Editor:—In The Journal, November 10, you refer to the "Alexander" medical (?) school of Kansas City as "Eclectic." The Alexander school is not and never was "Eclectic," and does not claim to be such except in a very dishonest roundabout way to deceive a few who may be influenced by such claim.

Dr. Alexander of Kansas City, Mo., is not a member of the National Eclectic Medical Association, nor of the Missouri State Eclectic Medical Society, nor has he been since at Nashville, Tenn., the National Eclectic Medical Association refused to recognize his school in 1917.

The action of the so-called Eclectic Boards we deplore because they are a discredit to the profession in general and to Eclectics in particular.

We have no way of controlling the action of the legislatures of states wherein separate boards represent the various systems of practice.

Every effort was made use of to help eradicate the disreputable examining boards of the state of Florida, and we are gratified to have that stigma removed.

We have in the past and continue now to keep our records free from "disqualified" men, and assure you that no man can obtain or continue a membership with us except on the basis of graduation from a reputable school of medicine or a license to practice in the state in which he resides. A license obtained by fraud is certainly a disqualifying act, and we trust that Governor Templeton of Connecticut and Governor Hyde of Missouri, as well as Governor McRae of Arkansas, will not permit investigation to stop until every fraudulent possessor of a license to practice medicine in either of the states has his license annulled, and the holder thereof punished for his criminal conduct.

We feel that in justice to us you will give the above the same publicity accorded your recent article of above date.

William P. Best, M.D., Indianapolis.
Recording Secretary, National Eclectic
Medical Association.

"NEEDED IMPROVEMENTS IN GRADUATE MEDICAL EDUCATION"

To the Editor:—In The Journal, November 24, under the title, "Needed Improvements in Graduate Medical Education," appears a statement of the position of the Council on Medical Education and Hospitals in relation to graduate medical instruction. Such an announcement makes timely, and in fact invites, comment.

It must be borne in mind that graduate medical education is not and cannot be compulsory; that the physician, once he has obtained his license, may legally practice any branch of medicine, subject only to dictates of his conscience and his fear of malpractice suits; and that if he is to improve himself through further study, such opportunities must be offered to him as he will, himself, freely elect, even though an all-wise providence might prescribe differently. Just the reverse has been true of the process of standardization of undergraduate medical teaching. The Council, together with other similar agencies, had only to persuade the state licensing boards that certain educational requirements were desirable in order to have them enforced as law. The medical student was not asked whether he liked the ruling. If he wanted to practice, he was obliged to comply with the regulation of the board. An attempt to raise the standards of graduate medical teaching more rapidly than the medical profession becomes desirous of such changes will have exactly the opposite effect from that which is intended, for it will drive the students away from the better class of schools which adopt higher standards and cause them to flock to the poorer schools which, though less well equipped, will give them what they want.

In any consideration of graduate medical teaching, it is natural to divide the subject into two parts; namely, training for the specialist, and training for the general practitioner. While in aims and methods these two kinds of training are distinct, in subject matter they are not mutually exclusive. A rigid line of demarcation between the field of the specialist and the field of the practitioner cannot be drawn. In a city of one million inhabitants, specialists of every conceivable variety are accessible, and the sphere of the general practitioner is correspondingly restricted. In small cities, towns and villages, specialists do not and cannot exist, and therefore the sphere of the general practitioner is necessarily enlarged. It is in this zone common to both that sound judgment and wise administration are needed in order to provide both groups of graduate students the opportunities they legitimately seek.

Dr. Frank Billings, in the columns of The Journal, has stated that the family physician should be able, in 85 per cent. of the cases that come to him, to make a diagnosis without calling in a specialist. Dr. Wilbur, President of the American Medical Association, addressing the Medical Society of the County of New York, has voiced the same sentiment. To enable the profession to realize this ideal is the chief objective of postgraduate medical education. To increase the diagnostic ability of the general practitioner so that his services may be of the greatest value to the community in which he lives should be the first principle in the organization of graduate medical instruction. To this end, the opportunities for the general practitioner should be enlarged, not curtailed. Certainly, he should not be denied the opportunity to refresh his knowledge of those subjects which constitute a part of the required curriculum for undergraduates. The late Dr. Biggs may have somewhat overstated his case when he said that the average medical practitioner was fifteen years behind the times, but we all recognize that there are many members of our profession who are not equipped to give to their patients the benefit of recent advances in medical science. To remedy these deficiencies is the greatest service medical educators can render to mankind.

With regard to the ideal training of specialists, the excellent reports, compiled by men eminent in their respective fields, heretofore published in The Journal, leave little to be said, except this: that the men who wrote these reports did not, for the most part, receive their special training in the manner they now recommend. The process by which they achieved their present distinction was much slower, more arduous no doubt, but at least they had the benefit of a broad foundation of experience in general medicine. It is too early to speak confidently of the results of the proposed system of education for specialists; but one may be pardoned, perhaps, for wondering whether the short standardized course will not tend to accentuate the deplorable tendency to regard patients as "cases" of a disease, rather than as persons who are sick.

Undoubtedly there are many "half-baked" specialists who bring discredit on our profession and who are a menace to the public, and of these the greater number aspire to be surgeons. They have multiplied exceedingly in recent years coincidently with the rapid increase in the number of hospitals. Few men, I judge, are so conscienceless as to undertake a major operation without having previously wielded a knife. The dangerous amount of knowledge is secured, as a rule, in a hospital, where, as intern, one may secure in a brief time familiarity with operative technic and, too often, unwarranted

self-confidence. Hospitals having a short surgical service, in many cases six months or less, are, in my estimation, the clothouses in which are bred most of our irresponsible operators.

In view of the beneficent influence of the Council on Medical Education during the last twenty years, it may seem gratuitous to take exception to its pronouncements; but the importance of this subject of graduate teaching leads me to point out that, in spite of the declaration that "the Council is not attempting to prevent any physician from getting any course he needs, nor is it trying to assume authority over any individual or graduate teaching institution, or to prevent them from offering to physicians any courses they see fit," the action of the Association in refusing to print the advertisements of courses not approved by the Council does, in effect, and to the extent of the Council's ability, prevent physicians from taking, or schools from offering, such courses.

WILLIAM D. CUTTER, M.D., New York.
Dean, New York Post-Graduate Medical School and Hospital.

[COMMENT.—The physician will be in better position to know what courses to "freely elect" if each short course given by any graduate school is arranged with other short courses in a graded series, and if, in the printed announcements, each short course is described so as to show its subject content; its duration in weeks or months; the hours and days of the week when given, and the name of the teacher in charge. At present, unfortunately, this knowledge is seldom satisfactorily obtained from the announcements of the school, and the physician is forced to make a selection blindly from a maze of unstandardized short courses, which may or may not provide him with the instruction he most needs. The development of graded courses for both general practitioners and specialists is being urged for the very purpose of "enlarging and not curtailing" the opportunities for graduate medical instruction which on due investigation may be found worthy of approval by the Council. It will also meet the increasing number of requests from physicians asking where "good courses" in various subjects may be obtained.—ED.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BROMID IN A SALT-FREE DIET

To the Editor:—Is the use of bromids to flavor foods, in cases in which salt-free diets are indicated, permissible? Please omit name.

R. N. Y.

ANSWER.—In view of the fact that bromid is capable of partly replacing chlorid in the system, and that it is distributed just like chlorid in the fluids of the body, bromid would be as objectionable as chlorid in cases in which a salt-free diet is indicated. It would, in fact, be more objectionable, owing to the liability to produce bromism.

SANTOPERONIN

To the Editor:—Physicians in China look to THE JOURNAL for information concerning proprietary medicines. A number of foreign proprietaries are extensively exploited there and advertised in the *China Medical Journal* and other journals which are not exploited, apparently, in this country. Occasionally, one of these drugs is exposed in German medical journals. For example, I was asked in China repeatedly in regard to Santoperonin. I now find that Heubner, in the *Klinische Wochenschrift* (2: 1483, 1923) has a note on it. We do not get the *China Medical Journal* here, so I cannot keep track of it. Would it not be possible to have a brief statement of its composition included in Queries and Minor Notes?

H. R., M.D.

ANSWER.—According to Heubner, the history of santoperonin, which is claimed to be an ascaricide, does not arouse confidence. The proprietary was placed on the German market before satisfying the requirements that should govern the introduction of new medicaments. Its composition has varied; the exploiter has maintained an air of secrecy concerning the identity. Heubner states, however, that unbiased examinations of the product seem to show that it is a mixture of copper oxid (38 per cent.) with organic material which essentially consists of aromatic (azo?) combinations. There seems to be little clinical evidence to warrant its use, and so far there is no justification for believing it is even as good as santonin.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, January 8. Chairman, Dr. Samuel W. Welch, Montgomery.

COLORADO: Denver, January 8. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

INDIANA: Indianapolis, January 8. Sec., Dr. W. T. Gott, State House, Indianapolis.

NORTH DAKOTA: Grand Forks, January 1-4. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

OREGON: Portland, January 2-4. Sec., Dr. Urling C. Coe, Stevens Bldg., Portland.

SOUTH DAKOTA: Pierre, January 15. Dir., Dr. H. R. Kenaston, Bonesteel.

WASHINGTON: Olympia, January 8. Sec., Mr. William Melville, Olympia.

WISCONSIN: Madison, January 8-10. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

INVESTIGATION OF LICENSES IN CONNECTICUT

Last week THE JOURNAL published the record of Frank Edward Gavlas, who is involved in the Connecticut licensure investigation. Three weeks ago we published the record of Donald W. Stewart. This week the report concerns George E. Sutcliffe.

George E. Sutcliffe

According to our records, George E. Sutcliffe was born in England in 1875; attended the St. Louis College of Physicians and Surgeons, 1917-1918, and was graduated by that institution in 1918. Our records indicate that he was licensed in Colorado in 1920, and in Connecticut in 1921; that he was in St. Louis in 1920; Wray, Colo., in 1921; Vernon, Colo., in 1922, and temporarily at Unionville, Conn., and St. Louis in 1922. In the publicity connected with the Connecticut scandal, one of the first men to come into the limelight was George E. Sutcliffe. According to the Hartford *Courant,* he confessed to the states attorney the facts regarding his medical education. In his confession, he named Dr. Waldo Briggs, dean of the St. Louis College of Physicians and Surgeons, as the person who secured the false credentials for him, and "revealed that he had two diplomas from the St. Louis institution, one purporting to show that he was graduated in 1918, and the other that he was graduated in 1920. He said that he also bought a diploma in a somewhat similar manner for a friend, paying $150 for it."

The following is in brief the record of Sutcliffe according to the published confession. In 1918 he was a photographer in St. Louis. A student at the St. Louis College of Physicians and Surgeons introduced him to Dr. Waldo Briggs. He told Briggs that he did not have a high school diploma, and Briggs said that he would fix it up, and also told him he would get him through in two years. The high school certificate, he said, was obtained from Prof. William P. Sachs for $25. Since Sutcliffe had no money, he arranged to pay Briggs by taking care of the books of the college. In 1919, he obtained a diploma for a friend for $50. The signatures were not good, so Dr. Briggs prepared another diploma for $150. When Sutcliffe completed the work in 1920, he said, he received two diplomas, one dated 1918 and one 1920. "Doctor Briggs gave me the 1918 diploma," said Sutcliffe, "because as he explained the state board of health of Missouri recognized persons who were graduated from the school prior to 1919." Sutcliffe took a quiz course and passed the examining board of Colorado in 1920. He practiced two years, and then through reciprocity was certified by the latter state to Connecticut.

Book Notices

Handbook of Tuberculosis for Medical Students and Practitioners of Medicine. By John Ritter, Ph.G., M.D., Assistant Professor in Medicine (Department of Tuberculosis) Rush Medical College, Medical Department of the University of Chicago. Cloth. Price, $6. Pp. 572, with 64 illustrations. Chicago: Published by the Author, 1923.

There was difficulty during the World War in obtaining a sufficient number of tuberculosis experts to examine the soldiers. They were a necessary part of examining boards, most hospitals presumably had at least one, and tuberculosis hospitals had a number of them. With a filter so fine, patients still leaked through with a wrong diagnosis. Not a few were shipped from France to selected points inland at home where climate, equipment and staff were ready to do everything possible to restore them to health, but who could not respond because they did not have tuberculosis. Experts disclosed that in an early report on French soldiers who were said to have tuberculosis, there were many included who did not have the disease. Thus war demonstrated that the average physician recognizes early tuberculosis poorly. This book represents in large part the lectures and demonstrations given by its author at a medical school. It more than covers the subject, including, perhaps, too many things that have been written on tuberculosis. Can an undergraduate student find the essential features? Why ask a student to study Friedman's vaccine, Marmorek's serum and Maragliano's serum when he should be studying chests or interpreting roentgenograms? Why expatiate on the sputum albumin test when the proper staining and search for the tubercle bacillus are what the undergraduate students need? *Bacillus leprae* and *Bacillus smegmatis* should not be considered among "other varieties" of the tubercle bacillus. Perhaps there is too much said also about inherited tuberculosis. It is said in a later chapter that "primary infection usually takes place after birth and is then spoken of as extra-uterine or postnatal, in contradistinction to that infection which takes place occasionally before birth which is known as intra-uterine or prenatal." This magnifies an almost negligible subject—intra-uterine infection. The chapter on tuberculin is interesting. The technic of tuberculin dilutions and injections is clearly stated. The gist of the chapter is, "Tuberculin in itself never has, never can, and never will cure a case of tuberculosis. But it is a most valuable adjunct in the fight if aligned with fresh air, good food and out-of-door life. In specially selected cases its use is undoubtedly indicated." A student will seldom read a better discourse on the "primary focus of infection" than is found in Chapter VI. This book is not well edited; and, what is more important, it fails to present the fundamentals so that a student must recognize what is essential to recognize early tuberculosis.

The Second International Exhibition of Eugenics, held September 22 to October 22, 1921, in Connection with the Second International Congress of Eugenics in the American Museum of Natural History, New York. An Account of the Organization of the Exhibition, the Classification of the Exhibits, the List of Exhibitors, and a Catalog and Description of the Exhibits. By Harry H. Laughlin. Cloth. Price, $3. Pp. 155, with 47 illustrations. Baltimore: Williams & Wilkins Company, 1923.

This report of the extensive and attractive display of illustrative material at this congress of eugenics is evidence of two things: the important rôle which exhibits have come to play in the extension of propaganda and the education of the public, and the wide range of the activities of students of eugenics. Illustrations for this exhibit were taken from the sciences of anthropology and archeology, embryology, psychiatry, hemology, the science of statistics, genealogy, sociology and many other fields of human interest. The reproductions of the illustrative material, mostly wall charts, are of sufficient size and clearness to convey a correct idea of the full size originals. An idea my be gathered of the comprehensive nature of the display by mention of some of the illustrations: statuette of the average American male; the chromosomes of man; approaching extinction of the Mayflower descendants; miscegenation in Hawaii; heredity of longevity; palm and sole prints and their inheritance; inheritance of specific isoagglutinins of the blood; heredity of harelip and cleft palate; pedigrees of artistic and musical talents. There is no more effective way of arousing the interest of large numbers of persons and directing their thought to a subject of this sort than by such an exhibit as is described in this book.

Die neueren chemotherapeutischen Präparate aus der Chininreihe (Optochin, im besonderen Eukupin und Vuzin) und aus der Akridinreihe (Trypaflavin Rivanol). Eine kritische Besprechung des bisherigen Erfolges und der Grundlagen der Therapie. Von Ernst Laqueur, Direktor des pharmakologischen Instituts Amsterdam. Unter Mitwirkung von A. Grevenstuk, Assistent am pharmakologischen Institut Amsterdam, A. Sluyters, I. Assistent am pharmakologischen Institut Amsterdam, und L. K. Wolff, I. Assistent am hygienischen Institut Amsterdam. Paper. Price, 75 cents. Pp. 91. Berlin: Julius Springer, 1923.

The important fact that a true beginning has been made toward the production of chemotherapeutic agents that may selectively attack bacteria within the living body, just as other agents specifically attack protozoa, has naturally aroused widespread interest. As yet, however, the laboratory and clinical evidence is in an immature state and, as always is the case in such episodes in medicine, only favorable results are likely to appear in the literature. One therefore welcomes this critical review of the literature, supplemented by personal observations from investigators not directly connected with the manufacturing organizations that produce the substances now under trial. In this monograph the published reports are discussed critically, with careful consideration of the fundamental principles of chemotherapy as a background. Particular emphasis is laid on the present difficulties of transcribing experimental results and methods to clinical application. The authors prefer not to draw any definite conclusions from the existing evidence, but give as their personal view the following careful statement: "All the substances mentioned in the title can be of benefit, but benefit is to be expected only in the hands of good physicians, and while using them he must always remember that he has in his hands no perfected, specific curative, therapeutic agent." They also recognize the fact that, although we have as yet not found an ideal curative agent for the pathogenic cocci, it is remarkable that so much has actually been accomplished in such a short time. This amount of success gives us grounds for hope that the path pointed out by Ehrlich and followed by Morgenroth, his pupil, may in time lead to success. It is to be noted also that in this monograph by no means all the chemotherapeutic agents recently tried with more or less success have been taken into consideration. In brief, this monograph is a timely and valuable recapitulation of what has been accomplished thus far in one of the most important new fields of medical research.

The Practical Applications of X-Rays. By G. W. C. Kaye, O.B.E., M.A., D.Sc., Head of the Radiology Department, The National Physical Laboratory. Cloth. Price, $5. Pp. 135, with 96 illustrations. New York: E. P. Dutton & Co., 1923.

This book contains the information given by the author in his Cantor Lectures before the Royal Society of Arts. Three chapters are devoted to a description of the nature of roentgen rays, the modern tubes used in their production, and the high potential generator. Much of the material is of a highly scientific nature, requiring a knowledge of higher mathematics. The author presents numerous graphs and diagrams which greatly enhance the value of the book. Chapter IV gives a detailed discussion of the measurement of roentgen rays; the medical application is barely mentioned. The use of roentgen rays in the industries is particularly stressed. Of unusual interest is the presentation of the use of the roentgen rays in the detection of spurious paintings of Rembrandt, Rubens and other masters. An important application is in the aeroplane industry for the discovery of weak portions of material that enters the structures of the planes. Another phase is that of determining the symmetry of the core of the golf ball which, in some instances, is considerably out of center as well as shape, thus explaining the failure of proper flight of some balls—a new alibi for the dub golfer. The average roentgenologist and physician will learn that the medical field is only a small part of the many uses of the roentgen ray. Three instructive appendixes on radiation protection, nomenclature and atomic numbers have been added. The illustrations are excellent, and the subject matter is exceptionally well handled.

Miscellany

CERTAIN ELECTRICAL DIAGNOSTIC AND THERAPEUTIC METHODS FROM THE STANDPOINT OF A NEUROPSYCHIATRIST

THOMAS J. ORBISON, M.D.
LOS ANGELES

From time to time it becomes necessary, and more or less important or imperative, to make a serious test of what most of us might prefer to allow to die by the age old processes of "trial and failure." The medical profession has seen so many such trials and failures that we feel a natural distaste at the prospect of combating even the more extensive waves of pseudomedical folly, which have their origin in the conception of mental deviates, most of whom exhibit paranoid tendencies. The history of most of them is much the same: first, the paranoid conception, preferably with a pseudoscientific terminology; second, a label, which will "sell" the conception—this is the commercial feature of it; third, let us call it psychic autointoxication—this is the epidemic phase of the disorder. Some of them take on a semireligious aspect as a part of their symptom complex. All of them have two features in common, apart from their medical, pseudomedical or antimedical tenets: (1) the selling label and (2) ultrarational sanctions. The latest of them has attempted, attained and broken all altitude records (by altitude, I mean distance away from rational and scientific bases).

In October, 1923, an opportunity presented itself in Los Angeles to examine into the diagnostic and therapeutic values of the apparatus and methods employed in the electronic reactions of Abrams. This came about through the medium of a justice court case, in which testimony was under oath and in which a wide latitude was given in the matter of the giving and taking of the testimony so as to arrive at a more or less unrestricted view, both of the legal action at issue and the larger matter of the Abrams methods of diagnosing and treating disease.

Four of the high lights of the two and a half days proceedings were: 1. A thorough and nonmedical technical examination of the various apparatus used by the Abrams disciples. This examination was made, at my request, by Prof. R. A. Millikan, head of the California Institute of Technology, Pasadena, a physicist of the first rank, a Nobel prize man and an acknowledged authority in the realm of physics and electricity. His examination consisted of three phases:

(*a*) One which was carried out alone with the doctors who were practicing it (i. e., the Abrams method).

(*b*) Listening, for the greater part of a day, to the testimony regarding it by the same and other disciples of Abrams.

(*c*) Being present when the court adjourned to the offices of two of these men and observing a typical séance or examination, in which one of the lawyers acted the part of a patient and was "diagnosed," and during which I was given the opportunity to take part in the examination and took the place of the diagnostician.

2. The opportunity of a physician (myself), who is not an Abrams disciple, (*a*) to note at first hand and actually to take part in the "diagnosis" of a patient in the presence of and according to the personal direction of a number of those who practice the Abrams method; (*b*) to see patients being treated, and (*c*) to listen to and examine a few who had been "cured" or were in the process of a "cure."

3. The qualifications—medical and otherwise—of some men who are practicing the Abrams methods and who are treating "hundreds" of patients daily, and to listen to their sworn testimony on the witness stand and to their observations off it.

4. The kinds of diseases treated by them and the attitude of the patients at present under treatment and those who have "quit" taking treatments.

THE ABRAMS APPARATUS

As to the first point, Professor Millikan not only wrote me a concise opinion covering this matter, but also enlarged on the whole subject in a lecture which he gave before the Southern California Medical Association on the night of November 3, last. A careful perusal of his letter will give to any one the opinion of a qualified expert as to the values of certain apparatus for which various claims have been made. Some of these claims are those of windy enthusiasts, but others are those of men who have more carefully testified under oath and who have in their possession certificates to practice the healing art in a sovereign state and who are daily treating by this particular method patients known to be suffering from cancer, tuberculosis, syphilis and other "killers" among diseases, as well as others in whom the diagnosis may be faulty and who may not be suffering from any disease, provided the diagnosing apparatus and method are faulty. And this is the important kernel of the whole matter—whether the diagnosing and treating apparatus and method are or are not faulty. Professor Millikan wrote:

"I have spent the greater part of a day in listening to the description by doctors who use the so-called 'electronic method of Abrams' of that method, and in a very careful examination of the instruments and technique of the method itself. As you will remember, I made a portion of this examination of the Abrams method when I was alone with the doctors who were practicing it, and another portion when you yourself were present and took part with me in the examination.

"I scarcely need to say to you, or to any other intelligent man who has examined the method, that I do not consider that it rests upon any sort of a scientific foundation whatever. Indeed, from the standpoint of physics the claims set up by Abrams and his followers are the height of absurdity. They talk about finding the vibration frequency or vibration rate of each particular kind of disease, and they then claim that they can destroy the micro-organism which has that vibration rate by imposing upon it from without its own frequency or vibration rate. Yet when they are making a diagnosis they attempt to find the natural frequency of the disease by inserting more or less electrical resistance into a circuit which cannot oscillate at all and therefore has no vibration frequency, and if it could oscillate the period would not be changed at all by inserting more or less resistance. In other words, the setting of the dials of the resistance box upon different buttons cannot possibly make it respond to different frequencies, since the electrical system used is, in the first place, one which cannot oscillate any way, and, in the second place, if it could oscillate it would oscillate in the same period, whatever button of the resistance box the dial was turned to. So that the claim that a diagnosis can be made by turning the dial to different buttons and thus tuning in to different frequencies simply indicates complete ignorance of the fundamental laws of physics by the one who makes it.

"Secondly, in the treatment of the disease they claim that they impose upon the micro-organism its own vibration frequency, yet what they actually do impose for the treatment of all diseases is one and the same vibration frequency, since in the treatment, as well as in the diagnosis, the turning of the dials to different buttons cannot in the nature of the case change at all the impressed frequency. Furthermore, the actual impressed frequencies is of the order of 400 or 500 vibrations per second, as can be seen from the fact that it is heard in the ordinary telephone, and such an instrument is capable of responding only to frequencies of this low order of magnitude. But if a micro-organism has any natural frequency at all, it would have to be millions of times higher than any audible frequency of the kind they use in the treatment, so that the claim that they are finding and then imposing upon the disease its own natural frequency is simply the

height of nonsense in view of the kind of physical mechanism with which they are dealing.

"Finally, it is true that the electrons inside of atoms give off, under suitable stimulation, frequencies of definite period which are properly called electronic frequencies. These frequencies are billions of times higher than any which the Abrams people are using in the treatment, so that the use of the word 'electronic' in connection with the Abrams method is simply wholly misleading and unscientific.

DIAGNOSIS AND TREATMENT

As to the second point, most of the men whom I met and who are using the Abrams method are, like myself, licensed physicians and surgeons in the state of California. Most of them stated that their "course" under Abrams lasted only a few weeks. It is my opinion, based on observation, that the ability to acquire and practice his method does not require a high level of medical intelligence. Furthermore, the actual diagnosis of the patient (whether the patient is present or a drop of his blood is placed in the "dynamizer") depends on certain facilities which every medical student learns very early in his course; namely, observation, palpation, auscultation and percussion. There is nothing mysterious or that requires exceedingly difficult technic in the actual procedure of diagnosing disease by the Abrams method in the hands of any ordinary physician, provided he stipulates and assumes certain formulations and working hypotheses laid down by Abrams himself. And this is the kernel of this particular nut —Abrams by himself and on his own authority abitrarily lays down certain assumptions and hypotheses and preaches them dogmatically. Furthermore, they must be accepted in the same spirit by his disciples. If he is right, then they are right and their patients are in safe hands, and vice versa. In this respect his cult resembles a religious cult, because every religious cult demands certain *ultra*rational sanctions. There is no religion that does not do this, as far as I know. According to Benjamin Kidd,[1] "the essential element in all religious beliefs must apparently be the ultrarational sanction which the religions provide for social conduct."

Regarding the sanctions demanded by Abrams, they might better be termed *pseudo*rational, rather than *ultra*rational, in the light of the expert opinion concerning their apparatus of scientists, such as Professor Millikan, and their medical values in diagnosing and treating disease arrived at after examination of them by qualified medical experts. In any event, some of them are as follows, and even a glance will show the conscious and determined attempt to give an *ultra*scientific flavor to the whole thing through the use of terminology and sanctions that are *ultra*scientific, and assumptions and arbitrary deductions that are *pseudo*scientific. What are these sanctions and assumptions? All of the following were brought out under oath:

1. All matter possesses certain wave length values. Having found the wave length, one can do certain things to matter. Example: Caruso determined the tone (wave length) given by a glass vessel, when a violin bow was drawn across its edge; he then sang into it that tone; the vessel was shattered into countless particles. This particular episode fired a fuse in Abrams' imagination that apparently blew up a whole mine of ideas, according to the testimony of one of his disciples.

2. Disease micro-organisms are matter; ergo, they have their own wave lengths (one man called them emanations, and went so far as to say he had heard them over a radio).

3. Having determined these wave lengths and discovered a method of imposing its own wave length on a given micro-organism, one can, so to speak, "shatter" it. The last assertion is one of the sanctions that no one but Abrams claims to have proved. The question might arise, why should it not do a number of other things rather than shatter or destroy? Thus far we have confronted nothing inconceivable.

1. Kidd, Benjamin: Social Evolution, 1907.

4. Abrams alone claims to have discovered the wave length of certain definite micro-organisms which are etiologic factors of certain well known diseases. It has not been stated anywhere that I know of what were the various steps taken by him in his discoveries or the apparatus used. These things are very important in scientific investigations—for one reason, in order that other investigators may check up the findings. We cannot follow him here because of lack of scientific data.

5. (This seems to be a very extensive gap). The claim is made that there are certain apparatus, to which Abrams has given names, which (*a*) can and do indicate these various wave lengths in terms of "ohms" (diagnose the disease) and (*b*) others which can be and are used effectively in applying to an individual who is acting as the host to any of the disease micro-organisms that have been diagnosed such vibrations as will shatter or destroy the micro-organisms causing his disease or diseases—this last apparatus "clears the blood" of the patient and "clears" him. All this not only lacks any confirmation but has been disproved.

6. (Another gap of assumption). One drop of blood contains all the elements of an individual necessary to a diagnosis of any or all the disease micro-organisms with which he is infested. (The testimony of some of Abrams' disciples goes much further than this). Ergo, one drop of blood may be used instead of the patient, because a part of the diagnostic apparatus—the "dynamizer"—is so constructed as to obtain this result, provided the drop of blood (say, on a blotter) is placed therein. Thus, either the patient or, in his or her absence, a drop of blood may be used.

7. (Other very wide gaps of assumption). (*a*) A "reagent" is injected into the path of the vibrations in the person of an individual whose blood has been "cleared" by this method.

(*b*) He must face West.

(*c*) A man can be reagent for a woman patient. (Query—Could a diagnosis be made of a malignant tumor of the ovary or uterus? I have no doubt that Abrams could bridge that gap—to his own satisfaction.)

(*d*) On the body of this reagent is reflected the diseases in the body of the patient, either he or she or a drop of blood being utilized.

(*e*) The disease "finder" (a third electrode used for localizing disease sites, e. g., sinusitis, heart disease and so on—may be held quite a distance from the surface of the "reagent's" body. This makes a real gap or jump for the vibrations.

(*f*) It is not made clear what has been discovered as to the vibrations, emanations and wave lengths of body tissues necessary to health, or of the benign or beneficent micro-organisms circulating in our bodies, e. g., the leukocytes.

(*g*) Arbitrary sites for disease organs are laid down with geographic precision on the abdomen of the reagent. These have been discovered by Abrams alone, and must be accepted by his disciples as exact sites. Use is made of these sites as follows: If the patient has, let us say, congenital syphilis, then a reaction is had over one of these sites on the reagent; acquired syphilis on another, and so on.

There are many other gaps of assumption between one's reason and Abrams' Promised Land.

Take all these observations together and they seem to demonstrate clearly that there are more gaps than solid bases; therefore any structure built on them must necessarily be air castles rather than scientific construction.

OBSERVATION OF PATIENTS

As to the fourth point, personal observations of patients, "cured" and under treatment, in the offices of Abrams disciples and seen with them:

Case 1.—A woman, aged about 45, now an assistant in the office of Dr. J. (one of Abrams' disciples), with a diagnosis

of cancer (she had been operated on for the removal of carcinoma of the breast by a "regular" surgeon) claims to have been cured by the Abrams method, because her breast has entirely healed up and is now apparently without malignancy, although she says it was red and angry looking when she began to take treatments. Examination shows an excellent surgical result in the breast, but a large mass in the adjoining axilla, about the size of my fist. She says and Dr. J. (the Abrams disciple who "cured" her) says it is not malignant, and she seems quite happy and contented about it. Both look on the result as a brilliant "cure" to the credit of the Abrams method.

CASE 2.—A woman, aged about 35, with a sarcoma within the abdomen, is under treatment, and a cure has been explicitly promised by Dr. J. and is fully expected by the patient. She was showed to me as a brilliant example of how a tumor "melts" away under treatment. If one takes her word for it, her abdomen is now reduced to normal dimensions and is no longer so tender that she could not bear to have any thing touch it, as it was before taking treatments. She is obviously in a most happy and exalted state of mind.

CASE 3.—A woman, aged about 30, was lying on a treatment table and being treated for tuberculosis of the larynx. The diagnosis, she said, had been made by a regular physician, and little or no hope of cure extended to her until she had come to Dr. J. He was treating her by placing electrodes about her neck, connecting them with the oscilloclast, which was tuned in to tuberculosis. With the greatest assurance Dr. J. pointed her out to me as surely to be cured. On her face was the same hedonic expression one sees on the faces of religious devotees or those who have been saved from some terrible plight. Only a great emotional actress could portray her expression, for it was the expression of one looking through the gates of heaven after having escaped the clutches of death. I have no doubt that such cures could be marshaled by companies right here in Los Angeles.

QUALIFICATIONS OF MEN PRACTICING THE ABRAMS METHOD

As to the third point, what are some of the side-lights brought out in this case? One is the personnel of the men who are practicing the Abrams method. Some that I saw are "hacks" and some are "quacks," but the terrible fact remains that all have certificates to practice the healing art in the state of California, and some of them in other states.

Not all of the Abrams disciples are ignoramuses, by any means. Some have had good medical education. Some of them, I believe, are really deluded by strong suggestion and eccentric motives into a belief flavored by hope and blinded by apparently successful cures. Many, of course, I suppose, go into it as into any speculation, from purely mercenary motives.

QUESTION THAT FACES PHYSICIANS

The question for us is, What shall we do about it? The crux of the whole matter is an old, old one: the gullibility of the public, plus the avarice and immorality of a part of the medical profession.

As long as medical practice is stood up in the market place to be knocked down to the highest bidder, and the healing art placed in the soiled hands of ignorant and immoral practitioners by popular vote, so long will quacks and charlatans abound and wax fat. This state is an inglorious example of the misuse of such terms as "fair play in medicine" and "personal freedom." The former leads to quackery under the mantle of science, and the latter ties the hands of intelligence and gives free rein to the moron. As to Abrams and his tribe, their state certificates to practice the healing art should be taken away from them.

I base this deliberate statement on the following:

1. The apparatus used in the Abrams method have been found to be worthless from the standpoint of electronics and physics, and useless from the standpoint of medical science.

2. The very names and terminology utilized in this method have been proved misleading.

3. The method has not passed the acid test of scientific bodies competent to make such tests. As yet neither the Rockefeller nor any other accredited group has sanctioned it. On the other hand, Abrams has consistently refused to submit himself and his method to the scrutiny of qualified investigators.

4. The propaganda used by him and his disciples is the same well known propaganda of the fraudulent "cancer cures," "consumption cures," "kidney cures" and "diseases of men cures." These have been declared frauds, and their exponents deprived of their certificates to practice medicine.

5. The man or woman who obtains a certificate to practice medicine must be able to show sufficient educational qualifications. In order to practice medicine, he or she must be able to give to his or her patient certainly the average qualifications for diagnosing and treating disease. These are obtained only by previous study in medical schools. There is not a single medical school which sanctions the Abrams methods. Therefore the physician who holds himself out to be an M.D. and throws into the discard the methods he has been taught and which are accepted as the tenets of medical science has no right to practice medicine. If he continues so to do and uses methods proved to be false and contrary to all science, and in addition holds out promises that are false and takes money for so doing, then he should not only forfeit his certificate to practice but should be serving an indeterminate sentence for fraudulent practices.

Federal and state laws hold us as physicians to strict accountability in the matter of the possession and dispensing of narcotics. Is it not more heinous and dangerous to possess and dispense fraudulent promises? Which is the greater fraud—to sell a "salted" gold mine and fake oil units, or to sell faked diseases and faked cures to the same family? And what is more dangerous and abominable than to promise and pretend to cure real diseases and thereby lull into a false sense of security those who are surely going to die, if their disease is allowed time in which to intrench itself?

Westlake Professional Building.

FORECASTING THE POPULATION OF THE NEW YORK REGION

Forecasting the populations of the future is a problem that faces large cities. There are a number of methods based on the population figures of the past. The trend of past population changes is determined, and this trend is extended into the future. The difference in forecasting methods lies chiefly in extending the curve that represents the future aggregates. In a mathematical calculation of future populations, the factors that must be considered are: (1) a definite area on which the population grows; (2) a definite upper limit to the number of persons who can live on that area; (3) a lower limit to the population, which is zero; (4) the epochal character of growth (epochs marking advances in human culture and economy permit given areas to support more people), and (5) the rate of growth in each epoch, which varies, being slow at first, then increasing in rate to a maximum, then decreasing until almost a stationary aggregate is maintained. With these, Pearl and Reed developed a mathematical equation which indicates that the population of the New York City region in the year 2000 will be 28,800,000, or about three times the present population (Pearl, Raymond; and Reed, L. J.: Predicted Growth of Population of New York and Its Environs, 1923). According to the prediction equations, the population at that time will have a tendency to stabilize, the one outstanding exception being that the number of foreign born will ultimately tend to stabilize at about 1,525,000, which is far below the number predicted for the year 2000. The negro population will have tripled and will then constitute 5 per cent. of the population, whereas it is now but 2.6 per cent. The mathematical theory applied to this problem has been applied to the populations of all the large countries and

to several large cities. According to the authors, the agreement in all of these cases between the observed values and those of the equation is of the same order as that usually found in applying a mathematical law to measurements in the field of science. The probable errors in a calculation of this kind would seem to be greater in the case of the elements of the population than in the case of the population as a whole.

Medicolegal

Appeals from Orders of State Medical Board

(Rutledge v. State Medical Board (Ohio), 140 N. E. R. 132)

The Supreme Court of Ohio, in reversing the judgments of the court of common pleas and the court of appeals and in remanding the cause for a proper hearing, says that the petitioner, after having been refused a certificate to practice medicine under the limited practice act, had filed a petition for review in the court of common pleas, which dismissed his petition and was sustained therein by the court of appeals. This controversy involved the construction of Section 1276 of the General Code of Ohio, which provides for an appeal in certain cases from the action of the state medical board to the court of common pleas. An examination of that section, and of other related sections, discloses that, although the right to an appeal is granted, the procedure and the formalities attending the perfection of such an appeal are not provided. Since the statute makes no provision for the formalities, and since it is quite clear that it was intended to grant the right of appeal, the court should not resort to technicalities, or place difficulties or stumbling blocks in the way of a person desiring to appeal any such case, but it should be held, on the contrary, that any notice to the medical board of his desire to appeal, or call on that board for a certification of the papers and records to the court of common pleas, indicating his purpose to appeal from the action of the medical board and his desire to have his case heard on appeal in the court of common pleas, should be sufficient to invoke the action of that court. It was urged, indeed, that no pleadings are required, or are even permissible, and in this view of the matter this court concurs. It must be agreed that practically all of the petition filed in this instance in the court of common pleas of the county of the petitioner's residence, except that part stating his grievance, desire to appeal, and demanding a certification of the papers and records to such court, was immaterial, and should have been treated as surplusage. The applicant being entitled to have a hearing, the medical board should have certified the papers to the court of common pleas, and the court should have proceeded to hear the case on appeal.

It was urged, however, that, since counsel for the petitioner saw fit to set out at length his petition, the medical board might demur to it and thereby raise the question whether or not it stated a cause of action, and also the question of the court's jurisdiction of the subject matter; and the demurrer filed did allege these two grounds. The grounds for sustaining the demurrer were not definitely stated. If it was on the theory that a petition was not the proper procedure, the judgment was, for the reason already stated, erroneous. Or, if the court had in mind to determine whether the facts stated in the petition were such as to entitle the petitioner to a certificate, a proper conclusion was not reached because the demurrer necessarily admitted the truth of the allegations in the petition that the petitioner had passed the examination and was not guilty of any of the things that would constitute a bar to his admission to practice.

It is not the province of this court to lay down rules or formalities governing an appeal in such cases, but it is proper for this court to state that on his appeal the petitioner was entitled to have a hearing, and the matter to be heard was the question of his right to a certificate. The length of the petition filed by him was a misconception for which he was not altogether to blame, since no procedure had been laid down by the statute. In other words, this court has reached the conclusion that the petitioner was entitled to an appeal, and to have the matter heard by the court of common pleas on appeal, and that the hearing should involve the merits of his claim, and not necessarily the truthfulness of the allegations of his petition.

Pneumonia Following Lowered Resistance from Heat

(Hoag et al. v. Kansas Independent Laundry (Kan.), 215 Pac. R. 295)

The Supreme Court of Kansas, in affirming a judgment in favor of the defendant in this action brought to recover for the death of an engineer employed by the defendant, says that the engineer, who, as part of his employment, cleaned his boilers, was overcome by excessive heat of the boilers while cleaning them. He was not prostrated, but was disabled. The disability was that his power of physical resistance was reduced so that pneumonia bacteria immediately became active, and he died of pneumonia seven days later. The court holds that his death did not result from personal injury by accident, within the meaning of the workmen's compensation act.

It is now generally recognized that what is known as heat stroke is an accident, within the meaning of compensation laws; and frostbite has been placed in the same category. When personal injury by accident has occurred, compensation may be recovered for disability and disease consequent on the injury. This engineer knew about the heat of boilers, which on the occasion in question was excessive, either in relation to the usual temperature when the boilers were cleaned, or in relation to ability to withstand the heat incident to cleaning them. In either case the engineer was inattentive to or misjudged the effect of the temperature on his power of endurance. For this reason, what happened to him was unexpected and, if what happened had been identifiable injury, the event could have been described as personal injury by accident. He did not unexpectedly come into initial contact with pneumonia bacteria by washing the boilers, nor were the pneumonia bacteria intruded into his system thereby. There was no definite physical lesion producing a specific kind of disability, such as occurs in heat stroke. Disease-producing bacterial activity was stimulated by a favorable condition; the favorable condition was lowered physical resistance to cause of disease; the lowered physical resistence was produced by work in excessive heat; and in the last analysis the question was whether unexpected reduction of resistance to a bacterial disease, resulting from performing work under some misjudged or ignored circumstances or condition, constitutes personal injury by accident. The court is of the opinion that the question should be answered in the negative. Lowered vitality may come from heavy work, from fatigue, from long hours of work, and from a great variety of other causes which expose a workman to pneumonia and other diseases. The result is that there is a twilight zone between clear personal injury by accident, which is covered by the compensation act, and sickness, which is not covered. In this case it was proposed to dispense with hurt, and make debility alone stand for injury, in the sense of the statute.

Society Proceedings

COMING MEETINGS

American Pathological Society, St. Louis, Dec. 27-29. Dr. Wade H. Brown, Rockefeller Institute for Medical Research, New York, Sec'y.

American Physiological Society, St. Louis, Dec. 27-29. Dr. Charles W. Greene, University of Missouri, Columbia, Mo., Secretary.

American Society of Biological Chemistry, St. Louis, Dec. 27-29. Dr. Victor C. Myers, New York Post-Graduate Medical School, New York, Secretary.

Association for Research in Nervous and Mental Diseases, New York, Dec. 27-28. Dr. Sanger Brown, 2d, 173 E. 70th St., New York, Sec'y.

District of Columbia, Medical Society of, Washington, Jan. 2. Dr. C. B. Conklin, Medical Science Bldg., Washington, Secretary.

Isthmian Canal Zone, Medical Association of, Ancon, Dec. 21. Dr. J. J. Moore, Ancon Hospital, Ancon, Secretary.

Porto Rico, Medical Association of, San Juan, Dec. 14-16. Dr. Augustin R. Laugier, Box 1117, San Juan, Secretary.

Sioux Valley Medical Association, Sioux City, Iowa, Jan. 22-24. Dr. Ralph M. Waters, 107 Gilman Terrace, Sioux City, Iowa, Secretary.

Society of American Bacteriologists, New Haven, Conn., Dec. 27-29. Dr. J. M. Sherman, Box 184, Washington, D. C., Secretary.

Current Medical Literature

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

166: 469-624 (Oct.) 1923

*Erythremia (Polycythemia Rubra Vera). G. R. Minot and T. E. Buckman, Boston.—p. 469.
*Studies of Capillaries and Blood Volume in Polycythemia Vera. G. E. Brown and H. Z. Giffin, Rochester, Minn.—p. 489.
*Curative Treatment by Splenectomy of Chronic Thrombocytopenic Purpura Hemorrhagica. N. E. Brill and N. Rosenthal, New York.—p. 503.
*Suprarenal Hemorrhage in Infancy. M. A. Rabinowitz, Brooklyn.—p. 513.
*Phenoltetrachlorphthalein Test as Means of Determining Liver Function. J. Friedenwald and W. H. Gantt, Baltimore.—p. 519.
Physiology of Extrahepatic Biliary System. Application to Surgical Therapy. C. G. Heyd, New York.—p. 526.
Quantitative Determination of Enzyme Activity in Duodenal Fluids. C. W. Lueders, O. Bergeim and M. E. Rehfuss, Philadelphia.—p. 535.
*Antipneumococcus Serum in Lobar Pneumonia. C. N. B. Camac, New York.—p. 539.
*Juvenile Paresis: Twenty-Three Cases. J. V. Klauder, Philadelphia, and H. C. Solomon, Boston.—p. 545.
*Case of Meningococcic Meningitis Following Head Injury. DeW. G. Richey and T. R. Helmbold, Pittsburgh.—p. 559.
Pulmonary Segment Reflexes. J. G. M. Bullowa, New York.—p. 565.
Cardiodynamics of Arterial Hypertension. A. R. Elliott, Chicago.—p. 576.
Congenital Malformations of Aortic and Pulmonary Valves. J. P. Simonds, Chicago.—p. 584.

Erythremia.—Certain aspects of erythremia are presented by Minot and Buckman from a study of fifteen cases. Three cases are recorded in which, after a polycythemia for many years the patients developed anemia coincidently with a further increase in the size of the spleen and a leukemic blood picture. One of these cases was examined postmortem. The spleen, liver and bone marrow showed a hyperplastic blood formation similar to that seen in myelogenous leukemia.

Polycythemia Vera.—Seven cases of polycythemia vera were studied by Brown and Giffin. In six of these in which a definite diagnosis of polycythemia vera could be made, the nail fold capillaries revealed marked engorgement of either one or both capillary limbs. In one case in which the diagnosis was less definite, only slight engorgement was observed. The venous side of the capillary loop was usually more markedly distended than the arterial. In twenty-seven supposedly normal controls, the average total length of the capillary loops was 0.368 mm.; in cases of polycythemia vera it was 0.602 mm. The measurements of velocity of flow indicated a very definite decrease in the rate of flow in polycythemia vera. Estimation of the blood volumes in these patients revealed marked increases of cell volume and total blood volume. The relationship of these observations to certain features of the disease is considered.

Splenectomy in Purpura Hemorrhagica.—On the basis of clinical results, Brill and Rosenthal feel justified in saying that splenectomy in this disease is a life saving measure and should be employed in all grave cases of chronic thrombocytopenic purpura. It saved the lives of their two patients. There is considerable evidence to believe that splenectomy is also curative.

Suprarenal Hemorrhage in Infancy.—Rabinowitz reports the clinical features and necropsy findings in two cases. He states that an acute illness in a previously healthy child, which is rapidly followed by purpura and collapse should, in the absence of signs pointing to meningococcic infection, be sufficient for diagnosis.

Phenoltetrachlorphthalein Test of Liver Function.—Friedenwald and Gantt are of opinion that this test is a valuable means of determining liver function. It has proved useful as a means of checking the technic of nonsurgical biliary drainage. It is also of value in the diagnosis of cirrhosis and carcinoma of the liver and obstruction of the common duct from stone or tumor.

Antipneumococcus Serum in Lobar Pneumonia.—The mortality of all types of lobar pneumonia (municipal and military), nonepidemic, treated with Type 1 serum was 13.9 per cent.; among the cases treated without serum it was 29.8 per cent. Serum administered in the first twenty-four to thirty-six hours offered the best prognosis.

Juvenile General Paralysis.—Klauder and Solomon emphasize that the clinical picture of general paralysis in juveniles is unlike that of the adult. Many juvenile general paralytics pass as cases of epilepsy or idiocy with epilepsy. In the light of present knowledge the status of an epileptic or feeble-minded congenital syphilitic cannot always be defined accurately in the absence of a spinal fluid examination.

Traumatic Meningococcic Meningitis.—An instance of meningococcic meningitis with recovery in a boy of 12 within thirty hours after an injury to the head, producing commotio cerebri and probably minute lacerations of the brain and rupture of intracranial capillaries, is reported by Richey and Helmbold. While it is possible that the occurrence of the meningitis and the trauma were coincidental, nevertheless, the evidence indicates that the injury predisposed to the meningeal localization of the bacteria; these could have gained entrance readily to the blood stream through the injured nasopharyngeal lining, from whence they were carried, hematogenously, within a skull in which the pressure relations had been disturbed, a locus minoris resistentiae had been established, and rupture of capillaries in all probability had occurred.

Archives of Dermatology and Syphilology, Chicago

8: 461-596 (Oct.) 1923

*Application of Warthin-Starry Silver-Agar Method to Demonstration of Spirochaeta Pallida in Spinal Fluid by Means of Coagula Obtained by Alzheimer Method. A. S. Warthin, R. C. Wanstrom and E. Buffington, Ann Arbor, Mich.—p. 461.
*Bismuth in Treatment of Syphilis. L. K. McCafferty, New York.—p. 469.
Hereditary Pigmentation of Leg Associated with Atrophy. M. F. Engman, St. Louis.—p. 483.
*Lupus Erythematosus Acutus Disseminatus. W. E. Robertson and J. V. Klauder, Philadelphia.—p. 487.
Acquired Lymphangioma of Vulva Secondary to Tuberculous Obliteration of Inguinal Glands. J. H. Stokes, Rochester, Minn.—p. 498.
Vitiligo and Alopecia Areata Associated with Severe Hyperthyroidism. S. Ayres, Jr., Los Angeles.—p. 502.
Inflammation. L. Török, Budapest.—p. 505.
Use of Chromogenic Indicators in Dermatology. H. Sharlit and W. J. Highman, New York.—p. 515.
School Physician as Dermatologist. H. G. Rowell, New Bedford, Mass.—p. 520.
*Blood Studies in Psoriasis. A. Strickler and E. Asnis, Philadelphia.—p. 523.
Red Light Treatment. H. E. Ahlswede, Hamburg, Germany.—p. 527.
Dermatitis from Oleic Acid. W. H. Hailey, Atlanta, Ga.—p. 530.
A Heavenly Meeting. W. J. Highman, New York.—p. 532.

Demonstration of Spirochetes in Spinal Fluid.—Evidence is presented by Warthin et al. which supports the statement that staining of sections of spinal fluid coagula by the Warthin-Starry method offers a valuable means for the demonstration of spirochetes in spinal fluid, serums or other fluids in which the organisms may be present, either in small or large numbers, but especially in the former case. In albuminous fluids in which the spirochetes occur in small numbers, the concentration of the organisms into the albuminous clot by means of the centrifuge is a valuable aid in determining their presence in the fluid.

Bismuth in Treatment of Syphilis.—The preparation used by McCafferty in treating twenty-five cases was potassium and sodium tartrobismuthate. From twelve to sixteen injections, given every four days, comprised a course. Each ampule contained approximately 2 c.c., or 20 cg., of active bismuth, in an oil suspension. The immediate action of bismuth in primary and secondary syphilis is as effective as that of arsphenamin, although it is slower in its action, both clinically and serologically. There seems to be a real indication for bismuth in Wassermann-fast patients, as well as in patients who have an idiosyncrasy to arsenic. Central nervous system syphilis gives evidence of responding to bismuth as well as it does to intravenous injections of arsphenamin, but the time has been too short to draw any definite conclusions. Stomatitis and local pain from injections are negligible factors. Arsenic, bismuth and mercury may be used in treating syphilis, either in combination or separately. Routine urinalysis should be made every month.

Acute Disseminated Erythematous Lupus.—The case reported by Robertson and Klauder is that of a woman who presented an acute lupus erythematosus of the type described by Kaposi as "erysipelas perstans faeei." The patient had in addition the usual accompanying symptoms—arthritic pains, albuminuria, irregular and remittent temperature prostration and delirium—and the condition finally resulted in death. The case is reported because of the extraordinary association of a disseminated telangiectasis with cutaneous hemorrhages. The occurrence of disseminated telangiectasis in a patient with acute lupus erythematosus is said not to have been recorded previously in the literature.

Blood Studies in Psoriasis.—A marked lymphocytosis occurred in 54 per cent. of the blood smears of the patients with psoriasis studied by Striekler and Asnis. The lymphocytosis was always at the expense of the polymorphonuclear leukocytes, the other white blood cells being found in practically normal proportions. The study of the blood smears for some form of spirochete, using a special staining method, yielded only negative results.

Archives of Ophthalmology, New Rochelle, N. Y.

52: 417-524 (Sept.) 1923

Recurrent Paralyses of Eye Muscles with Especial Reference to Ophthalmoplegic Migraine. A. Duane, New York.—p. 417.
New Method of Preventing Postoperative Intraocular Infections. Report of 1,250 Cases. G. H. Bell, New York.—p. 436.
Congenital Oculofacial Paralysis. D. B. Kirby, New York.—p. 452.
Experiences Working with Dr. Barraquer in Barcelona. W. McLean, New York.—p. 460.
Dermoid of Cornea. T. H. Butler, Birmingham, England.—p. 469.
Report of a Case of Purpura Hemorrhagica. M. Cohen, New York.—p. 471.
Subperiosteal Abscess in Floor of Orbit. A. Knapp, New York.—p. 475.
Report of British Ministry of Health on Causes and Prevention of Blindness. P. G. Doyne, London.—p. 478.

Boston Medical and Surgical Journal

189: 629-670 (Nov. 1) 1923

*Germanium Dioxid as Remedy for Anemia. G. R. Minot and J. J. Sampson, Boston.—p. 629.
Effect of Traction on Spinal Column and on Intraspinal Pressure. M. P. Rucker, Richmond, Va.—p. 639.
Fee List from Papers of Archelaus Green Smith, M.D. S. Cobb, Boston.—p. 641.

Germanium Dioxid as Remedy for Anemia.—The observations made by Minot and Sampson show that germanium dioxid given intravenously or intraperitoneally is relatively nontoxic even in large doses. Their conclusions regarding the erythropoietic action and therapeutic value of this substance are divergent from those of other authors. No evidence was obtained by them suggesting that germanium dioxid has the power to increase blood formation or that it exerts any significant effect on the health of anemic individuals. Consequently, the drug seems to be of no value in the treatment of anemia.

Colorado Medicine, Denver

20: 229-254 (Sept.) 1923

Advantages and Purposes of Organized Medicine. M. Black, Denver.—p. 237.
Relation of Municipal Administration to Public Health. J. W. Amesse, Denver.—p. 239.
Changes in Kidney Function (Clinical Nephritis) and Changes in Kidney Tissue. A. G. Ellis, Colorado Springs.—p. 243.
Cancer of Mouth. W. W. Grant, Denver.—p. 248.
The Physician. H. G. Maul, Denver.—p. 251.

Florida Medical Association Journal, St. Augustine and Jacksonville

10: 95-124 (Oct.) 1923

Extreme Effects of Focal Infection. J. V. Freeman, Jacksonville.—p. 95.
Nonsurgical Drainage of Bile Channels. Use of Duodenal Tube as diagnostic and Therapeutic Agent in Chronic Biliary Disease. E. B. Milam, Jacksonville.—p. 97.
Diabetes Mellitus: Cardinal Principles of Treatment. J. S. McLester, Birmingham, Ala.—p. 102.
Some Hygienic Activities of Naval Air Station, Pensacola. H. W. Cole.—p. 104.
Professional Ethical Business Relation of Physician and Surgeon. R. R. Kime, Orlando.—p. 109.
Antitoxin Treatment of Case of Tetanus, with Recovery. J. S. Turberville, Century.—p. 113.
Aviation Medicine. J. R. Poppen.—p. 113.
Congenital Clubfeet. J. K. Simpson, Jacksonville.—p. 117.

Iowa State Medical Society Journal, Des Moines

13: 403-440 (Oct. 15) 1923

Some Practical Considerations of Physiology of Upper Respiratory Tract. H. I. Lillie, Rochester, Minn.—p. 403.
Pyloric Stenosis of Infancy. H. L. Brereton, Emmetsburg.—p. 415.
Chronic Indigestion in Childhood. J. L. Morse, Boston.—p. 422.
Ectopic Gestation. Report of Cases. T. W. Nuzum, Janesville, Wis.—p. 427.
Rachicentesis or Spinal Drainage in Convulsions. J. A. St. Onge, Sioux City.—p. 430.

Journal of Bone and Joint Surgery, Boston

5: 633-847 (Oct.) 1923

*Internal Derangements of Knee. J. K. Surls and R. B. Osgood, Boston.—p. 635.
*Periosteal Blood Supply and Healing of Fractures. A. Kolodny, Iowa City, Iowa.—p. 698.
Relaxation of Shoulder Following Body Injury. R. Hannond, Providence, R. I.—p. 712.
*Treatment of Bone and Joint Tuberculosis with Tuberculin and Heliotherapy. W. A. Clark, Pasadena, Calif.—p. 721.
Late Correction of Fracture Deformities of Femur. H. W. Orr, Lincoln, Neb.—p. 740.
Confessions of Internist Regarding Body Mechanics. R. I. Lee, Boston.—p. 747.
Chart for Standardization of Body Mechanics. R. I. Lee and L. T. Brown, Boston.—p. 753.
New Method of Recording Posture. N. W. Fradd, Boston.—p. 757.
*Actinomycosis and Blastomycosis of Spine. C. A. Parker, Chicago.—p. 759.
Treatment of Obstetric Brachial Paralysis. Report of Fifty Cases. S. W. Boorstein, New York.—p. 778.
*Gas Infection with Compound Fracture and Bridging of New Bone without Bone Transplant. L. A. O. Goddu, Boston.—p. 804.
Treatment of Intracapsular Fracture of Hip by Whitman Method. L. A. O. Goddu, Boston.—p. 808.
*Operation for Correction of "Drop-Foot." W. C. Campbell, Memphis, Tenn.—p. 815.

Internal Derangements of Knee.—The report made by Surls and Osgood is based on 181 operations. The external semilunar cases all had very satisfactory results, except one, in which the result could not be ascertained, as the patient developed a fresh trouble after operation. Loose body joint cases gave the next most satisfactory result, closely followed by the internal semilunar cases. The results in the fringe and fat cases were not nearly so satisfactory, and in the hypertrophic bone cases there were no very satisfactory results. A suggested outline for making records of internal derangements of the knee is presented.

Periosteal Blood Supply and Healing of Fractures.—The experiments made by Kolodny prove that destruction of the periosteal blood supply leads to nonunion of fracture. Endosteal callus does not prevent pseudo-arthrosis when periosteal callus formation is retarded. The claim that grafted periosteum does not always produce bone is said to be unfounded. Periosteum of an adult animal plus reactive stimulation is equal to periosteum of a young animal. Reactive stimulations which are able to change the latent capacity for bone formation of the adult periosteum into an active stage are fractures, trauma and slight infections of the bone.

Tuberculin and Heliotherapy in Treatment of Bone and Joint Tuberculosis.—Conservative and hygienic treatment of tuberculosis of the bones and joints is urged by Clark. Rest, heliotherapy, tuberculin and general hygiene, he says, are the methods of most importance in children. Clark uses the bouillon filtrate (B. F.) of tuberculin, the beginning dose being $\frac{1}{20000}$ mg., injected subcutaneously. The maximum dose of 0.01 mg. is reached after about three months' treatment. In three cases under tuberculin treatment the temperature was more regular and lower than it was before treatment was begun. Leukocytosis was stimulated in two of the three cases. The course of the disease is shortened and the patient's general condition is better under heliotherapy than without it.

Actinomycosis and Blastomycosis of Spine.—One case of each type is reported by Parker. He says that actinomycosis and blastomycosis of the spine are extremely malignant conditions for which virtually nothing can be done in the way of treatment. The mortality is 100 per cent.

Bridging of Gap in Radius by New Bone Without Bone Transplant.—In Goddu's case a 3 inch gap in the lower end of the radius became bridged over without aid in about three months in spite of an original gas bacillus infection, which was the reason for not transplanting bone.

Operation for Correction of Drop Foot.—In a large per ent. of paralytic feet it is necessary to remove bone for the urpose of the correction of deformity and stabilization of he midtarsal region. These particles of spongy bone are mployed by Campbell as transplants in order to block plantar exion.

Journal of Laboratory and Clinical Medicine, St. Louis

9: 1-70 (Oct.) 1923

Toxemia of Severe Superficial Burns. B. Robertson and G. Boyd, Toronto.—p. 1.
Pharmacology of Benzyl Alcohol and Its Esters. C. M. Gruber, St. Louis.—p. 15.
Tartar Emetic. W. G. Christiansen and A. J. Norton, Boston.—p. 34.
Clinical and Laboratory Procedures in Pediatrics. A. Levinson, Chicago.—p. 37.
Importance of Suprarenals in Action of Certain Alkaloids. C. W. Edmunds and P. C. Lloyd, Ann Arbor, Mich.—p. 45.
Chemistry of Blood and Cerebrospinal Fluid. N. G. Barrio, Rochester, Minn.—p. 54.
Warning Against Use of Arsphenamin in Treatment of Syphilis in Hemophilia. J. Rosenbloom, Pittsburgh.—p. 57.

Cause of Death in Superficial Burns.—The cause of death n superficial burns was made the subject of an experimental tudy by Robertson and Boyd. Skin, subcutaneous tissue and nuscle burns were produced in anesthetized rabbits. Typical ymptoms, with shock, followed the production of the burn n all cases. These facts emerge: Death from burning occurng within the first twenty-four hours is practically always lue to primary shock; later than this, it is due to toxic hock. There is a toxin produced in burned tissue, in larger uantities in skin burn, which circulates in the blood, either n, or absorbed by, the red blood corpuscles, and which causes he symptoms seen in bad superficial burns, and in some cases eath. Extracts of burned skin were found to be toxic. Extracts of skin burned post mortem were innocuous. The contents of burn blisters are not toxic. That there is increased protein catabolism in burns was evidenced by the increase in the nonprotein nitrogen and urea nitrogen of the blood. Whole citrated blood from burn cases is toxic. The blood serum is not toxic. Solutions of the corpuscles properly treated are more toxic than whole blood. The toxic substance consists of two portions, one of which is thermostabile, diffusible and neurotoxic; the other is thermolabile, colloidal and necrotoxic. Chemically, the toxin consists of primary and secondary proteoses. No evidence of the production of antibodies against the burn toxin could be found.

Pharmacology of Benzyl Alcohol and Esters.—No change in blood pressure was observed by Gruber in dogs when benzyl alcohol, benzyl acetate or benzyl benzoate was administered orally. The drugs of the nitrite series lower both systolic and diastolic blood pressures in normal, unanesthetized dogs when given by mouth, the same as when given clinically in human beings. Moderate doses of benzyl benzoate, 20 per cent. by volume in alcohol, produced a fall in blood pressure, probably due to the alcohol, not the benzyl esters. In susceptible, unanesthetized animals moderate doses of ethyl alcohol produced a fall in blood pressure. When given orally, benzyl alcohol, benzyl acetate and benzyl benzoate do not alter the pulse rate. The drugs of the nitrite series and ethyl alcohol, on the other hand, cause acceleration of the pulse due to the fall in blood pressure and resultant anemia of the cardiac centers. Benzyl alcohol and benzyl acetate possess emetic actions. This is also observed in some animals with benzyl benzoate. The action is due to local irritation of the alimentary canal and not to excitation of the vomiting center. Subcutaneous and intramuscular injections of the same dose as given by mouth in the same animal do not produce emesis. Moderate doses of benzyl alcohol and benzyl acetate and benzyl benzoate possess cathartic actions. This action is due to the local irritation by the drug. Benzyl benzoate possesses a very slight narcotic action when given in huge doses, 1 ml. per kilogram of body weight, in the dog.

Tartar Emetic Solutions Do Not Decompose.—The experiments made by Christiansen and Norton prove conclusively that solutions of pure tartar emetic in distilled water do not undergo decomposition under the conditions to which such a solution is likely to be exposed, and that the solution remains perfectly clear after sterilization. Strong acids and alkalies, and physiologic solutions, such as those containing calcium, must be kept out of the tartar emetic solutions as these cause decomposition.

Effect of Physostigmin on Erythrocytes.—Edmunds and Lloyd state that physostigmin given in small doses (0.5 mg. per kilogram) to dogs causes no characteristic change in the number of red blood cells, while with slightly larger amounts (0.7 mg. per kilogram) it markedly increases their number in the circulating blood. This increase seems to be due not to differences in distribution of the cells but to an action on the bone marrow.

Arsphenamin Contraindicated in Presence of Hemophilia.—A man consulted Rosenbloom for continual bleeding from a tooth socket following tooth extraction. His hemoglobin was 40 per cent.; red corpuscles 2,300,000, and Wassermann reaction 4 plus. Transfusion was done. The bleeding did not stop. Following the use of horse serum and transfusion, an injection of 0.6 gm. of arsphenamin was given. Within one hour following the injection all of his gums commenced bleeding at an alarming rate, the hemoglobin falling to 30 per cent. In spite of two more transfusions, the use of coagulose, horse serum, emetin, etc., the man continued to bleed, and two weeks following the injection of arsphenamin he died from anemia due to the hemorrhages.

Journal of Metabolic Research, Morristown, N. J.

3: 511-639 (April) 1923

Influence of Disturbance in Acid-Base Equilibrium of Blood on Renal Function and Pathology. W. deB. MacNider, Chapel Hills, N. C.
I. Effect of Acid and Alkaline Solutions on Normal Dogs.—p. 511.
Id. II. Effect of Acid and Alkaline Solutions on Nephropathic Dogs.—p. 539.
Id. III. Ability of Alkaline Solution to Protect Kidney Against Acid Solution.—p. 569.
Vitamin Potency of Cod Liver Oils. IV. Quantitative Estimation of Vitamin A. A. D. Holmes, Boston.—p. 583.
*Experimental Studies in Diabetes. II. Internal Pancreatic Function. 11. Relation of Suprarenals to Diabetes. F. M. Allen, New York.—p. 589.
*Id. 12. Diabetes and Phlorizin Glycosuria. F. M. Allen, New York.—p. 623.

Relation of Suprarenals to Diabetes.—Evidence obtained by Allen together with much already existing in the literature, is interpreted as proving that epinephrin is not a diabetogenic agent or a physiologic antagonist of insulin. In an animal with active diabetes, epinephrin injections caused a greatly increased excretion of both sugar and nitrogen, as compared with normal or diabetic controls. The most important feature was the extra destruction of protein continuing over a number of days, indicating that the increased glycosuria was not a mere sweeping out of preformed carbohydrate. No positive interpretation is established, but this result harmonizes with other evidence of an anabolic rôle of insulin, which is essential for upbuilding and maintaining the entire body mass, and of an abnormal susceptibility to breakdown of the tissues with active diabetes.

Diabetes and Phlorizin Diabetes.—Allen states that phlorizin poisoning is a radically different condition from diabetes. The word diabetes has long and thoroughly been established as the name of the condition which results from deficiency of insulin. It therefore appears confusing and scientifically unjustifiable to apply this name to a wholly different condition. Diabetic symptoms and death are not explainable wholly by the loss of sugar. Animals are much worse off when deprived of insulin than when merely deprived of carbohydrate. All the evidence seems to characterize diabetes not as a mere deficiency of sugar metabolism but as a specific defect of the total bodily nutrition.

Journal of Urology, Baltimore

10: 275-334 (Oct.) 1923

*Length of Survival and Function of Homogenous Kidney Transplants. C. S. Williamson, Rochester, Minn.—p. 275.
*Leukoplakia of Bladder. J. J. Valentine, New York.—p. 289.
Diverticula and Cysts of Urethra. F. P. Johnson, Baltimore.—p. 295.
Indications for Individual Treatment of Gonorrhea. T. V. Williamson, Norfolk, Va.—p. 311.
*Rare Case of Schistasis. E. Hess, Erie, Pa.—p. 321.

Spontaneous Expulsion of Papilloma of Bladder with Cure. E. R. Sisk, Madison, Wis.—p. 325.
Uterovesical Fistula. F. J. Parmenter and C. Leutenegger, Buffalo.—p. 329.

Length of Survival of Kidney Transplants.—Williamson asserts that autogenous kidney transplants will maintain life for weeks in a practically normal manner after the removal of the remaining normal kidney. The failure of the autogenous transplant seems to be due to atresia of the ureter, hydronephrosis and infection. The homogenous kidney transplant functions as does the autogenous one for a limited time, but this function continues for only a few days. The average length of function for the homogenous transplant has been four days, and the maximum, ten days. During the time that all three kidneys are functioning, two-hour test periods of the function show that the amount of urea, urea nitrogen and creatinin eliminated by the transplanted kidney is only slightly less than the combined output of both normal kidneys. The total amount eliminated by all three kidneys is more than was eliminated by the normal kidneys before operation. During the time that all three kidneys are functioning there is a sharp reduction of the nitrogenous elements of blood urea, urea nitrogen and creatinin. Williamson does not believe that the failure of the homogenous experiments can be attributed to mechanical factors.

Leukoplakia of Bladder.—In Valentine's case the lesions seemed to be limited to the bladder. From the studies and observation made, the opinion is offered, that leukoplakia usually exists in persons (1) who have been subjects of chronic infections of the urinary tract (in this instance, bilateral pyelonephritis), and (2) those who have an obstruction to the normal outlet of urine (contracture of vesical neck).

Rare Case of Schistasis.—The development of the child, in the case reported by Hess, was perfect until the umbilicus was reached. The entire lower segments of the lower abdomen had failed to close. There was some modified skin just below the umbilicus and two soft masses presented at the sides of the bladder, which was perfectly formed and capable of holding about 20 c.c. of urine. The sphincter control was excellent and there was a short urethra. Directly below was a tube about 6 cm. long which suggested a penis, connecting at the bladder with a larger mass which proved to be the sigmoid. This bowel mass presented through the definite labia which seemed to spring from the tissues at the tip of the coccyx. The roentgen ray showed complete absence of the pubic bones. The uterus was normally situated but its cervix presented blind between the bladder and the rectum and was totally confined inside the abdominal cavity. There was no obstruction to the passage of ingested food and the urinary organs functioned normally. The infant died on the eleventh day.

Michigan State Medical Society Journal, Grand Rapids

22: 403-460 (Oct.) 1923

Dangers and Duties of Hour in Medical Practice. J. L. Chester, Detroit.—p. 409.
Proper Scope of Pediatrics. T. B. Cooley, Detroit.—p. 413.
Training of Ophthalmologists and Otolaryngologists in Michigan. H. W. Pierce, Detroit.—p. 415.
Practical Aspects of Contracted Pelvis. E. D. Plass, Detroit.—p. 419.
Adenectomy Hemostatic Forceps. E. Amberg, Detroit.—p. 422.
The Medical Profession. W. N. Ferris, Big Rapids.—p. 422.
The Doctor. His Relation to Life and People. A. W. Wishart, Grand Rapids.—p. 427.

22: 461-494 (Nov.) 1923

*So-Called Arthritis Deformans. L. M. Warfield, Ann Arbor.—p. 461.
Diagnostic Value of Roentgen-Ray in Obstetrics. A. M. Campbell, Grand Rapids.—p. 465.
City Program for Control of Tuberculosis. A. M. Wehenkel, Detroit.—p. 469.
Auricular Fibrillation. F. N. Wilson, Ann Arbor.—p. 473.
Changes in Lungs and Bronchi Due to Upper Respiratory Disorders. J. S. Pritchard, Battle Creek.—p. 480.
Insolation Encephalitis. E. Amberg, Detroit.—p. 482.

Arthritis Deformans.—Warfield feels that a great deal can be done for these patients. First and foremost, a diagnosis should be made as early as possible and treatment started not half-heartedly, but with the idea that if these patients are not treated intensively, nothing is achieved. In the cases frankly the result of infection, the procedure would be as follows: removal of foci of infection at once; immobilization of joints that are inflamed; actinotherapy and dry he As the joints improve, Bier's hyperemia is at times valuab Warfield has found that cincophen relieves the pain mu better than any other drug, except, of course, morphin codein. It is advisable also to push fluids and to give sodiu bicarbonate. It seems to assist in relieving the conditio Cod liver oil is given as a routine in the infectious a atrophic cases. The patient should be fed with nutritio food of any kind. Buttermilk made with *B. bulgaricus* h seemed to help materially. The change in the intestinal flo produced by feeding large quantities of this lactic acid pr ducing organism may account for its therapeutic value. I true action is unknown. The beneficial result is often, hov ever, very striking. In cases in which no focus of infectio whatsoever can be found and there is fever, the first an most essential part of the treatment is absolute rest in be A highly nourishing diet, including bulgarian buttermil massage of the muscles, with only slight rubbing of th joints, actinotherapy, Bier's hyperemia, and dry heat, hav given some results. Every effort should be made to preve contracture deformities. When the cases are seen in th chronic crippling forms, especially those types in which ther is no evident infection, the same treatment is given; tha is to say, treatment by massage, dry heat, etc. For th chronic cases, in a good state of nutrition, a sojourn at on of the spas seems to relieve the condition. One form o treatment which Warfield uses extensively is nonspecific pro tein therapy. He has used, for the most part, typhoid vaccine but has never seen a case permanently benefited by the treat ment. While temporary benefit has resulted from the injec tions in the chronic cases, so that patients unable to use thei joints before the injection move them around freely the da following the injection, the good result has not been mor than temporary. For the hypertrophic forms heat in al forms seems particularly helpful, and lessened pain an increased motion follow long continued use of Bier's hyper emia. However, when bony changes have taken place, it is impossible to bring the parts back to their original condition In many cases of all types in which there are great defor mities, orthopedic treatment can straighten out the joints and sometimes by operation in the mono-articular forms enable the patients to get around again with some degree of com fort. In the cases of spondylitis, orthopedic jackets often give great relief.

Nebraska State Medical Journal, Norfolk

8: 341-380 (Oct.) 1923

Tumors of Breast. B. B. Davis, Omaha.—p. 341.
Diagnosis of Obscure Tuberculosis. M. J. Breuer, Lincoln.—p. 347.
Goiter Problem. J. C. Waddell, Beatrice.—p. 351.
Goiter Problem. W. A. Rush, Beatrice.—p. 354.
Case of Psychosis. R. H. Spradling, Lincoln.—p. 358.
Intussuception in Children. H. B. Hamilton, Omaha.—p. 362.
Transfusion of Blood for Hemorrhage and Shock. G. L. Pinney, Hastings.—p. 365.
Chronic Empyema with Bronchopleural Fistula. C. H. Waters, Omaha.—p. 369.
Some Undesirable Effects of Deep Roentgen-Ray Therapy. C. Kail, Lincoln.—p. 372.

8: 381-420 (Nov.) 1923

Fractures of Femur. J. E. M. Thomson, Lincoln.—p. 381.
Scientific Knowledge Logically Applied in Treatment of Acute Urethritis. A. D. Munger, Lincoln.—p. 385.
Problems of Epilepsy. H. A. Wigton, Omaha.—p. 387.
Chronic Infectious Arthritis. L. T. Hall, Omaha.—p. 392.
Methods of Treatment of Affections of Antrum of Highmore. A. G. Lueschen, Columbus.—p. 397.
Point of Contact. R. McConaughy, York.—p. 399.
Primary Mumps Infection of Lacrimal Glands. A. E. Wade, Lexington.—p. 404.
Injurious Effects of Improper Light on Eyes. L. B. Bushman, Omaha.—p. 406.
Vacuum Sinus. G. A. Griot, Chadron.—p. 407.
Rat-Bite Fever. Report of Case. E. S. Wegner, York.—p. 408.
*Case of Acute Lymphatic Leukemia with Secondary Infection of Tongue. Death. M. Emmert, Omaha.—p. 410.

Acute Lymphatic Leukemia with Secondary Infection of Tongue.—Emmert's patient died twenty-four days after the first symptom of the tongue involvement. The gross and microscopic findings in this case illustrated well the gangrenous process in the mouth or throat and the rather limited extent of lymphocytic infiltration of the viscera seen in

ute lymphatic leukemia. The acute lymphatic leukemia as manifested by moderate hyperplasia of the axillary, retroritoneal and cervical lymph nodes, spleen and bone marrow, ith lymphoid nodules of the lining of the large intestine, and general decrease in red blood cells. There was gangrenous ngivitis with necrosis of the mandible and alveolar process f each maxilla: gangrene of the tip of the tongue; acute ronchopneumonia of the lower lobe of each lung with lymnoid nodules in the lower lobe of the left lung; obliterative leuritis, fibrous pleuropericarditis, fibrous adhesions binding ie liver to the transverse colon; coal dust pigmentation of ie lungs; general marked anemia of all the viscera; anemia f kidneys and heart; edema of the soft structures of the nterior abdominal wall; a calcified nodule in the right lobe f the thyroid, and a slight hydrocele (right).

New York Medical Journal and Medical Record

118: 533-600 (Nov. 7) 1923

Treatment of Pyelitis by Ureteral Catheterization and Instillation of Kidney Pelvis. J. C. Hirst, Philadelphia.—p. 533.
Surgical Treatment of Puerperal Infection. H. B. Safford, New York.—p. 536.
Chemical Changes in Toxemia of Pregnancy. M. Kahn, New York.—p. 540.
Ingestion Glycosuria an Aid to Early Diagnosis of Pregnancy. C. F. Long and J. C. Hirst, Philadelphia.—p. 543.
Abortions. L. Drosin, New York.—p. 546.
Gumma of Cervix Uteri. H. A. Duncan, Philadelphia.—p. 550.
Partus Serotinus. W. A. N. Dorland, Chicago.—p. 551.
Meddlesome Obstetrics. J. R. McCord, Atlanta.—p. 552.
New Theory of Menstruation. A. Young, Tallahassee, Fla.—p. 554.
Analysis of Twenty-Six Extrauterine Pregnancies. C. Mazer, Philadelphia.—p. 555.
Use of Phloridzin in Early Diagnosis of Pregnancy. A. M. Hellman, New York.—p. 557.
Pus in Pelvis of Women. G. P. LaRoque, Richmond.—p. 559.
Importance of Palpation of Pelvic Ureters in Diagnosis of Abdominal Disease. D. W. Tovey, New York.—p. 563.
Significance of Inflammatory Ureteral Structure in Female. T. H. Cherry, New York.—p. 565.
Nasal Dysmenorrhea. A. L. Levy, Jamaica, N. Y.—p. 568.
Differential Count of Appendicitis, Tubo-Ovarian Diseases and Infection of Uterine Cavity. A. J. Hinkelman, Oklahoma City.—p. 569.
Complete Congenital Absence of Vagina, Associated with Bilateral Hernias of Uterus, Tubes and Ovaries. D. Deutschman, New York.—p. 570.
Postmortem Cesarean Section. M. J. Stone, New York.—p. 571.
New Type of Cesarean Technic. A. M. Judd, Brooklyn.—p. 572.
Dawn of Surgery. J. Wright, Pleasantville, N. Y.—p. 574.

Theory of Menstruation.—Young defines menstruation as a function established to meet the biologic requirements of fertilized ova. She says: Let us suppose that the fertilized ovum is discharged from the fallopian tube into the uterus; it is nothing more than reasonable to conclude that the menstrual function has had some share in preparing for its reception.

Use of Phlorizin in Early Diagnosis of Pregnancy.—Hellmann has used the technic of Kamnitzer and Joseph, who have tried to show that glycosuria can be produced artificially in the early months of pregnancy by the intramuscular injection of phlorizin. In the nonpregnant woman such an injection should not produce glycosuria, nor is it likely in those more than twelve weeks pregnant. Hellmann has made the test twenty-four times on twenty-three patients. In seventeen cases in which the tests were negative fifteen patients were found not pregnant but two were later found to be pregnant. In the seven cases giving positive results the patients were all pregnant.

Nasal Dysmenorrhea.—Levy reports what he terms a true case of nasal dysmenorrhea, occurring in a girl, aged 21. He used a 20 per cent. solution of cocain and advised having the intranasal genital spots cauterized.

Postmortem Cesarean Section.—Stone removed the baby in this case exactly one minute after death of the mother by cesarean section. Spontaneous respiration did not occur, but after vigorous efforts at resuscitation the child began to breathe rhythmically thirty minutes after delivery. It took feedings very well through a dropper; cried lustily, maintained a healthy pink color, and gave every indication that it might survive. However, fifteen hours later it became cyanotic, breathed with difficulty, and promptly died. The mother had been a nonipara and had a rheumatic heart, but died of bronchopneumonia.

Philippine Journal of Science, Manila

23: 237-305 (Sept.) 1923

Diagnoses of Hainan Plants. II. E. D. Merrill.—p. 269.
Composition of Pili Nut Oil. A. P. West and S. Balce.—p. 269.
Effect of Composition on Complete Hydrogenation of Some Philippine Oils with Nickel Catalyst. A. P. West and L. Gonzaga.—p. 277.
Some New Malayan Carabidæ, Especially Philippine. K. M. Heller.—p. 295.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

64: 255-353 (Oct.) 1923

*Pathology of Parkinsonian Syndrome Following Lethargic Encephalitis. Occurrence of Calcification. D. McAlpine.—p. 255.
Variations in Form of Reflex Movements, Notably Babinski Plantar Response, Under Different Degrees of Spasticity and Under Influence of Magnus and DeKleijn's Tonic Neck Reflex. F. M. R. Walshe.—p. 281.
*Cerebellar Localization. S. Ingvar.—p. 301.
*Occurrence in Osteitis Deformans of Lesions of Central Nervous System. Report of Four Cases. W. G. Wyllie.—p. 336.

Pathology of Parkinsonian Syndrome.—An account is given by McAlpine of the histologic findings in two cases of parkinsonian syndrome following epidemic encephalitis. The most constant findings were subacute inflammatory changes and recent perivascular hemorrhages. In one case, the substantia nigra showed marked degenerative changes, and in the other this area appeared to be normal; but large hemorrhages of arteriosclerotic origin in the basal ganglions considerably modified the negative findings in the substantia nigra in the second case. An account is given of fourteen similar cases reported in the literature, in all of which the substantia nigra was affected. Calcification in the anterior part of the globus pallidus was found in six cases of encephalitis, in one case as early as the fourth day of the disease. The calcification was found both in the vessel walls and in the form of globules. The occurrence of fat globules was noted in one case, and the relation between these and the calcified globules was studied. A short acount is given of other conditions in which calcification occurs in the brain, and the pathogenesis and significance of these changes are discussed.

Cerebellar Localization.—The conclusions reached by Ingvar from his intensive study of this problem are: the basal portions of the cerebellum, situated immediately above the fourth ventricle, are phylogenetically the oldest parts of the cerebellar cortex. Anatomic facts indicate that they are endowed with important functions. The most characteristic feature of these basal regions is that they receive fibers directly from the vestibular nerves. The histologic uniformity of the cerebellar cortex, even in the human cerebellum, indicates that function and organization of function are probably essentially the same in the whole organ. After lesions of the basal parts, motor phenomena known as "forced movements" occur. Since the forced movements resemble strongly those appearing after lesions of the vestibular apparatus, it is logical to regard the forced movements after cerebellar lesions as being due to disturbance of the vestibular innervation of these parts. Both the vestibular and cerebellar forced movements always take place in a definite plane of space. Since those associated with lesions of the anterior and posterior parts of the vermis resemble those produced by lesions of the vertical semicircular canal, it is logical to conclude that this canal is specially connected with these regions of the cerebellum. As the basal regions of the cerebellar cortex with their intimate vestibular connections are, in the literal sense of the word, a sort of calyx which encloses the major part of the cerebellum, which is developed later in phylogenesis, so the functions of the labyrinth may be considered to include in embryo those of the cerebellum. There is during phylogenetic development a tendency of regression of the vestibular influence on the cerebellum, whereas the spinal influence increases (strongly developed spinocerebellar tracts in higher animals). A long series of experiments on the cerebellum has shown that in animals the limbs are, at least to a considerable extent, represented in special regions of the cerebellar cortex (lobulus ansoparamedianus, Bolk), and that

the center of the forelimb is situated rostrad to that of the hind limb. Two cases are described by Ingvar which support the view that in the human cerebellum there is the same arrangement of the centers of homologous parts. In a case of tumor in the right lobulus biventer, the only clinical symptom was cerebellar ataxia of the right leg. In a case in which the right hemisphere was injured extensively by an operation, postmortem examination showed that a large part of the hemisphere (semilunar lobes, lobulus gracilis, part of lobus biventer) had been destroyed completely. The severe general ataxia that followed the operation disappeared gradually except in the right arm, though a slight disturbance of a cerebellar type was also noticed in the right leg.

Lesions of Central Nervous System in Osteitis Deformans.—Wyllie reports two cases of compression of the spinal cord in patients suffering from osteitis deformans, and two cases of atrophy of the optic nerves in patients whose skull was affected by osteitis deformans. In both cases diplopia also occurred, indicating most probably an injury of one or more of the ocular nerves. Several of the long bones were involved in one of these cases, and the vertebral column in the other.

British Medical Journal, London

2: 791-846 (Nov. 3) 1923

Anesthetics from Surgeon's Point of View. W. Trotter and W. I. de C. Wheeler.—p. 791.
Ventriculography as Aid in Localization of Intracranial Tumors. I. A. A. McConnell and G. Jefferson.—p. 796.
Anesthesia for Children. H. Sington.—p. 801.
Fatalities from Anesthetics. A. L. Flemming.—p. 804.
Anesthesia by Gas-Oxygen-Ethanesal and Gas-Oxygen-Chloroform-Ethanesal Combinations. H. E. G. Boyle.—p. 806.
Treatment of Hemorrhoids by Interstitial Injections. J. Dunbar.—p. 808.
Hemophthalmus in Association with Tuberculous Foci in Choroid. J. D. Cummins.—p. 809.
Appendicitis and Intussusception in Dog. Lymphaticostomy for Septic Peritonitis. J. D. Malcolm.—p. 809.
Cases Resembling Paralytic Ileus. W. W. Jeudwine.—p. 810.
Amyl Nitrite Poisoning. W. Broadbent.—p. 811.
Cholelithiasis with Situs Inversus. E. S. Frischmann.—p. 811.
Histology of Mycloma (Parasite?). T. H. Burlend and D. J. Harrics.—p. 811.

British Journal of Ophthalmology, London

7: 497-544 (Nov.) 1923

Case of Implantation Cyst of Iris and Ciliary Body. W. B. Brownlie and H. Neame.—p. 497.
Intracisternal Injections in Treatment of Syphilitic Optic Atrophy. S. R. Gifford, Omaha.—p. 506.
Technic and Reaction of Intracranial Mercuric Bichlorid Injections. J. J. Keegan.—p. 522.
Hemianopia as Sole Clinical Feature in Untreated Secondary Syphilis. A. W. S. Sichel and A. R. Fraser, Cape Town, S. A.—p. 525.

Edinburgh Medical Journal

30: 422-564 (Oct.) 1923

*Generalized Osteitis Fibrosa. J. W. Dawson and J. W. Struthers.—p. 422.

Generalized Osteitis Fibrosa.—This paper by Dawson and Struthers is really a monograph based on extended study in the research laboratory of the Royal College of Physicians of Edinburgh. An endeavor is made to describe the essential histologic features in a case of generalized osteitis fibrosa, and to indicate the conceptions underlying the pathologic process involved in bone dystrophies. The view put forward relates osteitis fibrosa to an initial disturbance of the controlling activity of the bone cell over its calcium metabolism—an activity which is normally regulated by a hormone from the parathyroid glands. The process of decalcification is thus reduced to a defective functioning of the bone cell, following damage by an agent circulating in the blood or deranged hormone control. The damage to the bone cell may be caused by any one of the factors outlined above, especially toxins resulting from faulty tissue metabolism, and those elaborated in the intestinal tract. The automatic regulation of the supply of hormones, or, in other words, the call of the damaged bone cell for an increased supply of hormone, leads to hyperactivity of the parathyroid gland—a hyperactivity which results in hyperplasia, and in a possible perversion of the hormone, for in spite of its hyperplasia, the protective regulation of the activity of the bone cell is insufficient. The individuals and the bones affected may be related to factors inherent in the individual.

Indian Medical Record, Calcutta

43: 273-304 (Oct.) 1923

Osteopathy. D. Graham.—p. 273.
White Spots in Retina of Eye and Their Relation to Toxemias. R. N. Pradhan.—p. 275.
Dysenterics in Bengal. P. Ganguli.—p. 276.
Case of Tetanus Successfully Treated with Phenol Injections. K. L. Dharmadhikary.—p. 288.

Japan Medical World, Tokyo

3: 207-229 (Oct.) 1923

Experimental Investigation of Transfer of Hemolysin and Precipitin into Bile and Saliva of Immunized Animals. N. Kimura.—p. 207.
*Function of Suprarenal Cortex. Relation to Other Endocrine Glands. Y. Tokumitsu.—p. 212.
Prevention and Occurrence of Cholera in Japan. Y. Iimura.—p. 217.

Function of Suprarenal Cortex.—Tokumitsu is of the opinion that the suprarenal cortex is entirely independent of the medulla. Its function is antagonistic to that of the latter, and inhibits epinephrin secretion. The suprarenal cortex has a synergistic action with the pancreas for carbohydrate metabolism. Atrophy of the cortex is seen in the majority of cases of diabetes. It is especially marked when pancreatic changes are slight in severe diabetes. Glycosuria is caused when a large part of the cortex is removed even when the pancreas is not degenerated. The suprarenal cortex is functionally antagonistic to the thyroid. It is distinctly so for carbohydrate metabolism. The thyroid hypertrophies when the suprarenal atrophies. When hypertrophy is advanced, it shows the picture of struma Basedowii. The suprarenal cortex accelerates the pancreatic secretion. This accelerating action is the same even after the vagus or sympathetic nerves are cut. Its action is independent of secretin. This accelerating substance in the cortex lowers the blood pressure. It does not coagulate blood. It is soluble in water or alcohol. It is difficult to extract with ether from water solution. The active substance is not protein or fat. The cortex is functionally antagonistic to the anterior lobe of the hypophysis cerebri. It has no close relation with the eosinophil cells of the latter. The cortex is vital for life. Life can be maintained with one quarter of the cortex. The medulla has no influence on life. The thyroid and the suprarenal medulla are functionally synergistic. The thyroid extract accelerates epinephrin secretion. The anterior and posterior lobes of the hypophysis are antagonistic for epinephrin secretion. Pancreatic extract slightly inhibits the secretion of epinephrin. Extracts of the pineal body or of the corpus luteum accelerate the secretion of epinephrin. But thymus extract does not possess such action. When the cortex or the medulla of the suprarenal atrophies gradually gastric ulcer is not formed.

Journal of State Medicine, London

31: 501-550 (Nov.) 1923

Serologic Classification of Gonococci. W. J. Tullock.—p. 501.
Epidemiology of Bubonic Plague in Great Britain, with Special Reference to Its Spread by "Pulex Irritans." W. A. Lethem.—p. 508.
Head Louse Problem. M. Gross.—p. 516.
Handling of Chemical and Bacterial Problems in Preserving Food. C. M. Dugdale.—p. 522.
Coordination of Measures for Control of Tuberculosis of Lungs. E. W. Hope.—p. 529.
Prophylactic Treatment of Dental Caries. S. W. Fisk.—p. 534.

South African Medical Journal, Johannesburg

19: 33-66 (Sept.) 1923

Management of Difficult Deliveries. J. McGibbon.—p. 33.
Blood Sugar and Diabetes. A. D. Stammers.—p. 38.
Johannesburg Municipal Venereal Clinic. H. Gluckman.—p. 48.
*"Vesicalization" of Stump of Cervix Uteri. E. O. Ashe.—p. 53.

Vesicalization of Stump of Cervix Uteri.—Following the removal of a fibrocystic tumor of the ovary, Ashe's patient developed a leakage of urine from the vagina, which could not be stopped by ordinary means. Finally, the cervix was thoroughly scraped out and "rawed" with sharp spoons, and was then firmly stitched up and entirely occluded by six deep catgut sutures, passed anteroposteriorly. Part of the cervix was, therefore, "vesicalized" or taken up into the bladder wall.

Paris Médical

229-240 (Sept. 29) 1923

Epidemics of Jaundice. M. Garnier and J. Reilly.—p. 229.
Sedimentation Test in Neurology. D. E. Paulian and Tomovici.—p. 234.
Labyrinthitis from Inherited Syphilis. Predescu-Rion.—p. 237.
Aseptic Meningitis. R. Soupault and G. Boulanger-Pilet.—p. 239.

Epidemic Jaundice.—Garnier and Reilly observed 1,300 cases of acute jaundice. Superposed typhoid infection was present only in four of them. Different bacilli of the paratyphoid groups found in epidemics of jaundice are signs only of secondary infection. They discuss at length the reasons why they do not consider them as the causal agents of this very contagious malady. It seems to have some cause as yet unknown.

Sedimentation Test in Neurology.—Paulian and Tomovici found the speed of sedimentation of the blood increased in paralysis agitans. In postencephalitic parkinsonism, sedimentation was retarded.

Aseptic Meningitis After Intraspinal Anesthesia.—Soupault and Boulanger-Pilet report a case of meningitis following lumbar intraspinal anesthesia. The cerebrospinal fluid had a puriform aspect and contained many polymorphonuclear cells. Cultures were negative and the patient recovered in eight days.

Presse Médicale, Paris

31: 833-840 (Oct. 3) 1923

*Active Liver Congestion. M. Chiray and R. Lebègue.—p. 833.

Active Liver Congestion.—Chiray and Lebègue studied the active hepatic congestion after overeating, excessive drinking of water, and intestinal stasis. The liver becomes enlarged and sensitive to palpation. Headaches with somnolence and facial congestion after meals, temporary oliguria, and lowering of indican and glycuronic acid in the urine are the chief clinical manifestations.

31: 841-848 (Oct. 6) 1923

*Proteinic Blood Sugar. H. Bierry, F. Rathery and F. Bordet.—p. 841.

Proteinic Blood Sugar.—Bierry, Rathery and Bordet investigated in nephritis the changes of that part of the blood sugar which is firmly bound to proteins. This "proteinic blood sugar" is not identical with Lépine's *sucre virtuel,* and may be considered, like glycogen, as another kind of sugar reserve. The relation of the nitrogen of the blood proteins to their sugar is almost constant in the same species. It varies in healthy persons between 0.6 and 0.8 gm. per liter of plasma. They examined 100 persons with affections of the kidneys and found figures ranging from 1 to 3 gm. The increase was very marked in acute cases and in the last stages of chronic insufficiency. Though the highest figures were usually obtained in patients with a high urea content of the blood, there was no direct proportion between the proteinic blood sugar and the urea or Ambard's coefficient. Ligation of ureters is followed by a quick rise in azotemia, but only a slow rise in proteinic blood sugar. Azotemia indicates the impermeability of the kidneys. The increased sugar is a sign of a secondary disturbance of the general metabolism. The proteinic blood sugar does not depend on the proportion of serum proteins. A hemoclastic shock does not influence it.

Schweizerische medizinische Wochenschrift, Basel

53: 877-900 (Sept. 20) 1923

*Tuberculin Treatment. H. Sahli.—p. 877.
*Diabetes and Insulin. A. Gigon.—p. 882.
*Movements of Intestines. E. Lenz.—p. 887. Cont'd.

Tuberculin Treatment.—Sahli recommends intracutaneous injection of Beraneck's tuberculin as the best and least dangerous method of specific treatment of tuberculosis at present. Interesting quotations from the advertising of Ponndorff's scarification method in a daily journal are added.

Diabetes and Insulin.—Gigon added to the usual food of rabbits 40 to 50 gm. of glucose daily. The animals seemed to be normal for four to eight weeks. After this they decreased in weight, though the food was more than sufficient, and died within three to six months. In spite of the hyperglycemia, the liver and muscles contained scarcely any glycogen. A goat which drank every day 100 gm. of glucose in 200 c.c. of water died with signs of weakness after five and a half months. In the whole body only His' bundle and a few other fibers of the heart showed the presence of glycogen. The animals eliminated traces of sugar at times, but were not diabetic. It seems thus that the prolonged hyperglycemia inhibited the formation of glycogen. The animals had no ketonuria, but the reaction of the blood was more acid than normal ($p_H = 7 - 7.1$). It seems that insulin has the opposite tendency—to make the blood more alkaline. He does not believe that hypoglycemia is the cause of the death of animals given overdoses of insulin. The rabbit may die even if a subsequent injection of glucose increases the glycemia to above normal. After suprarenalectomy in animals and in some conditions in man an extreme hypoglycemia may occur without immediate death. He favors the theory of lowered sugar utilization in diabetes.

Movements of Intestines.—Lenz publishes a modification of the abdominal window method which allows direct inspection of the movements of the cat's colon.

53: 901-920 (Sept. 27) 1923

*Insulin Treatment. W. Löffler.—p. 901.
Foreign Bodies in Eyes. O. Knüscl.—p. 909.
Retinitis Pigmentosa and Color Blindness. R. Klainguti.—p. 910.

Insulin Treatment.—Löffler observed three cases of diabetic coma treated with insulin. The treatment came apparently too late in two of them, and neither bicarbonate nor glucose infusion helped in the first. The second patient had only a transitory amelioration. In the third case the coma disappeared, but the patient died from pneumonia in two days. He warns against the use of insulin in renal glycosurias.

Policlinico, Rome

30: 361-424 (Aug. 1) 1923. Medical Section

Pathology of the Kidneys. M. Ghiron.—p. 361.
*Carbon Dioxid Tension in Lungs. E. Pirondini and G. Albano.—p. 383.
*Ureosecretory Coefficient. L. Condorelli.—p. 397.
Treatment of Pyelitis. A. Cassuto.—p. 413.
*Glycuronuria. L. Baldari.—p. 420.

Carbon Dioxid Tension in Lungs.—Pirondini and G. Albano describe a new apparatus for determining the carbon dioxid tension of alveolar air. They use a saturated solution of sodium chlorid, because this does not absorb the gas as Villavecchia has found. They confirm the lowered carbon dioxid tension in renal insufficiency.

Extrarenal Factors that Modify the Ureosecretory Coefficient.—Condorelli believes that Ambard's ureosecretory coefficient is influenced by the quantity of blood flowing through the kidneys. This factor depends partly on the blood pressure (direct proportion), and the viscosity of the blood (indirect proportion). By introducing these figures into Ambard's formula, Condorelli believes that he has improved the estimation of insufficiency of the kidneys.

Glycuronuria.—Baldari found glycuronic acid more often in infants nursed by the mother than in the artificially fed. It was absent in athreptic infants, and appeared only in one case out of ten after repeated injections of camphorated oil.

30: 441-488 (Sept. 15) 1923. Surgical Section

*Tuberculous Arthritis Deformans. M. Ascoli.—p. 441.
Cavernous Angioma of the Parotid. E. Caporali.—p. 450.
Most Direct Access to Appendix. G. Carisi.—p. 460.
*Paraffin Drainage. O. Cignozzi.—p. 470.
*Kidney Fistulas. G. Trogu.—p. 481.

Arthritis Deformans of Tuberculous Origin.—The diagnosis wavered between a tuberculous process of the right knee and ordinary arthritis deformans in the case described in a woman, aged 42. There had been no fever, and the pains on arising were relieved by the use of the limb. The tuberculin skin test was positive, but complement fixation was negative. The joint was resected and recovery was soon complete. One typical tubercle was found in the resected portion; the arthritis deformans was evidently secondary.

Paraffin Drainage After Aseptic Operations.—Cignozzi expatiates on the peculiar advantages of a thread or cord or strip of gauze impregnated with paraffin for surgical

drainage, and especially after aseptic intervention. The paraffin-coated substance attracts the secretions from the depths, while it never sticks to the tissues. It behaves in every respect like natural linings of the body cavities.

Kidney Fistulas.—Trogu discusses the pathogenesis, diagnosis and treatment of fistulas into the kidneys when conditions do not forbid closing this outlet.

Prensa Médica Argentina, Buenos Aires

10: 281-304 (Sept. 20) 1923

*Present Status of Cardiac Arrhythmia. G. N. Martinez.—p. 281.
*Juvenile General Paralysis. J. J. Moyano.—p. 292.
*Tunnels in Amputation Stumps. G. Bosch Arana.—p. 296.

Arrhythmias.—Martinez calls his article "The Present Synthetic Conception of Arrhythmias." He takes up each of the five great groups of arrhythmias in turn, citing cases from his own experience to sustain his statements where he differs from certain authorities.

Juvenile General Paralysis.—Moyano published in 1914 a case of tabes in a child, and he now gives an illustrated description of a girl of 16 with typical general paralysis. Such cases teach the necessity for special vigilance in specific treatment of children of syphilitic parents with a tendency to neurosyphilis.

Tunneling Short Amputation Stumps.—Bosch Arana shows the great advantage of having one or two tunnels through the muscles of a short stump to hold cords or straps which fasten to the interior of the artificial leg. By this means the prosthesis is under better volitional control, as he illustrates. A simple tunnel is all that is needed, but it should be as wide as possible, and be trained for its work by an interim crutch device, the strap connecting the tunnel with the crutch near the floor.

Revista de Medicina y Cirugía de la Habana, Havana

28: 587-622 (Sept. 10) 1923

Chrysops Guiterasi; New Species. W. H. Hoffmann.—p. 587.
*Dacryocystitis in the New-Born. J. L. Dehogues.—p. 594.

Dacryocystitis in the New-Born.—Dehogues relates that conjunctivitis in infants in Cuba is often merely a congenital dacryocystitis which has escaped detection. Catheterization of the lacrimal tract restored its permeability and cured at once in 75 per cent. of his fifty-one cases.

Semana Médica, Buenos Aires

1: 1189-1244 (June 28) 1923

The Basal Metabolism from the Clinical Standpoint. D. Speroni.—p. 1189.
*Purification of Drinking Water. C. A. Grau.—p. 1196.
*Tuberculin in Surgical Tuberculosis. A. Rodríguez Egaña.—p. 1198.
Pasteur's Life and Work. Gregorio Aráoz Alfaro.—p. 1203.
Insulin in Treatment of Diabetes. D. T. R. Davison.—p. 1212.
Belgian League for Mental Hygiene. F. Wilson.—p. 1225.

Purification of Drinking Water.—Grau advocates as rapid and certain in its effects, chemical sterilization with a mixture of iodin, sodium hyposulphite and alcohol. Tests of waters contaminated with millions of colon and typhoid bacilli and treated as described were always found sterile. Two solutions are used: Solution A is made by dissolving 8 gm. of iodin and 2 gm. of potassium iodid in 90 c.c. of alcohol in a 100 c.c. vessel, shaking occasionally; then 2 c.c. of glycerin is added. Solution B is made with 15 gm. of sodium hyposulphite and 45 c.c. of distilled water, in a similar vessel; when dissolved, 5 c.c. of glycerin is added, and then 40 c.c. of alcohol. These solutions keep well. To 1 liter of the drinking water is added 5 drops of solution A; after waiting twenty minutes, agitating the water occasionally, 5 drops of solution B is added. The water has no disagreeable taste, and the chemicals used are harmless or directly beneficial. The vessels used must not be of wood; wood absorbs the iodin. This method of sterilization is designed especially for rural school buildings without a good water supply.

Tuberculin Reactions in Bone and Joint Tuberculosis.—Rodríguez Egaña tabulates the response in 205 children with bone and joint disease to whom tuberculin tests were applied by the skin, intradermal and ocular technics, and the Moro percutaneous salve method. The findings are compared further with those in 100 healthy foundlings. In the 200 presumably tuberculous cases, the reaction was positive in all but 7; the skin test eliciting a positive response in 93.03 per cent.; the intradermal in 75.25; the ocular in 33.15, and the salve in 56.72. The negative response in 2 of the 7 not reacting was due to the advanced cachexia. In the 5 other negative cases, the course confirmed the probably nontuberculous nature of the hip-joint disease.

2: 133-184 (July 26) 1923

*Colpohisterectomy for Cancer of Cervix. J. Salvador.—p. 133.
Pylitis from Pyocyaneus Bacillus. G. Foley.—p. 147.
Pharmacodynamic Action of Certain Alkaloids. M. Soto.—p. 148.
Cystocele in Diverticulum of Bladder with Calculus. Chucco et al.—p. 158.
Dystocia from Rigidity Due to Acute Inflammation. Bazán.—p. 160.
Artificial Pneumothorax Invading Other Side. A. Cetrángolo.—p. 162.
What Are the Supports of the Kidney? C. de Sanctis.—p. 164.
*Width of Aorta in Inherited Syphilis. E. A. and J. J. Beretervide.—p. 166.

Treatment of Cancer of Uterine Cervix.—Salvador's illustrations show his method of inverting the cervix, with its cancer and the posterior vagina, after amputating the uterus above through an abdominal incision. He uses a long instrument with a toadstool-like tip, with prongs beneath. This is pushed up through the cervix stump, and it inverts the stump as the "invertor" is pulled out through the vulva, bringing cervix and vagina with it. The walls of the vagina are then sutured together behind, through the abdomen, and the whole inverted mass is cut off just below.

Large Diameter of Aorta in Inherited Syphilis.—The Beretervides state that the diameter of the ascending aorta is about 1.3 cm. in healthy children, but in syphilis it is abnormally large. They call discovery of this exaggerated diameter of the ascending aorta a new symptom of congenital syphilis, one easy to detect with the roentgen rays and with less chances of error than most signs. An abnormally dense shadow is likewise characteristic. Their article is based on 77 orthodiagrams taken of 52 children with inherited syphilis and compared with those from healthy children. In one child, aged 2½, the aorta measured 1.7 cm.; in others at the age of 4, 2.1 cm; at the age of 8 and 9, 2.2 cm.; at 13, 2.3 cm.

Archiv für klinische Chirurgie, Berlin

125: 417-632 (Sept. 22) 1923

*Cholelithiasis. H. F. O. Haberland.—p. 417.
*Total Resection of Cancerous Stomach. G. Kelling.—p. 458.
*Acute Dilatation of the Stomach. R. Girgensohn.—p. 463.
*Congenital False Diaphragmatic Hernia. O. Wiemann.—p. 471.
Sulphosalicylic Acid as a Disinfectant. T. v. Liebermann.—p. 482.
Shape and Position of Viscera. F. Walcker.—p. 490.
Position of Transverse Colon. P. Kuprijanoff.—p. 518.
Idem in Relation to Ileus. P. Kuprijanoff.—p. 535.
Action of Hexamethylenamin by the Vein. G. von Takáts.—p. 544.
*After Esophagogastric Anastomosis. J. Palugyay.—p. 554.
*Circumscribed Serous Meningitis. R. Demel.—p. 561.
Changes in Suprarenal Cortex in Peritonitis and Sepsis. G. Walter Deucher.—p. 578.
Chronically Recurring Appendicitis. E. Liek.—p. 597.
The Process of Arresting Hemorrhage. G. Magnus.—p. 612.
Hernia in Abdominal Wall. A. A. Kosyrew.—p. 625.

Cholelithiasis.—Haberland compares the recent literature on this subject (9 pages of bibliography) with the experiences in Frangenheim's surgical service at Cologne. Latent gallstones were found in 10.5 per cent. of the cadavers, and these "latent" concretions had misled the diagnosis in 27 of the 279 patients; in 17 others there was a concomitant surgical affection of the stomach. Cholelithiasis had been erroneously diagnosed in one case each of appendicitis, cancer of liver or bladder, and cirrhosis of the liver, and 3 cases of gastric ulcer. In differentiation, Läwen found a paravertebral injection of procain useful. With gastric ulcer, anesthetization of the seventh dorsal nerve abolished the pain; with appendicitis, of the first and second right lumbar nerves, while gallstone colic was arrested at once by thus blocking the tenth dorsal nerve.

Total Resection of the Stomach for Cancer.—In Kelling's two cases in men in the fifties, the esophagus was sutured to the jejunum. One lived in good condition for nine months and the other for five before metastasis developed. The men

lt full after eating, but their hunger was not sated. They ad no pains, but they wanted to eat nearly all the time. elling ascribed this to the poor utilization of the food, the lood thus lacking its normal quota of nourishment.

Acute Dilatation of the Stomach. — Girgensohn insists on ie necessity for distinguishing two groups: the cases of astric atony or paralysis of the stomach, and the cases with cute occlusion of the duodenum. The two may be combined. n the case he describes, the young man died the fourth day fter the onset of acute paralysis of the stomach. Necropsy evealed a perforation in a patch of gangrene at two points n the stomach. The record of seventeen deaths in twenty-wo operative cases of acute paralysis of the stomach is not ncouraging, although all agree that it is of functional origin. Nearly all the cases have occurred in persons eating a hearty neal after exceptionally long deprivation of food. When omiting keeps up unusually long after an operation, this ndicates the first stage of atony, and no food, especially in arge amounts, should be given by the mouth. Postural treat-nent and the stomach tube should not be too long delayed. After paralysis is once established the stomach tube must be ised until gastric functioning is entirely normal once more, perhaps for two weeks.

False Diaphragmatic Hernia.—Wiemann refers to congeni-al nonincarcerated diaphragmatic hernia, describing a case n a boy of 16 with hypoplasia of the lung on that side.

After Esophagogastric Anastomosis.—Palugyay gives the esults of tests of a woman with rebellious cardiospasm com-pelling the short-circuiting of the passage. Heyrovsky's tech-nic was applied, and the outcome is highly satisfactory. No regurgitation into the esophagus occurs even with extreme tests.

Serous Meningitis. — Demel describes a case of circum-scribed serous meningitis which presented the clinical picture of a brain tumor. In 48 cases he has collected, the process was in the posterior cranial fossa in 16. Recovery followed in 89.7 per cent. of the 39 operative cases. Trauma and infection are important factors, as also an angioneurotic tendency. In his case there seemed to have been a congenital defect in the sylvian region predisposing to cyst formation, but no symptoms had been observed until the man was 34. Then symptoms developed suggesting a brain tumor, and after three years puncture released 0.12 liter of clear fluid. The man died six days later.

Deutsches Archiv für klinische Medizin, Leipzig

143: 1-128 (Aug.) 1923

*Treatment of Diabetes with Roasted Starches. E. Grafe.—p. 1.
*Ventricular Fibrillation. S. de Boer.—p. 20.
Thyroid-Genital Insufficiency. L. Borchardt.—p. 35.
Diabetic Edema. W. Boenheim.—p. 46.
Associated Spleen and Liver Disease. G. Lepehne.—p. 53.
*Strophanthin in Chronic Heart Disease. Fraenkel and Doll.—p. 65.
*Treatment of Diabetics with Roasted Starches. E. Grafe and Otto-Martiensen.—p. 87.
*Blood Sugar in Diabetics Treated with Roasted Starches. H. Magin and K. Turban.—p. 97.
Lipoid Infiltration of Kidney. K. Heusler.—p. 106.
*Angina Agranulocytotica. A. Leon.—p. 118.

Treatment of Diabetes with Roasted Starches.—Grafe gave fifty-four diabetics different foodstuffs (bread, potatoes, rice, oats, etc.) which had been roasted or sautéed in fat in a pan over the fire for fifteen or twenty minutes, after having been cooked soft and drained dry. His six pages of tabulated details confirm the superiority of starches thus altered by roasting, the bread toasted brown. The action against acido-sis was distinct.

Ventricular Fibrillation.—De Boer finds that ischemia of any part of the heart musculature predisposes the ventricle to fibrillation. An affection of the conducting system is not necessary.

Strophanthin in Chronic Heart Disease.—Fraenkel and Doll believe that the frequently feeble action of digitalis in aortic insufficiency is due simply to the fact that such patients do not get decompensated, as long as they have any appreciable amount of reserve heart energy. The authors are strongly opposed to the opinion that digitalis is dangerous in patients with infarctions, or hypertension. The only contraindication is the tendency to heart block, though digitalis is indicated in cases of complete block with heart insufficiency. They recommend intravenous injections of strophanthin. The amount which is necessary to obtain results is the best measure of the degree and prognosis of the insufficiency. The efficient and usual daily dose is 0.5 mg. of strophanthin. It is advisable, sometimes, to fraction this dose at first, and increase it later to 0.7 mg. The maximal dose is between 0.8 and 1.2 mg. but these require longer intervals.

Treatment of Diabetics with Roasted Starches.—Grafe and Otto-Martiensen did not find the expected increase in the respiratory quotient in most of their experiments on metabolism of roasted carbohydrates. This may be due to their slow absorption.

Blood Sugar in Diabetics Treated with Roasted Starches.—Magin and Turban found that roasted carbohydrates increased the blood sugar in diabetics much less than equivalent amounts of untreated carbohydrates.

Agranulocytosis.—Leon describes a case of an apparently new syndrome discovered a year ago by W. Schultz, who has since observed five other cases. The disease occurred in middle-aged and old women. It started with high fever and general malaise. Very soon ulcerations and gangrenes set in, affecting always the pharynx (especially the tonsils, sometimes the teeth, tongue, larynx and vagina). There were no hemorrhages. The spleen and liver were sometimes enlarged. The white cells were markedly decreased (1,800 down to "almost none" in 1 c.mm.) and the decrease affected especially the granulocytes (neutrophils and eosinophils). The blood platelets and red cells were normal, the antiproteolytic ferment of the serum was normal. The disease ended fatally in three to fourteen days. The bone marrow did not contain leukocytes nor myelocytes. Megakaryocytes were present. She sees in this a confirmation of Wright's theory of the origin of the blood platelets.

Deutsche medizinische Wochenschrift, Berlin

49: 1197-1228 (Sept. 21) 1923

*Vaccination Against Tuberculosis. P. Uhlenhuth.—p. 1197.
*Localization of Consciousness. N. P. Tendeloo.—p. 1200.
Digitalis Treatment. C. Hirsch.—p. 1202. Conc'n.
Treatment of Sterility in Women. R. Zimmermann.—p. 1206.
Malignant Brain Tumors. O. Kingreen.—p. 1209.
Acute Pancreatitis. E. Glass.—p. 1210.
Treatment of Wounds with Sulphur Dioxid. Rottsahl.—p. 1212.
The Meinicke Flocculation Test. Fey.—p. 1213.
Chemotherapy in Lepra and Tuberculosis. Bieling.—p. 1214.
Physicians and Social Insurance. S. Alexander.—p. 1216.
Insurance Company for Physicians. Bok.—p. 1216.

Vaccination Against Tuberculosis.—Uhlenhuth reports on his various attempts to induce immunity against tuberculosis. He injected animals with bacilli treated with antiformin or made fat-free. The failures convinced him that it is impossible to obtain immunity against tuberculosis with dead bacilli. Yet he failed just as completely when using old, almost avirulent living cultures. The serum from animals which had been injected with very large doses of such cultures (up to 60 gm.) was without any therapeutic or prophylactic value. He can find no experimental explanation for the favorable results obtained by Czerny with this serum.

Localization of Consciousness.—Tendeloo says that "a completely uninjured constellation of all the psychic factors is indispensable for clear consciousness." It presupposes a connection between all the psychic centers. A severe disturbance occurs only with extensive lesions.

49: 1229-1252 (Sept. 28) 1923

Hysteria. M. Rosenfeld.—p. 1229.
Vital Staining. L. Karczag and L. Paunz.—p. 1231.
*Extraction in Pelvic Presentation. E. Sachs.—p. 1233.
Scanzoni's Forceps. F. Klec.—p. 1236.
Multiple Bone Tumors. G. Mosczytz.—p. 1237.
Action of Tuberculin. H. Rieckenberg.—p. 1238.
Dold's Reaction in Spinal Fluid. G. Rochow.—p. 1239.
Periarteritis Nodosa. G. Kopp.—p. 1239.
*Epigastric Neuralgia. Philippsthal.—p. 1240.
Improved Technic for Ultraviolet Ray Treatment in Tuberculosis. Landgraff.—p. 1241.
Conscientious Objectors in England. H. Böing.—p. 1242.

Extraction in Pelvic Presentation.—Sachs discusses the modern technic of extraction in pelvic presentation. He

emphasizes the advantage of "letting the baby hang" between the attempts at extraction, so that it assumes the natural rotation, with which the extraction might have interfered. Every extraction should be aided by expression and good contractions of the uterus.

Epigastric Neuralgia.—Philippsthal has observed ten patients with epigastric pains which resembled those in ulcers of the stomach. Injection of procain into the painful spot gave relief. Addition of alcohol cured two, while five were refractory to all measures until relieved by excision of the painful spot, the seat of the neuralgia. In two of the cases, asthma accompanied the attacks and subsided at the same time (after operation in one case, conservative treatment in the other). In four of the cases a tendency to neurasthenia was manifest. Subsidence of the pain after injection of procain differentiated the neuralgia from organic disease.

Medizinische Klinik, Berlin

19: 1247-1278 (Sept. 16) 1923

*Progonic Triad. Westenhöfer.—p. 1247.
Abdominal Colic. Eschbaum.—p. 1255.
*Treatment of Gonorrhea. H. Hecht.—p. 1257.
*Reaction of Feces in Infants. E. Hainiss.—p. 1258.
*Training of the Feebleminded. E. Bormann.—p. 1260.
Abdominal Affections and Influenza. Esau.—p. 1261.
Hypnoid Neuroses. H. Rehder.—p. 1262.
Treatment of Flatfoot. E. Fischer.—p. 1264.
Treatment of Scabies. Schübel.—p. 1265.
*Reactivity of Asthenics. E. Baráth.—p. 1265.
Practical Gynecology. F. Runge.—p. 1266. Cont'n.
Present Status of Etiology of Tuberculosis. H. Gerhartz.—p. 1267.
Present Status of Skin Diseases. F. Pinkus.—p. 1268.

Progonic Triad.—Westenhöfer found in about 25 or 30 per cent. of necropsies three allied conditions, namely, lobulation of the kidneys, marked indentation of the spleen, and a funnel-shaped appendix. Such forms exist in some animals. It is interesting to note that the first two are found especially in different animals living in or near the water. Since these forms are normal in new-born children, he differentiates them from atavism, and has coined a similar Greek term for them: progonism. He began his research while residing in Chile and attributes the rarity of death from appendicitis, in spite of the noninterference of surgeons in the acute phase, chiefly to the funnel-shaped form of the appendix, though it is present only in 25 or 30 per cent. of the population and probably to a similar extent in Europeans. Neoplasms are another manifestation of progonism due to the inherent ability of single cells to reproduce and lead an individual life. We must look for explanation of these qualities to phylogenesis —to our unicellular ancestors. He believes that malignant tumors are just as good, if not better, evidence of such origin of man as embryology and comparative anatomy.

Treatment of Gonorrhea.—Hecht uses for abortive treatment of acute cases injections of a 5 per cent. protein silver salt solution with an anesthetic. Subacute cases treated with intramuscular injections of milk did well. The abortive treatment of acute cases must be stopped if the second portion of the urine is not absolutely clear, if the patient has much pain between the treatments, if the secretion becomes blood stained, or if there is edema of the meatus, pollakiuria or pain in the epididymis.

Reaction of Feces in Infants.—Hainiss examined the acidity of stools of breast-fed infants. He found the best increase in weight at a p_H between 5 and 6. Infants who did not increase in weight had a neutral or alkaline reaction, which is not favorable for the growth of *Bacillus bifidus*. Addition of sour skimmed milk corrected the condition.

Training of the Feebleminded.—Bormann examines the power of perception, concentration and practical sense in defective children. The first two qualities determine the possibility of school instruction, while the last is the important factor in the future usefulness of the feebleminded. He found his opinion confirmed by the development of forty-nine children. They had been examined for the first time in the years 1909 to 1916.

Reactivity of Asthenics.—Baráth found that persons with an asthenic habitus produced lower agglutinin titers after injections of typhoid vaccine than other patients.

Münchener medizinische Wochenschrift, Munich

70: 1217-1242 (Sept. 28) 1923

*Heart Palpitation. G. Katsch.—p. 1217.
*Treatment of Pleural Empyema. A. Herrmannsdorfer.—p. 1219.
Treatment of Meningeal Syphilis. W. Gennerich.—p. 1221.
*Growth of Bones. W. Müller.—p. 1225.
Germs in Organs. Huntemüller.—p. 1226.
Amyloid Degeneration of the Liver. H. Schrank.—p. 1227.
Atrophic Rhinitis. R. v. Scheven.—p. 1228.
Bullet in Pelvis. A. Lehrnbecher.—p. 1228.
Sedimentation of Erythrocytes. E. Trömner.—p. 1229.
*Esophageal Stenosis. A. Hirsch and J. Wagner.—p. 1229.
Treatment of Placenta Praevia. Opitz.—p. 1230.

Heart Palpitation.—Katsch observed in intelligent patients two kinds of palpitation: some felt it in the systole, others in the diastole. Combinations occur. He believes that it is always a sign of a disturbance of the harmony of the tonic and dynamic factors of the circulation.

Treatment of Pleural Empyema.—Herrmannsdorfer reports from Sauerbruch's clinic good results with pepsin treatment of fibrinous pleural empyemas. He infuses through the drainage tube up to 150-250 c.c. of the following solution: Pepsin, 20 gm.; hydrochloric acid, 2; phenol, 2; distilled water to 400 gm. He leaves the solution in the cavity for six to twelve hours. If all the fibrin is not then dissolved, the infusion is repeated. It is not impossible that the solution might dissolve fine adhesions, and change an encapsulated into an open pyothorax, although this did not occur in his experience. The whole drainage method is contraindicated in empyemas due to an abscess in the lung or neighboring organs, which require larger operations.

Growth of Bones.—Contrary to most authors, Müller finds that the longitudinal growth does not require functional stimuli. It is inhibited by pressure.

Esophageal Stenosis.—Hirsch and Wagner describe a case of recurring stenosis of the esophagus which was due to invagination of the organ.

Wiener klinische Wochenschrift, Vienna

36: 671-686 (Sept. 20) 1923

*Elimination of Dyes by the Stomach. P. Saxl and D. Scherf.—p. 671.
*Insulin and the Blood Pressure. Klemperer and Strisower.—p. 672.
Anetodermia in Relation to Aerodermatitis. G. Nobl.—p. 673.
Intraspinal Arsphenamin Treatment. E. v. Thurzó.—p. 675.
Artificial Abortion. K. Neuwirth.—p. 677.
Medical Welfare Work. K. Ullmann.—p. 679.

Elimination of Dyes by the Stomach.—Saxl and Scherf have continued their investigations on the excretion of dyes through the stomach. They found that only fat soluble dyes (methylene blue, neutral red) are thus eliminated. Those which are only water soluble (indigocarmin, congo red, fluorescein) do not pass into the gastric juice. The excretion has no particular localization. The only practical result was the discovery that the dye does not pass into the interior of the stomach in cases of complete achylia.

Insulin and the Blood Pressure.—Klemperer and Strisower found that an injection of 10 units of insulin lowers the blood pressure in diabetics with hypertension. The action is slow, and the pressure reaches its minimum in about two hours. In diabetics with normal blood pressure, a lowering of only 5 to 15 mm. of mercury was observed, which may be within the physiologic limits. Injections of epinephrin solution induced the typical increase in blood pressure without regard to a previous or simultaneous injection of insulin. The blood pressure was not lowered by insulin in normal rabbits in spite of hypoglycemia, nor in three cases of chronic nephritis with hypertension.

36: 687-704 (Sept. 27) 1923

*Blood Transfusion. K. Nather and A. Ochsner.—p. 687.
*Sex Papillae on the Labia Minora. B. Lipschütz.—p. 692.
*Gangrene in Lead Poisoning. F. Kazda.—p. 694.
History of Medicine. I. Fischer.—p. 696.

Blood Transfusion.—Nather and Ochsner describe and illustrate the technic of blood grouping, and Percy's transfusion method.

Sex Papillae on the Labia Minora.—Lipschütz found on the inner surface of the labia minora a crescent shaped group of

papillae resembling the fungiform papillae of the tongue. They appear between the twelfth and fourteenth years and contain many terminal bodies. He believes, therefore, that they are accessory organs of libido.

Gangrene in Lead Poisoning.—Kazda reports three cases of gangrene of the legs in young printers, aged 28 to 46. Although varices are a common occurrence in that trade, there were none in these cases. This confirms his observation that the formation of varices seems to require a good function on the part of the arteries.

Zeitschrift für klinische Medizin, Berlin

97: 189-482 (Sept. 20) 1923

Iodin and Production of Erythrocytes. G. Holler.—p. 189.
Gas Metabolism. W. Arnoldi and J. Ferber.—p. 208.
Chronic Septicemias. F. E. R. Loewenhardt.—p. 217.
Hemolysis and Jaundice. K. Bingold.—p. 257.
Nature of Nephrosis. V. Kollert.—p. 287.
Nycturia in Heart and Kidney Disease. O. Klein.—p. 312.
Pituitary in Relation to Metabolism. D. M. Rossiysky.—p. 334.
Bedside Study of Hemogram. G. Ockel.—p. 338.
Psychoneurotic Disturbances in Hyperthyroidism. R. F. Weiss.—p. 366.
Precipitation in Oversaturated Uric Acid Solutions. R. Kohler and R. Krüger.—p. 381.
Orthostatic Albuminuria. H. Uyeda.—p. 394.
*Auscultation of the Pulse. M. Reh.—p. 413.
Diagnosis of Lymphogranulomatosis. J. Weiss.—p. 444.
*Blood Volume Determination. A. Mendershausen.—p. 468.

Gas Metabolism.—Arnoldi and Ferber found practically identical changes of oxygen intake and carbon dioxid exhalation after injections of salts of calcium, sodium and potassium. The oxygen seemed to be better utilized; the carbon dioxid was lowered. They had occasion to observe an epileptic girl before the attack. The respiration was lowered about half an hour before and became progressively weaker, although the girl felt well. Respiration stopped almost entirely at the onset of the seizure.

Chronic Septicemias.—Loewenhardt uses the term *chronio-septicämie* for all chronic septicemias, like endocarditis, chorea, cholangitis, infectious nephritis, infectious neuritis, etc. Although his therapeutic measures failed, he believes that the correct diagnosis of the condition is important, not only to separate the condition from others, but also for proper treatment.

Hemolysis and Jaundice.—Bingold deals with the pathologic significance of the presence of hematin in the serum. It was found in pernicious anemia, puerperal eclampsia, gas infection and other rare conditions. It seems that the spleen and the reticulo-endothelial apparatus do not play an important part in this decomposition of hemoglobin.

Nature of Nephrosis.—Kollert examined the blood proteins in patients suffering from degenerative affections of the kidneys (nephrosis and chronic nephritis with preponderating changes in the tubuli). He found the fibrinogen increased up to nine times, the globulins fourfold, while urea, the end product of decomposition of proteins, was low. Similar conditions are found wherever the disintegration of tissues is increased (except in affections of the liver). He had found previously, with Starlinger, that albuminuria paralleled the changes in the fibrinogen content of the serum. Below a certain threshold of fibrinogen, no albumin passes in the urine. Previous affections of the kidneys lower the threshold. He considers that the disintegration of proteins is a cause of the increase in fibrinogen, and secondarily of albuminuria. Some lesion of the kidneys is also necessary. The change in the proportions of serum proteins in severe albuminurias is frequently accompanied by an increase of cholesterol in the serum. He found, with Starlinger, also a parallelism between the amount of fibrinogen and the tendency to edemas. All this is in accord with the Herzfeld-Klinger theory of the decomposition of cell proteins. This theory assumes that fibrinogen is the product first formed; this is followed by globulins, then albumins, and progressively finer dispersions. Certain acute forms of degeneration of the kidney, with necrosis, such as bismuth nephrosis, affect primarily the kidneys, and other tissues are only secondarily affected. In lipoid nephrosis, the affection of the kidneys is only a part of the whole affection of the organism. Nephritis gravidarum belongs to this group.

Bedside Study of Hemogram.—Ockel considers Schilling's modification of Arneth's method of quantitative differential blood count valuable.

Psychoneurotic Disturbances in Hyperthyroidism.—Weiss believes that psychic disturbances in patients with toxic goiters are not caused by the latter. They are only parallel symptoms of a degenerative constitution. Each can influence the other.

Auscultation of the Pulse.—Reh investigated the origin of the sounds heard distally from the cuff in Korotkow's method of determination of the blood pressure.

Blood Volume Determination.—Mendershausen found with the congo red method an average volume of blood corresponding to 7.5 per cent. of the body weight. The blood volume was below this average in anemias, and in corpulent and atrophic subjects.

Zentralblatt für Chirurgie, Leipzig

50: 1385-1416 (Sept. 8) 1923

*Dislocation of Semilunar Bone. Clairmont and Schinz.—p. 1386.
*Cerebral Anemia and Rapid Anesthesia. C. Ritter.—p. 1390.
Skull Sarcoma Cured by Operation. O. Langemak.—p. 1392.
Operative Treatment for Saddle-Nose. A. Réthi.—p. 1393.
Diagnosis of Intra-Abdominal Injury from Contusion. Grasmann.—p. 1397.
*Treatment of Patellar Fractures. B. O. Pribram.—p. 1398.
"Aspiration Catheterization" of the Bladder. F. Kroh.—p. 1401.

Conservative Treatment of Dislocation of Semilunar Bone.—Clairmont and Schinz bring out that dislocation of the semilunar bone is often a luxation of the hand around the semilunar bone which is twisted on its axis. Reduction is accomplished by extreme dorsal flexion, pressure being applied to the luxated semilunar from the palm, followed by extreme palmar flexion. Immobilization should be of short duration, and physiotherapy should be begun early. The prognosis is good.

Induced Cerebral Anemia as an Aid to Anesthesia.—Ritter recommends compression of the carotid arteries at the inner margin of the sternocleidomastoid muscles to hasten anesthesia with ether by producing cerebral anemia.

Operative Treatment of Fractures of the Patella.—Pribram recommends, unless there are pronounced contraindications, that simple fractures of the patella be sutured as soon as possible after the injury. He advocates flexion of the joint at a right angle after the operation.

Zentralblatt für Gynäkologie, Leipzig

47: 1441-1472 (Sept. 8) 1923

Simplified Artificial Pneumoperitoneum. O. Gragert.—p. 1441.
*Intracranial Serotherapy in Puerperal Tetanus. K. Fritsch.—p. 1445.
*The Corpus Luteum in Cows. A. Kaltner.—p. 1449.
*Treatment of Perforation of the Uterus. E. Schwab.—p. 1451.
Morphin as an "Antidote" in Scopolamin Poisoning. Strube.—p. 1460.

Puerperal Tetanus: Recovery Under Intracranial Serotherapy.—In Fritsch's case, tetanus antitoxin was injected subcutaneously, by lumbar puncture, and directly under the cerebral dura between the coronal and sagittal sutures. Enemas of magnesium sulphate were given, and the woman, aged 41, recovered. The tetanus had developed with a gradual onset the twelfth day after an abortion.

Studies on the Corpus Luteum in Gravid Cows.—Kaltner refers to Hofstätter's researches on rabbits and the resultant finding that there is only a loose connection between the number of impregnated ova in the uterus and the number of corpora lutea. To clear up this and other questions pertaining to the evolution and involution of the corpus luteum, Kaltner carried out a series of researches on slaughtered cows. In 295, or 98.3 per cent., of the 300 examined, the number of corpora lutea coincided with the number of fetuses in the uterus. In 1.7 per cent. there was an excessive number of corpora lutea. In every instance the corpus luteum was developed in the ovary that was connected by its fallopian tube with the gravid cornu uteri. In not a single case could migration of the ovum be proved.

Treatment of Perforation of the Uterus.—A purely conservative treatment of perforation of the uterus (rest in bed, ice-bag and opium), seems to Schwab to be strictly indicated only in cases in which: the perforation injuries are small; no

infection is present; the possibility of bacterial infection from a decomposed placental remnant is slight; hemorrhage into the abdominal cavity is inconsiderable, and the existence of a secondary lesion (intestine, bladder, ureter or good-sized blood vessel) can be excluded with certainty. If these conditions do not obtain, the indications for active intervention are present; delay means serious danger for the patient.

Zentralblatt für innere Medizin, Leipzig

44: 625-640 (Sept. 29) 1923

*Blood Pressure Quotients. P. Engelen.—p. 625.

Blood Pressure Quotients.—Engelen reviews the significance of the proportion of the systolic to the diastolic pressure, and the different quotients (Strassburger, Moritz, Vérut).

Casopis lekaruv ceskych, Prague

62: 1021-1048 (Sept. 29) 1923

Parasites in Coloboma of Macula. J. Janku.—p. 1021. Cont'd.
*Syphilitic Pituitary Cachexia. V. Jedlicka.—p. 1027. Conc'n.
Amentia. Heveroch.—p. 1032. Cont'd.
Whey. E. Glücksmann.—p. 1038. Cont'd.

62: 1049-1076 (Oct. 6) 1923

Radium Treatment of Cancer. J. Markl.—p. 1049.

Syphilitic Pituitary Cachexia.—Jedlicka describes a case of syphilis in an aged man. The secondary eruption spread over the greater part of the body and while it was still present gummas developed, about seven months after the onset of the secondary symptoms. The patient did not react to treatment and died from cachexia, which was apparently caused by a gumma in the pituitary gland. Eight photomicrograms illustrate the findings.

Acta Chirurgica Scandinavica, Stockholm

56: 207-307 (Oct. 3) 1923

*Pathogenesis of Gallstones. T. Rovsing.—p. 207.
*Destructive Processes in the Ischium. A. Odelberg.—p. 273.
*Solitary Cyst in Kidney. K. Nicolaysen.—p. 285.
Cholecystectomy with Immediate Suture. L. Norrlin.—p. 289.
Dislocation of the Hand. K. Nicolaysen.—p. 305.

Gallstones Cause, Not Result, of Infection.—Rovsing declares that gallstones are the most frequent cause—not the result—of stagnation of bile and infection of the biliary passages. In his 30 cases of jaundice from prolonged stasis of bile, as also in Fibiger's similar series of 32, there was not a trace of gallstone production. The cause has been mistaken for the effect. He presents data to sustain his assertion that in reality the gallstones form in the liver. They are the result of precipitation of black bilihumin calcium in the liver cells, and this occurs under the influence of some transient toxemia. The soft masses of pigment are evacuated into the bile capillaries. As they lodge or are swept along, they become coated with the normal elements of the bile, and with fibrin and blood as they irritate the walls of the bile passages. So long as the concretions lie quietly in the gallbladder, they cause no disturbance. When they begin to migrate and cause disturbance, they should be removed at once. The practical conclusion from his long research and his assertions that we hitherto have been mistaking the effect for the cause of gallstone disturbances, is that when pains, fever, jaundice and dyspepsia appear, they show that the gallstones are setting up inflammation, and call for immediate removal. To wait is to allow time for irreparable damage. Waiting was the logical procedure when we assumed that infection had preceded the gallstones. But if the gallstones precede infection, as he asserts, then the logical procedure is to clear them out as soon as irritation from their presence sets up inflammation. His plate shows the different phases of the formation of the gallstone. The black nucleus in the center testifies to the origin in the liver, and the toxemia of pregnancy explains the greater prevalence of gallstones in women, although toxemia of any origin may be responsible for the precipitation in the liver. In his 530 operative cases, 80.7 per cent. were in women. Search for gallstones in 7,447 cadavers at Copenhagen revealed them in from 8 to 25 per cent. (men from 4.9 to 19 per cent.; women, 11.27 to 31 per cent.). Gallstone disturbances are exceptional in men under 30, but from 5 to 12 per cent. of all women over 20 are subject to them. The strain of childbirth may mobilize quiescent stones, in addition to the impetus to stone production by pregnancy toxemias. (The article is in German.)

Destructive Processes in Ischium.—Odelberg describes four cases of a clinical picture, between the ages of 11 and 14, traceable to an inflammatory process inside the ischium and adjacent part of the pubic bone. The pains in hip and thigh and the limping suggested hip joint disease at first, but the roentgen ray showed only the focus in the ischium, and recovery followed clearing out this focus. Inoculation of guinea-pigs was negative.

Solitary Cyst in the Kidney.—The kidney tissue encircled the large cyst in the unmarried woman of 66, and Nicolaysen was able to detach it and shell out the cyst entire. The diameter was 12 cm., and a scrap of adherent kidney tissue showed that the cyst had no special capsule.

Finska Läkaresällskapets Handlingar, Helsingfors

65: 491-608 (Oct.) 1923

*Intestinal Infantilism. W. Pipping.—p. 491.
*Pathogenesis of Torticollis. A. Krogius.—p. 515.
*Myoma Operations During Pregnancy. O. A. Boije.—p. 530.
*Microscopic Specimens. H. Castrén.—p. 542.
*Myoma Operations. J. J. Chydenius.—p. 548.
Present Status of Insulin Treatment. O. Holsti.—p. 578.

Intestinal Infantilism.—Pipping describes the clinical picture of the severe chronic insufficiency of the digestive apparatus, in children past babyhood, which Herter calls intestinal infantilism. Pipping has encountered five cases in the last five years, and one was in the children's hospital for three years. Nothing suggesting inflammation was found in the intestines at necropsy, in one typical case. The pathologic findings were dilatation of the ventricles and fatty degeneration of the liver, with anemia of all the organs, and acute pneumonia. The extremely chronic course of the intestinal symptoms; the fluctuations in the weight, independent of external causes; the development of edema of neither cardiac nor renal origin; the lack of any influence from dietetic measures—all testify to a constitutional endogenous factor. Two of the six children had severe attacks of tetany—which is rare in Finland—with other signs of an intense spasmophilic diathesis; instability of the nervous system was evident in all. One of the children had pains in the hands and feet, insomnia, edema, micturition every half hour, lack of appetite, vomiting and loss of weight and strength, long before the intestinal symptoms became pronounced, and a younger sister presented a similar clinical picture. Only one of the six belonged to the laboring classes, and all were girls, between the ages of 2 and 5. Three have died, from inanition cachexia; they were "unnourishable." Two seem to be improving slightly at present as regards the nervous symptoms, but they will probably be stunted in growth. One of them seems to have nearly recovered; the symptoms had all been milder in this case. She improved on a diet of skimmed milk and meat juice at first, but the hemoglobin percentage was 40 (Sahli) on leaving the hospital after a year's stay.

Origin of Torticollis.—Krogius presents evidence to prove that muscular torticollis must be referred to an endogenous cause—some embryonal anomaly.

Conservative Operation for Uterine Myoma During Pregnancy.—In one of Boije's four cases, the pedunculated myoma, weighing 1,450 gm., growing from the fundus, was removed through an abdominal incision, at the fifth month of a normal pregnancy. The center of the tumor was necrotic. In all the cases the pregnancy proceeded unmolested to term.

To Mark Microscopic Preparations.—Castrén draws with a cutting diamond a series of lines on the back of the object glass, dividing it into squares. Any special point to be examined with the microscope can thus be readily located by its square, as in a map.

Treatment of Uterine Myoma.—Chydenius reviews the experiences with 322 operative cases of myoma, studying retrospectively the question whether they would have been amenable to radiotherapy. Only 40 per cent. might possibly have yielded to the roentgen rays. One death from heart failure during the operation might have been avoided if radiotherapy had been applied. One woman with only 8 per cent. hemoglobin recovered after removal of the myoma.

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PROBLEMS IN THE CONTROL OF DIPHTHERIA *

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In discussing problems in the control of diphtheria, I do not feel that I am capable of giving any definite answers to the queries that occur when one studies diphtheria, its incidence and its mortality, but I hope that this paper may bring out in its discussion some valuable information. Diphtheria, like all other infectious diseases, brings to the mind of the practitioner four questions:

1. What is the cause of the disease?
2. Is there any specific treatment?
3. Is there any way of rendering immune those persons who are exposed to it?
4. Is there any way of knowing whether a person exposed to the disease will contract it or not?

CAUSE OF DIPHTHERIA

To all of these questions we can give a definite and precise answer. To the first, the disease is caused by a bacillus first described in 1883-1884 by Klebs and Loeffler. The morphology of this bacillus is well known, and the fact that when grown on suitable culture mediums it will produce a toxin. These facts have been brought out on investigation by Park, Williams and Theobald Smith. The disease has been known since the second century, and was then described by Aretaeus as the malum aegyptiacum. It was epidemic in the sixteenth and seventeenth centuries in Holland, Spain, Italy and France, as well as in England, but it was not until 1821 that Brettoneau of Tours, in a treatise on the subject before the French Academy, gave the name la diphthérite. Diphtheria for a long time was thought to be due to defective drains or sewer gas. This we now know to be not the exciting cause; but probably insanitary conditions, such as polluted water supply and improper sewerage and drainage, so lowered the health of persons exposed to the disease that diphtheria resulted when the individual came in contact with those having the diphtheria bacillus in their throats. Certain animals are susceptible to diphtheria—cats and cows. Very recently the bacillus of diphtheria has been isolated from chickens suffering with roup. Other animals, such as turkeys and birds, are known to be infected with the disease. Most domestic animals, however, appear to be immune. Children are more susceptible than adults. Membranous croup was for a long time not regarded as the same as diphtheria, but now medical men make no distinction between laryngeal diphtheria and ordinary diphtheria, except that the mortality is greater in laryngeal diphtheria. Diphtheria is found in all European and American countries. There is little diphtheria in India and Japan. Diphtheria becomes at times pandemic, apparently at periods of about twenty years.

SPECIFIC TREATMENT

The second question can also be answered affirmatively. Diphtheria antitoxin was discovered by Behring and Kitasato about 1890, but it was not until 1895 that Park and Williams succeeded in producing from culture No. 8 a far more powerful toxin than had ever been previously obtained. The culture still is used throughout the world for producing antitoxin. It came into general use about 1900, and in Chart 1, the decline in mortality in the registration area through the use of diphtheria antitoxin is clearly shown. Chart 2 shows the per capita cost of the use of diphtheria antitoxin in South Carolina. This shows that in 1915 the per capita cost was 55 mills. In 1919, the year after the war, when everything reached its high cost, the per capita cost was about 88 mills. The present cost is about 82 mills per capita. South Carolina, in 1910, was the first state to furnish diphtheria antitoxin free to its citizens, black and white.

Chart 3 shows the cost of diphtheria antitoxin per case. This varies from about $4.50 to more than $8, in 1918. It is now costing about $5 per case.

Chart 4 shows the amount of units of diphtheria antitoxin used per case. In 1915 the average amount used was 12,000 units. The amount used rose rapidly until 1920, when 32,000 units was used per case. This dropped in 1921 to 20,000 units, and in 1922 practically the same amount was used.

CONTROL OF DIPHTHERIA

As to results in South Carolina, Chart 1 shows that the average death rate in 1920 in the registration area was over 16 per thousand, whereas in South Carolina the average death rate was about 13 per thousand. This we attribute largely to the free distribution of diphtheria antitoxin.

Chart 6 compares the mortality rate in Kentucky, Massachusetts, California, Washington, Kansas and South Carolina. These states were chosen, not on account of the fact that all of them have a higher mortality than South Carolina, except Washington, but because they represent geographic areas of the United States; Kentucky, the highest, representing the East Central states; Massachusetts next, representing the New England states; Kansas, a Middle Western state; California, an extreme Western coastal state, and Washington, an extreme Western north coastal state. The mortality rates shown give Washington the lowest

* Read before the Section on Preventive and Industrial Medicine and Public Health at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

death rate, South Carolina the next lowest, and Massachusetts the highest. In Massachusetts probably the highest degree of intelligent effort has been concentrated on the problem of the reduction of the diphtheria mortality rate. We can only believe that the reason of the low mortality rate in South Carolina is due to our plan of universal distribution of diphtheria antitoxin.

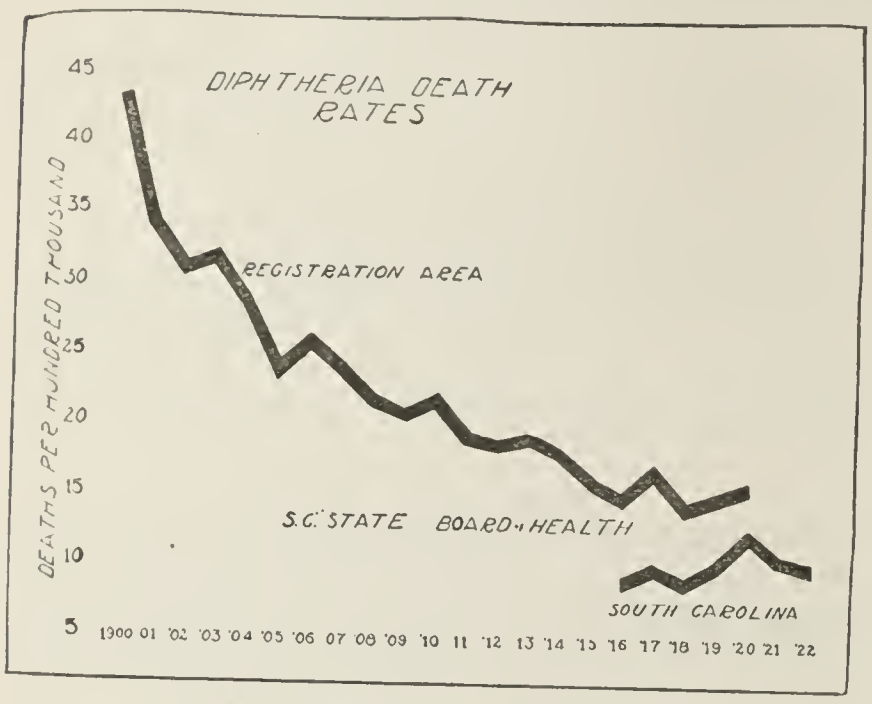


Chart 1.—Death rate from diphtheria.

Answering the third query in the affirmative brings us to the subject of the control of diphtheria. Although we have advanced greatly in our knowledge of the treatment of the disease and have succeeded in reducing the mortality tremendously, for it was five times greater in 1900 than it is at the present time, yet our morbidity rate still remains extremely high. Quarantine, placarding and isolation of the patient has done but little toward preventing the spread of the disease. The location of the carrier is an extremely difficult problem, for it has been proved that the bacillus persist almost indefinitely in the air passages in certain cases, and in a large proportion of cases it persists for several weeks after convalescence. Kelley [1] has brought out the facts so well that his conclusions are justified:

> Practically all of these secondary cases could have been avoided if at the time of institution of treatment all contacts had been immunized.
>
> The problem is of sufficient size and importance to warrant special attention.
>
> Some steps should be taken by local health authorities with physicians to emphasize the need of passive immunization.

We have, therefore, come to the conclusion that we should produce passive immunity in all house contacts by the injection of a small dose, from 500 to 1,000 units, of antitoxin. We then should stimulate later on active immunity by the use of toxin-antitoxin. As the production of active immunity in the human body by injection of toxin antitoxin takes from one to six months, we cannot let this take the place of passive immunity, which is rapidly produced by the injection of antitoxin. We agree with Bauer [2] in his conclusion that, since our regular records show a dead level with our present condition of prevention, it behooves us to make this clearly demonstrated method, viz., the Schick test and the active immunization of the susceptible, a universal practice, especially among our young children, so that they will not succumb to this loathsome malady and that our health reports will show a clean sheet in the diphtheria morbidity column. The success demonstrated by Park in the control of diphtheria in New York City by the administration of toxin-antitoxin is convincing, and in South Carolina we are endeavoring to immunize as many children as possible. In Charleston County, exclusive of the city of Charleston, 3,727 doses were given during the last fifteen months; 831 white children under 10 years of age and 286 colored children, making a total of 1,117 children under 10 years of age, received three full immunizing doses. Of these numbers, 107 (white children) were of preschool age ranging from 1 to 6.

In addition to the foregoing, thirty-nine white and 120 colored children received two immunizing doses, as they failed to receive the full set for various reasons: sickness, absence from school, refusal by parents, and in a few instances, children having moved away.

In addition to these, twenty-eight white and thirty colored children received only one dose, as they failed to complete their series for the same reasons mentioned above.

We have not yet discovered a case of diphtheria in any of the children that had these doses of toxin-antitoxin, and the two deaths from diphtheria in Charleston County reported during the last year were among children whose parents refused to give their consent for the immunizing treatment.

We offered the immunizing treatment through a circular letter addressed to the parent of each school child, and sent in care of the child. The immunizing treatments were given only to such children as had obtained the consent of their parents for the immunization.

No preliminary Schick test was attempted on any of the children, nor did we do a follow-up Schick test.

The reactions following the administration of toxin-antitoxin were, as a rule, very mild, and only a few

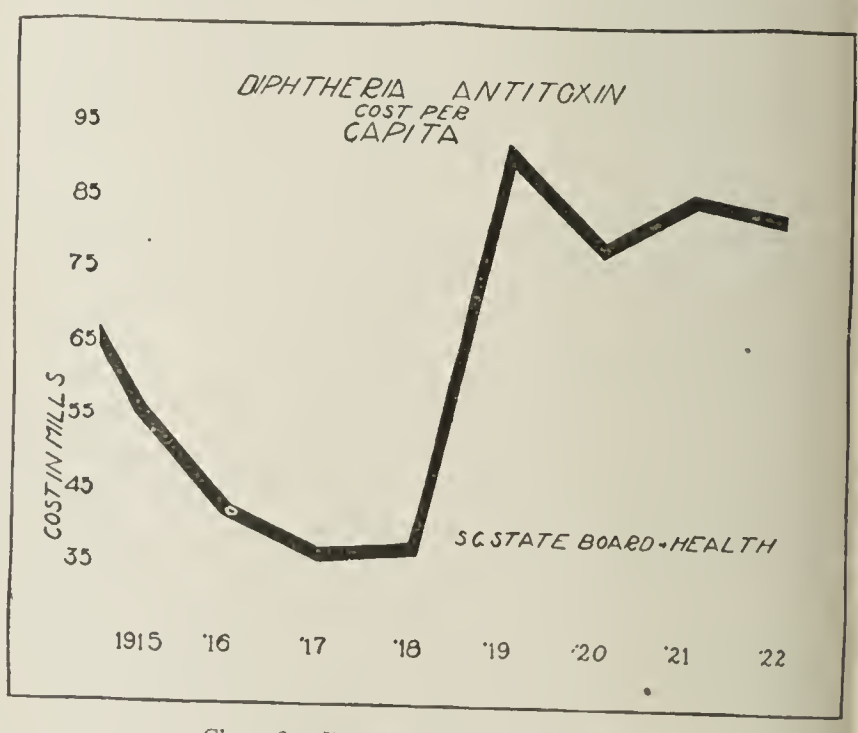


Chart 2.—Per capita cost of antitoxin.

children (mostly the older children who were near the age limit) developed a temperature around 102 or 103 the night following the administration.

No evidence of anaphylaxis was noted, in spite of the fact that a few of the children immunized had previously taken antidiphtheria or other antitoxins. The local reaction consisted of a reddened zone of inflammation surrounding the point of inoculation, which

1. Kelley, Eugene: Preventable Infection of Diphtheria, read before the Surgeon-General's Conference, May 17, 1923.
2. Bauer, E. L.: Pennsylvania M. J. **24**: 471 (April) 1921.

lasted from twelve to eighteen hours. In two cases, the inoculation was followed by a condition later diagnosed by their physicians as erysipelas, which promptly responded to treatment.

For the total state of South Carolina so far there have been 2,735 children inoculated, and we propose to wage an intensive campaign to have as many as possible inoculated.

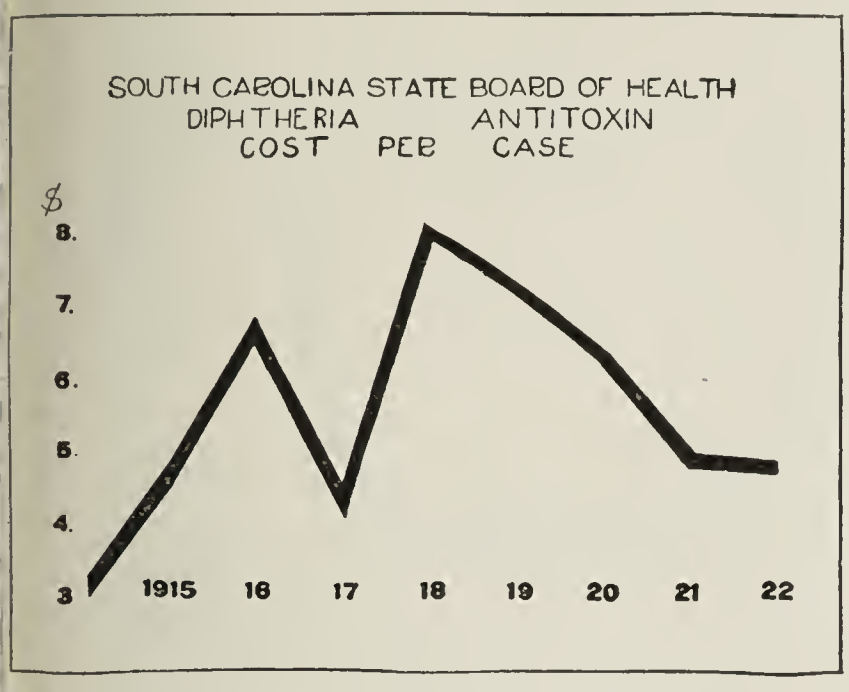


Chart 3.—Cost of antitoxin per case.

THE SCHICK TEST

In regard to the fourth query, Is there any way of knowing whether a person exposed to the disease will contract it or not? again we can answer in the affirmative, thus showing that we have a thorough scientific knowledge of the cause, the treatment, the method of rendering immune and a way of knowing whether a person exposed to the disease will contract it or not. The answer to the fourth question is the Schick test. This test is made by injecting intracutaneously on the flexor surface of the forearm 0.2 c.c. of the dilution by means of a sterile syringe with a fine steel or platinum needle. If positive, there will be a slight trace of redness, which will appear slowly on the forearm at the site of the injection of the unheated toxin in from twenty-four to thirty-six hours. The reaction reaches its height on the fourth day and disappears gradually, leaving a definitely circumscribed scaling area which may persist for weeks. At its height, the reaction shows a circumscribed area of redness and slight infiltration measuring from 1 to 2 cm. in diameter. The degree of redness varies in various individuals, but when typical always indicates susceptibility to diphtheria (Park).

By this test we are able definitely to state whether a person exposed to the disease will contract it or not.

CURVE OF INCIDENCE

Chart 6 combats the theory that has been held for many years that the curve showing the incidence of diphtheria corresponds with the opening of the schools. I am very much of the opinion of Dr. Newsholme that diphtheria becomes epidemic only in years in which the rainfall is deficient, and that the epidemics are on a larger scale when three or more years of deficient rainfall follow one another. As far as my experience of twelve years in South Carolina is concerned, I find that the curve of the incidence of diphtheria coincides with the drought that occurs usually with us in August and September, and that when there is an unusual lack of precipitation there are many more cases of diphtheria.

SYSTEM OF DISTRIBUTING ANTITOXIN

In 1910, when our state legislature first appropriated funds for the free distribution of diphtheria antitoxin, we believed that prompt diagnosis, together with free antitoxin, would effectively control our diphtheria problem. It required only a short time, however, to convince us that some system of supply must be established whereby diphtheria antitoxin would be readily available, at all times, and so distributed as to be reasonably convenient for the practicing physician.

Approximately 80 per cent. of our population is rural, we are more than 500 miles from the nearest biologic laboratory, and many of our smaller towns have limited mail train service, which facts are largely responsible for the creation of the system of distribution we now have, which, though simple, has proved efficient and entirely satisfactory.

Our contract with the biologic laboratory supplying us with diphtheria antitoxin provides that:

> The party of the second part (the manufacturer) further agrees to install and operate, at its own expense, a central distributing depot in Columbia, and to maintain an efficient system for the distribution and supply of diphtheria antitoxin, and to maintain suitable cold storage facilities for the proper storage of said product. The manufacturer further agrees that said central distributing depot shall be under the personal direction of a competent manager acceptable to the state board of health, shall stock and restock the state distributers of diphtheria antitoxin from time to time as may be necessary; compile the necessary records of antitoxin held and distributed by each state distributer, and carry in said central depot, in refrigeration, a reserve stock of diphtheria antitoxin of sufficient size to meet all epidemic emergencies.

In reality, we have a biologic department in connection with our executive offices, under our personal control.

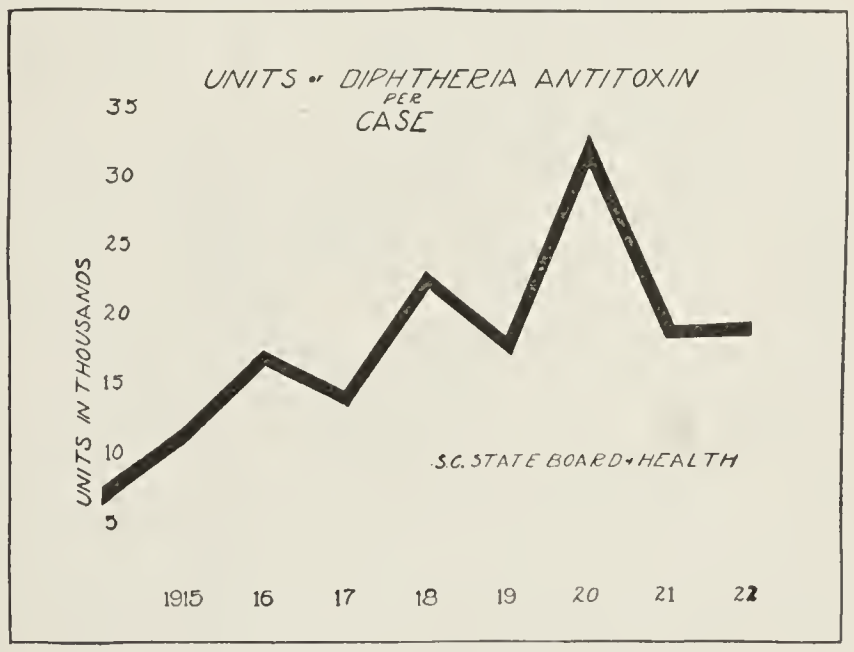


Chart 4.—Units of antitoxin per case.

Briefly stated, our distributing system consists of selected drug stores throughout all parts of the state. Every town of 500 inhabitants has one distributing station, and our cities and larger towns have more, in accordance with their population. Each station is supplied with an initial stock of diphtheria antitoxin in one, five, ten and twenty thousand unit sizes, a bound book of requisitions printed in triplicate, addressed

envelops for mailing requisitions to our supply depot in Columbia, and an instruction pamphlet.

When the physician calls at a distributing station for diphtheria antitoxin, a triplicate requisition is made out, showing the number and size of the packages supplied, and the name, sex, age and color of the patient. This requisition is signed by the physician obtaining the antitoxin and certified to by the distributer. The pink copy is retained by the distributer, and the other two are sent to our supply depot. Our supply depot, on receipt of these requisitions, replaces the antitoxin distributed, makes up our records, retains the white requisition for our file, and forwards the yellow requisition to the manufacturer, which becomes a charge against the state. Thus, it will readily appear that from the records in our supply depot we can ascertain daily the stock on hand at each distributing station, waste is reduced to a minimum, exchanges are exceedingly small, the distributer's stock rarely becomes exhausted, and the physician, even though he is called to a remote spot in a rural county, is always within a short ride by automobile of diphtheria antitoxin.

Reports are compiled monthly, and each distributer is paid a commission on all diphtheria antitoxin distributed as compensation for his services. While the commissions are not large, our experience is that druggists throughout the state are constantly seeking appointment as official distributers.

There is no charge whatever for any diphtheria antitoxin supplied by the state board of health, no certificates are required, and rich and poor, white and black, are treated alike.

At our supply depot in Columbia we carry in refrigeration a reserve stock sufficient to meet any emergency that might arise, and should an epidemic develop suddenly we are always prepared to supply such antitoxin as is needed immediately.

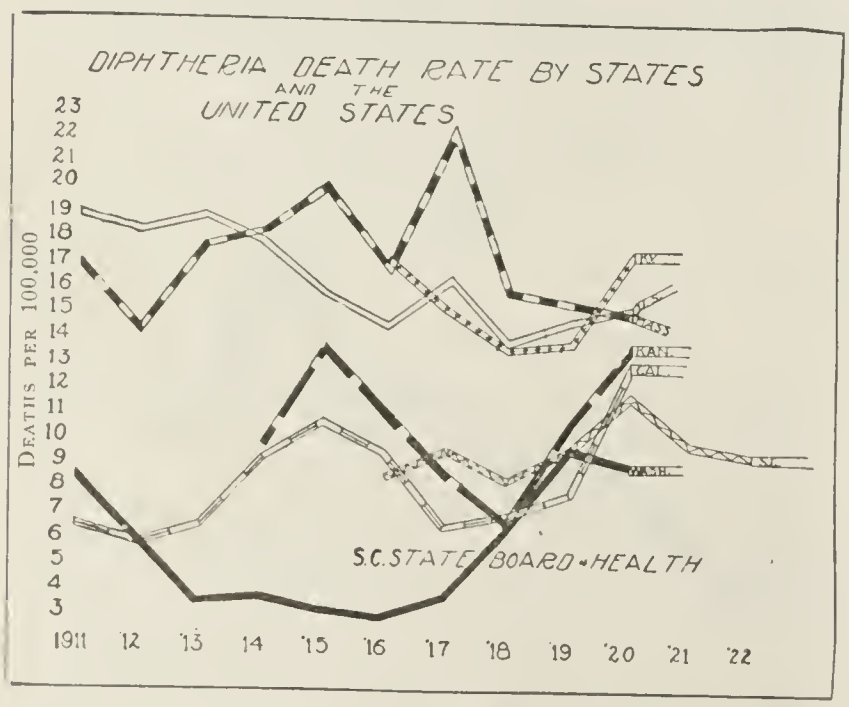


Chart 5.—Diphtheria death rate in six states and in the United States.

Chart 6 combats the theory that has been held for many years that the curve showing the incidence of diphtheria corresponds with the opening of the schools. I am of the opinion of Dr. Newsholme that diphtheria becomes epidemic only in years in which rainfall is deficient, and that the epidemics are on a larger scale when three or four years of deficient rainfall follow each other. As far as my experience in South Carolina is concerned, I find that the curve of the incidence of diphtheria coincides with the drought which occurs usually with us in August and September, and that when there is an unusual lack of precipitation there are a much greater number of cases of diphtheria.

CONCLUSIONS

1. The best method of reducing the mortality from diphtheria is by having diphtheria antitoxin ready for free distribution by the physicians, and easily obtained with no intervening red tape.

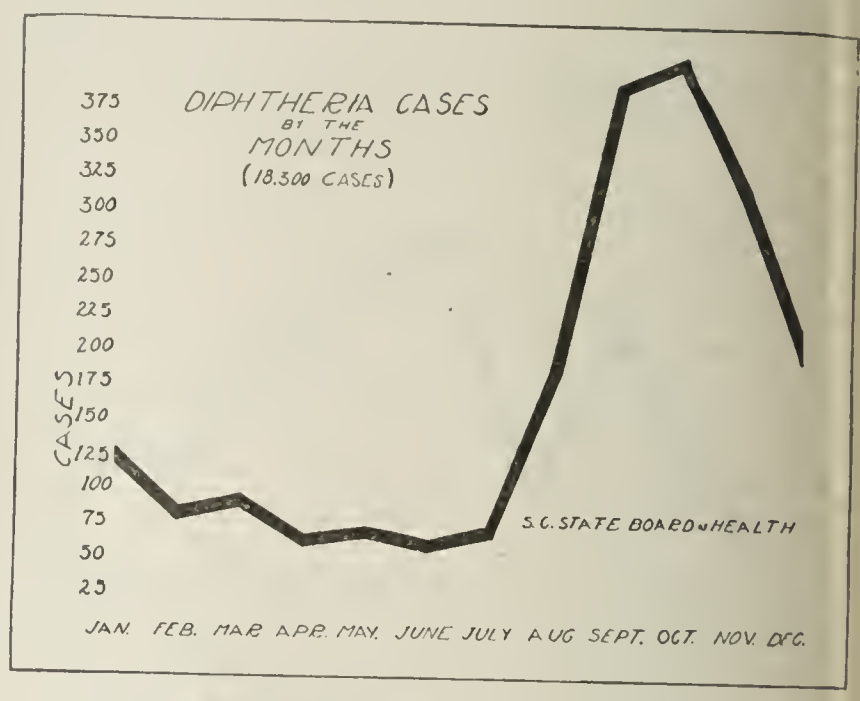


Chart 6.—Diphtheria cases (total, 18,300) by months.

2. The morbidity can best be reduced by passive immunization of contacts and active immunization of as many individuals as possible who show by the Schick test that they are susceptible to the disease.

3. The curve of the incidence of the disease being upward in the United States, it behooves us, as sanitarians, to wage an immediate campaign so that the knowledge that we have of how to prevent and cure diphtheria may be at once available to the public as well as the profession.

ABSTRACT OF DISCUSSION

DR. F. M. MEADER, Detroit: Our experience has been that the Schick test complicates the situation, so that toxin-antitoxin is not given as much as it should be. Of course, the Schick test has its laboratory use. The children who should be immunized are young; 95 per cent. of those who die of diphtheria are under 6 years of age. We can give toxin-antitoxin to our school children, but by so doing we are not going to lower the death rate. We must give the children of preschool age toxin-antitoxin; then we can expect to lower the death rate. If we ask the doctor to make a Schick test in all cases, he will not do it, and the children will not be immunized. However, if we make toxin-antitoxin available, so that the physician will give it to the young in a large way, then we shall immunize the class of people who are increasing the death rate, or keeping it high. In regard to diphtheria carriers: The laboratory men have great difficulty in differentiating the toxic from the nontoxic type of diphtheria bacilli. For that reason, a great many children are isolated and kept out of school and quarantined because of an organism in their throat or nose or ear which resembles the diphtheria bacillus. How to differentiate these two is the problem that has interested us during the past year. There are in Detroit approximately 150,000 school children, distributed in 230 schools. October 2, instructions were issued to readmit children who had positive diphtheria cultures, provided it could be shown that they had not been exposed to diphtheria, so far as known. The result has been as follows:

thirty-seven children with positive reports have been readmitted to thirty-five different schools. Since their admission five cases of diphtheria have occurred in their rooms. The onset of these cases appeared after the following periods subsequent to the date of admission of the carrier: six days, ten days, twenty-five days, thirty-eight days and forty-four days. In one room a case appeared six days after the carrier returned, and another case developed ten days after a carrier returned. The second case was a contact with the first case. It may be that this carrier was the source of infection in the first instance, but it would seem as if other cases should have developed if this were the source. There were 653 cases of diphtheria in all the schools during the year. The fact that thirty-seven children of the kind described returned to class in thirty-five different schools, and that no cases developed following this procedure, except possibly in one instance, would seem to indicate that carriers who have not been in contact with known cases need not be feared as a source of infection for diphtheria. So firmly do we believe that this is the case that we have permitted children who have positive cultures, who have not been associated with cases of clinical diphtheria so far as known, to come to our baby clinics, and to the present we have no records of infection spreading.

DR. S. W. WELCH, Montgomery, Ala.: Public health work is a business and should be conducted along business lines. A health department should follow the same business lines as a bank or a department store. It is particularly pleasing to notice the fine exhibition of bookkeeping and accounting the health department of South Carolina has shown us.

DR. JAMES A. HAYNE, Columbia, S. C.: Kentucky at present heads all of the other states in the number of cases of diphtheria. This is due to the recent drought, which started about 1918. Up to that time Kentucky had been getting along fairly well; in fact, the diphtheria morbidity had been coming down until 1918.

NEPHROTRESIS FOR RECURRENT BILATERAL PYELOLITHIASIS IN HORSESHOE KIDNEY*

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Janosik in 1887 [1] found, in a 3 mm. embryo of about 18 to 19 days, what he described as the pronephros or head kidney. It consisted of two rudimentary tubules, which were funnel shaped structures of peritoneum, and they extended from the mesothelial lining of the body cavity toward the primary excretory duct or the pronephric duct, into which one of the tubules opened.

The pronephros is a vestigial structure having a brief existence, and probably no functional activity. It represents the earliest development of the excretory system. The mesonephros, or wolffian body, is developed as the intermediary organ of excretion between the time of degeneration of the pronephros and the appearance of the metanephros, or permanent kidney.

The pronephros evolves the fundamental plan on which is based in a modified form the subsequent development of both the mesonephros and the metanephros.

The paraxial mesoblast extends from the neural tube in the early embryo to the point of its division into the mesial layer, or splanchnopleure, and the external layer, or somatopleure. This mesoblast is made up of the mesial part, called the somite, and adjacent to it is the lateral part or intermediate cell mass.

On either side of the midline, below the mesoblastic somite, small dorsally situated knobs appear on the nephrotome of the intermediate cell mass, from the seventh to the fourteenth segments. These are found just beneath the ectoblast, but independent of it. These knobs lengthen and grow caudad and laterad as short rods, and are the anlages of the primitive excretory duct, known now as the pronephric duct, and the pronephric tubules. These rods soon fuse, forming a long tube, which becomes hollowed a little later to form the duct. The tubules also acquire a lumen, and about the third week they lie embedded in the mesoblast of the intermediate cell mass.

This duct grows caudally as a blind end, and about the fourth week, as a mesonephric continuation of the pronephric duct, approximates the dilated terminal portion of the hind-gut with which it fuses and finally empties into the cloaca.

The inner ends of the pronephric tubules expand and become ciliated to form the nephrostomata, through which they open into the coelom, or body cavity of the embryo. Twisted knots of arterioles from the abdominal aorta grow into these expanded ends and form the primitive glomeruli. Each of these tubules with its glomerulus, from the seventh to the fourteenth, represents a body segment.

En résumé, the pronephros or head-kidney is made up of the pronephric portion of the primitive excretory duct with its tubules, and their glomeruli, which project freely into the body cavity. It degenerates early; but before it has degenerated, the mesonephros, or intermediary excretory organ, has appeared, whose cephalic end is in proximity to the caudal end of the pronephros, and slightly in front of it.

The mesonephros has been developing while the pronephros was degenerating, and now has its primitive excretory duct, called the mesonephric, or wolffian, duct manifest, which is a morphologic persistence of, and a direct continuation caudad of the pronephric duct *en route* to the cloaca.

The mesonephric tubules have their anlage appear in a similar manner to those described for the pronephros. The embryo has grown, and the growth of the mesonephric duct and tubules is directed tailward. The anlage of the tubules of the mesonephros arise from the tenth to the twenty-eighth body segments.[2] The most cephalic of these tubules arise just caudal to the pronephros, and overlap the latter. Caudal to the tenth pair of body segments, the mesonephric anlagen arise from the nephrogenic cords, and the primary excretory ducts lie lateral to these and are of unsegmented mesoderm.[2]

As the mesonephros develops, the embryo grows. As these processes are going on, the tubules of the mesonephros develop in such a way that the organ probably remains comparatively the same size during the most active part of its functional life. As the cephalic tubules degenerate and become atrophic, the caudal tubules are constantly forming. The mesonephric tubules open into the primary excretory duct at their outer ends, while the inner ends become expanded and have glomeruli develop in them not unlike those described in the case of the pronephros; but these glomeruli are less primitive, and do not communicate freely with the coelom.

The mesonephros extends from the sixth cervical to about the third lumbar segment as the caudal limit, in embryos of 7 mm., or between the fourth or fifth weeks of intra-uterine life. About eighty of these pairs

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1. Janosik, cited by Marshall: Vertebrate Embryology, 1893.

2. Prentiss and Arey: A Laboratory Manual and Text Book of Embryology, Ed. 3, 1920.

of mesonephric tubules develop in all, of which, owing to degeneration, only twenty-one pairs remain present in embryos of 21 mm. in length, or about the seventh week of intra-uterine life.

The glomeruli of the mesonephric tubules form a single median column, while the tubules are dorsal and the duct is lateral in position. The primary excretory duct is solid in embryos of 7 mm. in length.[2]

When fully formed, the mesonephros extends from behind the lung anlage to the lower end of the gut tube, along the posterior wall of the body cavity for its whole length. It is during the second month that it attains its perfection, after which it rapidly degenerates, and persists in the male as the vas deferens and its contiguous structures; while in the female it persists in the broad ligament as Gartner's duct and the tubules of the epoophoron and paroophoron.

As the tubules of the mesonephros expand in 7 mm. embryos, there is insufficient space in the dorsal body for this expansion; so they cause a bulging out into the ventral coelom, which forms a ridge on the dorsal mesentery from the sixth cervical to the third lumbar segments. This ridge forms the urogenital ridge and develops the future sex gland.

Prior to the atrophy of the mesonephros, the renal blastema has been active, the anlages of the metanephroi have appeared and the rudimentary primitive kidney, owing to a fusion of these two embryologic structures, has been under process of construction.

Evagination of the primary excretory duct to form a small bud occurs near the band where it joins the cloaca. This bud grows dorsad, and constitutes the anlage of the metanephros. These renal buds grow posteriorly in such a way that the blind end of each can dilate, while the stalk to which it is attached may elongate. While this growth occurs, the elongated stalk becomes the ureter, and the dilated portion becomes the future kidney pelvis. The kidney pelvis of each now forms a cephalic and a caudal pole, and each of these divide many times to form the calices, and eventually the canaliculi, and their completed systems of canals; some of these become papillary ducts, while others become the collecting tubules.

Meanwhile, these systems of collecting tubules have reached, grown into and been capped by the renal mesenchyme, which up to this time has been a mass of practically undifferentiated mesoblast, and has been termed the renal blastema. It very soon differentiates and forms the cortex, columns of Bertin, supportive stroma, and the capsule of the kidneys. This occurs about the fifth or sixth week, while the kidney is still in the pelvis of the embryo, but slowly migrating upward. As the metanephros develops, it grows cranialward, and carries the renal blastema with it while differentiating into kidney cortex, and soon we have the true rudimentary kidney.

At about six weeks in an embryo may be seen small spherical masses [2] developing in the angles formed by the meeting of the new collecting tubules with the renal blastema, so that each angle has one spherical mass of blastematous tissue on it. This mass soon elongates, becomes tubular, and unites with its collecting tubule to form a renal corpuscle. From each of these there is developed a uriniferous tubule, which, sooner or later, develops a proximal portion, a loop of Henle, descending and ascending limbs, a connection portion which lies close to the renal corpuscle, and a distal convoluted portion continuous with the collecting tubule.

The capsule of Bowman is now manifest, and a shallow cavity is soon formed, into which arteries penetrate to form a glomerulus. As the vessels penetrate, the depth of the cavity increases until finally the walls of the capsule grow about and enclose the glomerulus except at the point at which the arteries enter and the veins leave it. Renal capsules are first fully formed in embryos of about 7 or 8 weeks, and this kidney development continues until after birth, for a period of ten days, more or less.[2]

In summary we may say that an embryo during its fifth week of intra-uterine life has its metanephroi, or permanent kidneys, in a rudimentary form. They lie in the pelvic cavity of the embryo opposite the second sacral provertebra, just below the bifurcation of the aorta in a space that is inverted V-shaped, and bounded on either side by the common iliac artery. Pressed into this space, the metanephric buds appear anterior, growing toward the renal blastema, which lies posterior, and which they soon penetrate.

This growth continues until the seventh or eighth weeks, during which time the renal buds have enlarged, and from their blind ends the pelves, calices and collecting tubules have been developed; while the renal blastema into which they have grown has become molded over the collecting tubules to form the rudimentary kidney, whose migratory ascent out of the pelvis has begun. At this time, the kidney and pelvis lie in the frontal plane, and move upward over the common iliac vessels, until the normal resting place in the posterolateral body wall opposite the second lumbar vertebra has been reached. Gray gives the normal adult limit of the kidney as the twelfth thoracic vertebra for the upper pole and the third lumbar vertebra for the lower pole, with the right one a little lower than the left. This has occurred from about the ninth week onward.

The kidney soon places the ureter posterior as it goes through the process of rotation, or a turning on its longitudinal axis toward the median line until it settles and becomes definitely anchored in its retroperitoneal pouch in the posterolateral body wall. Here it develops its permanent vascularization from the aorta.

With this understanding of the development of the normal kidney, we may now proceed with a discussion of the horseshoe kidney, which is the type of fused kidney to which I shall try to limit my remarks.

THE HORSESHOE KIDNEY

Beel,[3] quoting Kupffer, has decided that the renal buds, as they develop from the primary excretory duct, approach abnormally near the median line, touch and fuse, and form a horseshoe kidney.

Birmingham,[4] in 1890, discussing his case of sigmoid kidney, said that the facts pointed to the common belief at that time, relative to fused kidney, namely, that each kidney developed separately to a certain point, when, for some unknown reason, fusion occurred, and a permanent union of the lobules resulted.

Broman, quoted by Brunner,[5] says that the early normal pelvic position of the caudal poles is one in which they nearly touch each other, and have no intervening organ. Potentially, the possibility of fusion seems ever present, because the caudal poles are nearer together

3. Beel, T. A. L.: Contribution to Renal Anomalies, Ztschr. f. Fleisch- u. Milch-Hyg. **13**: 118-120, 1903.
4. Birmingham, A.: Simple Unilateral (Sigmoid) Kidney, Tr. Roy. Acad. M. Ireland **8**: 477-488, 1890; Dublin J. M. Sc. **90**: 47-50, 1890.
5. Brunner, A.: Contributions to Renal Pathology: A Duplicate Kidney and a Case of Hydronephrosis in a Horseshoe Kidney, Beitr. z klin. Chir. **122**: 136-152, 1921.

than the cranial poles. These facts all seem logical in explanation of the early fusion of the horseshoe kidney.

Papin and Iglésias [6] say that when fusion occurs to the upper poles, the kidney is lower than those fused by the lower poles. They say that horseshoe kidney is a very early malformation, which precedes the appearance of the permanent vessels in the kidney.

Winternitz [7] says that mobility of the kidneys at their upper poles is limited, because of the close connection of the caudal part of the mesonephros with the cranial tubules of the metanephros. The development embryologically substantiates this, because at the eighth week the mesonephros is at the height of its growth.

Bryan [8] says fusion occurs at the lower poles about the seventh or eighth week of intra-uterine life of the embryo, and more rarely does union of the upper lobes occur. But he says that in his case union occurred after the seventh week, when the kidney had arisen over the promontory of the sacrum. He points out that union does not always occur within the confines of the aortic bifurcation.

Bugbee and Losee [9] say that at 7 mm. the rudimentary kidneys lie opposite the second sacral vertebra in the same relative position on the level; or one may be ventral to the other; or one may be placed above the other. They say that the connecting bridge shows more complete kidney structure, the earlier the fusion occurred, and that later fusions show only the capsules to have fused, or fibrous remains of atrophic, sclerotic parenchyma may be found.[10]

Dorland,[11] quoting Pohlman, says that the dystopic bud appears later, or develops more slowly than the normal kidney bud; and as a consequence, the normal kidney ascends and rotates properly, while the dystopic kidney does not.

Muthmann,[12] speaking of his case of fused kidney, says that fusion could not have occurred between the fifth and eighth weeks, since the hilum lay in the neutral position and the ureter and pelvis lay before the hilum.

Winternitz [7] suggests that Hill has shown that vascularization of the kidney depends entirely on its position, and that a renal bud, which has been slow in ascent, might receive its artery from a lower point on the aorta than normal, and by this means be held in the lower position. Eventually the dystopic kidney is dragged across the vertebral column by the normal kidney, he thinks.

Verocay [13] believes that one kidney is usually larger in horseshoe fusion because the enlargement of the kidney rests essentially on an increased new growth, or hyperplasia, of all the tissues composing the kidney; this Beumer pointed out, after an exhaustive study of unilateral congenital kidneys. He further cites Rosenstein and Perl, who, on the other hand, concluded, after animal experimentation, that hypertrophy is the cause of enlargement and is predominatingly due to an increase in weight; and that this is accomplished by an additional increase in the contents of blood, lymph and primary kidney constituents, as well as an abnormal thickness of the individual elements caused by increase in the amount of nourishment. They attribute only a slight rôle to the hyperplasia of epithelial and interstitial tissue.

Most writers believe with Budde [14] and others that fusion in a horseshoe kidney, with complete kidney tissue in the connecting bridge, could not have occurred later than at the beginning of the rotation of the renal pelvis.

We know that a horseshoe kidney presents certain well known features, and that among the most important are these: 1. It is usually situated at a lower level than the normal kidney. 2. Its arteries usually arise farther caudad than is seen in the normal kidney. 3. Its hilum is more neutral. 4. Its migratory ascent is incomplete, and rotation is thereby probably affected. 5. Absence of the ventral lip to the hilum is noted in fused kidney. 6. The ureter passes in front of the dystopic kidney. Especially true is this in lower polar fusion of horseshoe kidneys.

We further know that the connecting bridge of a horseshoe kidney may be of fibrous tissue, of kidney cortex or of entire kidney structure. We know also that it may exist as an accessory organ with its own blood supply.[15]

It is most necessary to consider chronological variation of the outgrowths from the wolffian duct or primary excretory duct to form the renal buds, as having to do with the time-limited schedule of growth of these organs.

If the horseshoe kidney becomes fixed low down in the pelvis, it is fair to assume that fusion must have occurred some time prior to its migration upward to the point of rotation. And if this position does determine the vascularization of a kidney, we can see how, once it has become established, it is very apt to be held there, after penetration of the kidney by blood vessels has occurred.

Felix noted from an embryo of about 8 weeks (30 mm.), which had a fused kidney, that the inferior mesenteric artery and its mesentery caught and prevented its ascent.

Budde noted in his case a bridge that had arisen between the metanephroi and that had been caught by the inferior mesenteric vessels, with failure to ascend because of this.

Relative to vascularization, McDonald [16] says that the mesonephros receives segmental branches from the aorta, but that the permanent kidney receives its temporary blood supply from the median sacral, but after its ascent it receives its permanent blood supply from the abdominal aorta.

Jeidell, working with pig embryos of 14 mm., says that the "inferior mesenteric artery gives off what may be considered the main temporary artery to the growing kidney." Wilhelmj,[17] quoting Jeidell, gives us this information, and, in addition, says that in his case the main artery to the kidney arose from the aorta, in

6. Papin, E., and Iglésias, A. P.: On a Case of Calculous Horseshoe Kidney, Ann. d. mal. d. org. gén.-urin. **1**: 424-441, 1909.
7. Winternitz, M. C.: A Case of Sigmoid Kidney, Johns Hopkins Hosp. Bull. **19**: 229, 1908.
8. Bryan, R. C.: Report of a Case of Horseshoe Kidney, Virginia M. Month. **48**: 75-80 (May) 1921.
9. Bugbee, H. G., and Losee, J. R.: The Clinical Significance of Congenital Anomalies of the Kidney and Ureter, with Notes on the Embryology and Foetal Development of the Kidney, Surg., Gynec. & Obst. **28**: 97-116 (Feb.) 1919.
10. Carlier, V., and Girard, M.: Anatomy and Surgery of the Horseshoe Kidney, Echo méd. du nord **16**: 429, 442, 1912.
11. Dorland, W. A. N.: A Consideration of Renal Anomalies; With the Presentation of Two Unique Cases, Surg., Gynec. & Obst. **13**: 303-319, 1911.
12. Muthmann, E.: Horseshoe Kidneys, Anatomische Hefte, Wiesbaden **32**: 579-587, 1906, 1907.
13. Verocay: Left Renal Impar Combined with Anomalies of the Genital Organs, Abdominal Arteries and the Skeleton, Prag. med. Wchnschr. **32**: 637-641, 1907.
14. Budde, Werner: The Genesis of the Horseshoe Kidney and Related Malformations, Wiesbaden, J. F. Bergmann, 1913.
15. Alezais: The Horseshoe Kidney and the Anomalies of Renal Arteries, Compt. rend. Soc. de biol. **60**: 889-891, 1906.
16. McDonald, A. L.: The Practical Importance of Common Renal Anomalies, Am. J. Dermat. & Gen.-Urin. Dis. **15**: 417-423, 1911.
17. Wilhelmj, C. M.: A Case of Crossed Displacement of the Left Kidney with Fusion, Anat. Record **18**: 167-177, 1920-21.

common with the inferior mesenteric, and because of this we can determine roughly the time at which the displacement occurred, because the renal veins at the same stage are tributaries to the posterior cardinal veins. If we presume that the kidney was prevented from reaching its proper height of ascent, then we may infer that instead of the left renal vein emptying into the posterior cardinal vein at the point of anastomosis, it must have reached the posterior cardinal *lower* than that point. His case showed that the left spermatic vein was also low and entered the left posterior cardinal below the renal vein, and that when the kidney was displaced, this long vessel was carried with it across the aorta and under the inferior mesenteric artery, which might explain similar observations made by other writers.

There seems to be little doubt that mechanical factors play an important part in the formation of horseshoe kidney. There is no reason why we should not assume that growth occurs in the embryo on a time schedule, and that interference with this time schedule is apt to produce an anomaly or malformation. If the schedule is properly adhered to, we may assume that the organs become normal in size and position.

Strube, as pointed out by Heiner,[18] thinks the vertebrae, sacrum, the iliac fossa, and, in addition, the contents of the abdominal and pelvic space influence the flattening. Heiner thinks that all kidneys, whether fused or not, show regularly the discoid form, with the hilum in the anterior position. He, too, believes that these modifications are influenced by neighboring organs.

Budde says the stomach was low in the cases of fused kidney that he investigated. The lowest the stomach was noted was down to the middle of the fourth lumbar vertebra, at which time the heart lay opposite the twelfth thoracic vertebra. The embryo liver, correspondingly, was enormous, and reached on both sides to the fifth lumbar vertebra, and by intervening glands like the suprarenal glands, pressure could have been exerted on the growing kidneys. So these factors may exert some influence in a mechanical way deleterious to the normal growth and ascent of the kidney.

Wilhelmj says, relative to retarded growth, and alteration of the time schedule, that at least three factors may play a part in the displacement of a kidney: (1) rotation of the gut, when it assumes its normal position; (2) the great increase in size of the caudal end of the wolffian body, which would not affect a normal kidney because the latter would already have migrated toward the cranial end of this organ, which is undergoing degeneration and atrophy simultaneously, and (3) the descent of the sex gland.

In his case, displacement occurred, he believes, before the rotation of the intestine, because of the relation of the left ureter to the pelvic colon, and the relation of the left renal vein and artery to the inferior mesenteric artery as previously explained.

CONCLUSIONS

After studying carefully the literature on horseshoe kidneys, we are confronted with several outstanding conclusions, which seem fairly well established:

1. The inverted V-shaped crotch, resulting from the bifurcation of the abdominal aorta into the common iliac vessels, shows a tendency to converge the two lower kidney poles during early development and migration out of the pelvis of the embryo.

2. Fusion occurs early in a typical horseshoe kidney, probably soon after the renal buds penetrate the blastema to form the rudimentary kidneys.

3. The nearer the time of fusion occurs to the early formation of the rudimentary kidneys, the more likely it is that the connecting bridge will be made up of normal kidney substance; while late fusion probably always shows fusion of a fibrous character.

4. The time element is an important factor because growth of tissue probably continues on a time schedule and if an organ does not carry on according to schedule, it will be mechanically interfered with by its adjoining organs and tissues, with resultant interference with its normal development.

5. The complete ascent of a kidney is sometimes interfered with by the inferior mesenteric and umbilical vessels. The kidney may become caught in them, and vascularization may soon occur under such circumstances and permanently hold the kidney in situ.

6. The upper kidney growing ahead of the dystopic kidney may, in the course of its growth, drag the latter across the vertebral column, thus allowing it to be held there until after permanent vascularization.

7. Fusion probably occurs before rotation of the kidney pelvis has been completed.

8. The permanent vascularization comes from the abdominal aorta, while probably the median sacral gives the temporary blood supply to the early rudimentary kidney.

9. When one kidney of a horseshoe fusion becomes abnormally large, it is probably the result of hypertrophy and hyperplasia.

In our case, as presented in this paper, we believe the following steps probably occurred which resulted in the formation of a horseshoe kidney instead of two normal and separate kidneys. It showed a fusion of both lower poles by a bridge connecting the two which was made of normal kidney structure. This gave evidence that the fusion must have occurred quite early in the embryologic development of the metanephroi. We feel that the sequence of events which led to the development of this anomaly were:

1. Earlier formation of the left metanephric bud than occurred to its fellow of the opposite side.

2. More rapid development of the left metanephros than to the right, therefore:

3. Earlier migratory ascent of the left rudimentary kidney out of the pelvis of the embryo, by its being moved upward over the left iliac artery, at which time its lower pole was quite close to the lower pole of the less rapidly developing right rudimentary kidney.

4. Beginning of rotation of the left kidney at this time and placement of its ureter posterior. Next there occurred fusion between the lower poles of both kidneys until completed. Rotation had not been completed on the right kidney at this time, because its ureter was anterior and remains so today.

5. Completion of rotation of the left kidney and pulling of this organ into its permanent anchorage or pouch, in the left posterolateral body wall with coincident dragging of the unrotated right kidney up over the promontory of the sacrum to the left of the median line, where it may have been caught and held by some mesentery or blood vessels. It was probably detained there by the future

18. Heiner, G.: Congenital Dystopia of the Kidneys and Congenital Renal Deficiencies of the Afferent Vas Deferens, Folia urolog. **3**: 186-226, 1908-1909.

6. Compensatory hypertrophy of the left kidney which forced its lower part to extend to the place where the right kidney, now a part of the horseshoe kidney, had been dragged and was held in situ.

7. Permanent vascularization was begun early and helped hold this fused organ in position; it probably came from lower down on the abdominal aorta than is normally seen, and it apparently was developed from the external iliac vessels.

While this sequence seems logical, further observation by other writers on this subject may teach us a great deal that at this time is not definitely known concerning the formation of fused kidneys.

REPORT OF CASE

History.—R. F. G., a man, white, aged 33, an engineer, married, complained of fever and chills, headache, gaseous distention of the abdomen, and radiating pains into the right testis from the left lumbar region, where a sensation of fulness existed.

The patient was fairly well until June, 1919, when he noticed an intense pain at the upper end of the inguinal canal, which radiated downward, as it became more severe, into the right testis. The case was diagnosed as incomplete hernia, and the patient was given a purgative and improved. Then he was given a truss, followed by some relief after three or four weeks of its use. About this time, he noticed that the urine was turbid and had a disagreeable odor. In a short time he was conscious of a general depression and weakness, which was cumulative as the months dragged along.

In February, 1920, the patient had another attack, similar to the previous one, and, thereafter, the attacks became more frequent, and each attack lasted longer than the one before. About this time, the abdominal soreness that followed each attack lasted from one to four days, during which time the abdomen was distended with gas, and the patient was extremely uncomfortable until the gas finally was passed. From November, 1920, to about April, 1921, the attacks came about every fortnight, with passage of small calculi; finally the urine showed pus and blood in quantity, and the attacks were associated with much pain in the left lumbar region, a fever up to 103.6, at times and chills. The pain radiated into either testis, but never into the two at one time. The case at this time was diagnosed as probable lateral nephrolithiasis.

The patient was operated on, April 10, 1921, at a large Western clinic, by another surgeon. A left loin incision for stones in the kidney was made, and at this time a horseshoe kidney was found, which had stones in both kidney pelves. These stones were removed by bilateral pyelolithotomy, and the pelves were closed. The stones removed from the left kidney weighed 24.35 gm. and 6.57 gm., respectively, and one calculus weighing 6.22 gm. was removed from the right kidney. The oblique incision was continued toward the left anterior superior spine in order to examine further the horseshoe kidney. The left kidney was found to be about 6 inches long, and joined by its lower pole to the lower pole of the right kidney. The right kidney was about 3 inches long, and its pelvis and ureter were lying to the left of the median line. Each kidney pelvis was dilated, but the kidney proper was not damaged, judging by gross appearance. The wound was closed with interrupted catgut in a manner to permit posterior drainage.

Following operation, the patient had a stormy convalescence, with high fever and chills. He said that he developed four attacks of streptococcic infection that involved the tonsils, sinuses of the face, pleura, and, finally, the right testis. He said that he was told he had phlebitis of the left leg following the removal of the drainage tubes. The tonsils finally were removed, after which he did not seem to gain much strength; he was pretty well worn out and still continued to have chills and fever. After he returned to Kansas City, his condition remained the same, and the chills and fever became continuous.

Finally, in October, his condition became grave. At this time, the daily temperature of the patient varied from 99 to 103.3 and he had chills and fever. He was removed to the Research Hospital, Kansas City, Mo., under the care of his physician, where I saw the patient in consultation, and we decided on rest, forced fluids, urinary alkalization, cystoscopic examination and some subsequent operation was believed necessary.

The patient had had the usual childhood diseases. He was healthy until 1907, when he had a cystostomy performed for stones in the bladder. Recovery was complete, except for pleurisy following the operation. The family history revealed nothing of importance. The patient stated that he had had no venereal infection. His wife had had one child in 1919, which died after one year's illness of some kidney infection following an influenzal attack. The patient had never drunk alcoholic liquors, was a moderate smoker and did not indulge in excesses.

Physical Examination.—The skin was a pasty white, and hot and dry in the late afternoon. The tongue and lips were dry. The pupils reacted to light and in accommodation. There was no cranial nerve involvement. The ears were normal. The nasal septum was crooked. There were no tonsils. The hair and teeth were normal. The thyroid gland was normal. The mucous membranes were pale. There was vesicular, bronchial breathing. There were no râles. The precordium was normal in outline. The rate of the heart was increased, and a systolic murmur was heard at the base, which disappeared when the patient sat up. The point of maximum intensity was felt in the fifth interspace, 1 inch inside the midclavicular line. The spleen and liver were negative on palpation. The right kidney was not palpable; the left kidney was not definite; it did not move with inspiration. The abdomen was distended; there was tenderness in the left loin near the costovertebral angle, and soreness on that side did not permit careful examination. Tenderness extended down into the midline near the region of the pubes. A mass that was vague and tender was noted in the left flank, and to the left of the umbilicus it was indefinite. The reflexes were slightly increased. The extremities were normal.

Laboratory Examination.—On admission, the blood showed: coagulation time, one and one-half minutes; hemoglobin, 90 per cent.; erythrocytes, 4,864,000, and leukocytes, 9,600 (subsequent counts were 12,500, 14,000, 21,000, etc.). The differential count showed polymorphonuclears, 65 per cent. (subsequent counts were 76, 79 and 77 per cent.); lymphocytes, 32 per cent.; large mononuclears, 2 per cent., and transitionals, 3 per cent. The blood sugar was 0.09 mg. per hundred cubic centimeters. The Wassermann reaction was negative. The urine was cloudy, straw colored and acid. The specific gravity was 1.026. Albumin and urates were present. A few erythrocytes, pus cells and a few acid fast bacteria and epithelium were found. Otherwise, the urine was negative. There were many motile bacteria. A culture of the urine yielded staphylococcus and *B. coli,* from which a vaccine was made. The total solids were 11 mg. per hundred cubic centimeters; urea nitrogen, 9 mg. per hundred cubic centimeters. The total urea was 3 mg. per hundred cubic centimeters.

Roentgenologic Examination.—After a barium enema had been given, the cecum was evenly distended and well filled. The descending colon and transverse colon were of normal caliber. The flexures were normal. There was no appendical shadow.

After a barium meal, the stomach appeared normal, and emptied completely in five hours. The duodenum and jejunum were also normal. The ileum was normal, and showed no diverticula. The ileocecal valve was patent. Occasional spasticity was noted in the transverse colon.

Shadows showed in the pelves and ureters of the kidneys. There was also a complete obliteration of shadows after an injection of sodium bromid into both pelves, with a reappearance of shadows after release of the pent-up bromid and withdrawal of the ureteral catheters. The roentgen-ray catheter made a complete turn in the left pelvis and ureter.

Cystoscopic Examination.—November 24, Dr. R. Lee Hoffman of Kansas City, Mo., examined the patient with a cystoscope. The patient complained of pain in the left lumbar region and in the right testis. Examination by palpation of the internal genitalia and renal areas was negative. Trigonal cystitis was disclosed, with pus flakes in the bladder media.

There were thick pus casts about the ureteral orifice on the right side. The right ureteral orifice stood open, and was thickened and seemed to spurt urine. The left ureteral orifice stood open and had considerable edema present. The urine from this side spurted clear.

Right and left No. 5 ureteral catheters were easily introduced into the renal pelves, and clear urine was obtained from the left side, but none from the right. Lavage from the right side brought urine loaded with pus.

Examination of the urine showed albumin, many pus cells, epithelial cells and no casts from the right kidney. Urine from the left kidney showed some albumin, a few pus cells and no casts.

One c.c. of phenolsulphonephthalein was injected intravenously. The appearance time was: right, ten minutes, 2 per cent.; left, four and one-half minutes, 15 per cent. Roentgenograms taken after the injection of 40 c.c. of sodium bromid (15 per cent. solution) into the left pelvis, and 12 c.c. of thorium solution into the right pelvis showed nine shadows in the left renal region, with no shadows in the right area but a shadow in the bladder region after shadowgraphic fluids had been drawn away ten minutes later.

A roentgenogram showed that the left ureteral catheter made a complete loop on itself in the upper third. Both catheters were allowed to remain in the ureters for drainage, and were removed during the night by the patient.

The patient continued to have chills; so retention of the catheter on the left side was suggested. October 28, a catheter was passed into left renal pelvis for five days. The temperature improved. November 1, an intramuscular phenolsulphonephthalein test showed:

	1st Hour Per Cent.	1½ Hours Per Cent.	2 Hours Per Cent.	½ Hour Intervals Per Cent.
Left side	15	12	10	37
Right side	16	12	10	38

The case was diagnosed as bilateral, recurrent pyelolithiasis, with a horseshoe kidney.

Operation.—(Drs. Kinard and Hoffman; anesthetist, Dr. Clark).—An operation was performed, November 2. The patient was given a hypodermic injection of morphin, ⅙ grain, and scopolamin, 1/200 grain, one hour before operation. The anesthesia used was nitrous oxid and oxygen. The patient was placed in position for a left nephrectomy. The sphygmomanometer showed blood pressure systolic, 130; diastolic, 80; the pulse was 114.

An incision was begun at the twelfth costovertebral angle, and carried around the old scar through the skin and fascia, obliquely around the loin toward the left anterior superior spine. The old scar was excised, and the incision continued through the old scar and muscle tissue to the perirenal fat. Many adhesions were encountered, and bleeding was free. The incision was enlarged anteriorly, and the left kidney was isolated and the peritoneum pushed away from it. Hot packs wrung out in saline solution were used to maintain warmth as the peritoneum was pushed toward the median line of the body.

Some small vessels had developed in the fibrous tissue and attached themselves to the kidney capsule. These were doubly ligated and cut. The upper pole was finally freed, and extended opposite or higher than the upper part of the first lumbar vertebra. The kidney was large, about 6 inches in length, and the pelvis was dilated somewhat, though it was not so noticeable at operation as the roentgenogram showed following injection with opaque fluid.

The lower pole of the kidney was examined, and an oblique line of cleavage, which was smooth, was felt between the lower pole of the right and left kidneys where they joined each other, and the connecting bridge was apparently of complete renal substance. It was difficult to realize from palpation that the two kidneys had not been intended to unite in this way; the fusion was perfect. The left ureter was in its normal position, and was placed posterior. On palpation, the right kidney was found lying just above the promontory of the sacrum, and its size was about half the size of the left kidney. The hilum pointed craniad and forward. The kidney had its concavity upward. The ureter crossed over the front of the right kidney. The left renal vessels came from low down on the aorta, probably the left iliac artery. There were no distinct stones, but hardened masses were palpable in the pelvis of each kidney.

At this time, the anesthetist reported that the patient's condition was not good, and the blood pressure had dropped rather suddenly. The examinations were stopped, and the left kidney was incised down the median line, for about 3 inches. No cultures were taken. The ureter held no visible pus, and no stones were encountered; but a thick, gritty inspissated material was encountered, which was washed out as quickly as possible by saline sponges. A ⅝-inch tube was then inserted through the kidney substance into the pelvis of the left kidney. The kidney was closed around the tube with No. 1 chromicized catgut, with deep mattress sutures, while superficial interrupted sutures were placed through the kidney substance between the mattress sutures. The gauze packs were removed. Small drainage tubes were inserted, and held in place by interrupted chromicized No. 2 catgut sutures.

The patient at this time had a systolic blood pressure of 76, and a diastolic pressure of 54; the pulse was about 136. He was sent to his room in poor condition.

Course.—The patient, on return to his room, was given 1,200 c.c. of physiologic sodium chlorid solution by hypodermoclysis. Fifteen drops of epinephrin chlorid solution (1:1,000) was given intravenously. Electric pads were applied, the foot of the bed was elevated, and other measures of relief were taken until reaction occurred several hours later. One-fourth grain of morphin and 1/100 grain of atropin was given until reaction had fully set in. Protoclysis was used continuously of a solution made of glucose, sodium bicarbonate and tap water, which the patient retained well. One hour later the pulse dropped to 120 and the temperature rose to 100 F., while the systolic blood pressure was 85, and the diastolic pressure was 65.

At 4:30 p. m., on the day of the operation, the blood pressure had risen to 150 systolic, and 110 diastolic; the pulse was 112, and the temperature was 101.5 F. The patient was fully awake and felt well, and copious drainage from the tube in the pelvis into dressings had already begun; the discharge was bloody at first, and later, thick, grumose, malodorous urine drained away each time the dressing was changed. One week later, the temperature was lower; chills had been absent since the operation. The bowels had moved well, and drainage was excellent. The perirenal drains were removed between the eighth and tenth days, while the main tube was left for two weeks, when it was replaced by a soft rubber catheter No. 14. No lavage was ever attempted through this tube. The wound had healed by this time except at the nephrotresis site.

The patient did very well, but had one distressing symptom throughout this period, and this was the presence of gas pains. He had several enemas daily which, at first, relieved the condition, but only temporarily. About this time, his previous three daily enemas were discontinued, pituitary extract was used, and the gas pains disappeared. Thereafter, with the use of the lightest of cathartics, no trouble with the bowels was encountered.

The patient progressed satisfactorily. He was vaccinated for smallpox, November 26 (epidemic in Kansas City), and, November 27, he developed a right saphenous phlebitis, which lasted until December 8.

Fluids were pushed to the limit during the first forty-eight hours, at which time active peristalsis was noted throughout the abdomen. November 10, the daily output was 1,400 c.c., while the nightly output was 1,000 c.c. from the tube and bladder combined. During this time, the daily intake of fluids was 3,500 c.c.

Thereafter, the intake averaged 1,700 c.c. in twenty-four hours, and the output about 1,500 c.c. About one third came from the bladder, and about two thirds drained through the nephrotresis into his rubber bag.

The patient was discharged, December 8, and he was allowed to go home, although his temperature was ranging between normal and 99.2 F. His symptoms one month later had practically disappeared, and he was getting stronger and gaining weight. The patient has continued since December 8

adually to get better, and today he says he feels as well as ever did in his life. He works every day, and has had no fficulty or pain since the operation.

He now wears his rubber tube, which is changed daily. 'hen the granulations block the sinus, he wears his silver be, which is fenestrated and which, after wearing for enty-four hours, opens the sinus, and, on its removal, ts out the granulations along its course, allowing subse- ently perfectly free drainage. He wears the apparatus, hich he devised himself, and which drains the urine into receptacle that he wears on the inside of the left lower leg.

COMMENT ON CASE

The patient on admission was so sick that it was question whether the kidneys would increase their imination on the forcing of fluids, alkalization of the ood and the usual local treatments.

However, he responded to his treatments very uickly, and continued to improve. We were forced to nsider surgical intervention as inevitable. We ready knew that the kidneys were fused, but we did ot know how they were fused. The surgeon who ad previously operated gladly gave us the information s to the condition he found at the previous operation s herein outlined.

In order to get more definite information, the blood nd urine had been studied carefully day by day. ocal infections were considered, and after the urine f catheterized specimens had been studied, we decided at the fused kidneys would secrete under proper nvironment. Autogenous vaccine caused no improve- ent.

Several facts were manifest. The kidney stones had een properly removed less than six months before, nd the patient did not show improvement following e operation. In fact, he soon became worse. Pain as his chief symptom, and pyuria his important clinical nding. Some improvement followed after five days f retention of a ureteral catheter in the left ureter, nd lavage through it.

The pelves of both kidneys were dilated, owing to lockage. The pain and discomfort were caused when- ver the urine could not pass the obstructions in the elves. Under such conditions, it might not take a reat while before a hydronephrosis or pyonephrosis ight develop. Heminephrectomy was considered nwise. The retention catheter showed relief, if not mprovement, from the drainage it afforded.

Two surgical possibilities now confronted us from he operative standpoint. One of these operations as to do a transperitoneal removal of the stones. The ther was to leave the stones in situ and perform a ephrotresis.

Dr. Hugh Cabot was seen in consultation at this time, nd he advised the removal of the stones. We were bout to abide by his judgment, when we were again rought to a realization of the very insecure condition f the patient, and his absolute inability to go through with much more suffering. He had lessened toxicity nder treatment, but was gradually becoming weaker.

With a history of rapid recurrent stone formation, t seemed best to make a permanent drainage to the eft kidney and pelvis through the loin, or nephrotresis, which would at all times secure ample drainage, should he pelvis of the left kidney become completely blocked t some future time. The right kidney was secreting etter than previously, and, so far as excretion was oncerned, was entirely a separate organ from the left idney, as we learned from our embryologic study.

We proposed to do as much as possible under the circumstances at operation. The ideal combination would have been to remove the stones from both kidneys and to perform a left nephrotresis, but the condition of the patient made such a procedure impossible. So it was finally decided that should the patient recover after this operation, the removal of the stones could be more safely done at some future time by the transperitoneal route.

But, until the physiologic chemists find out what was causing the stones to form so rapidly and what was to be done medically to prevent recurrence, we felt we had no assurance that removal of the stones from the kidney would benefit the patient. It is quite possible that the right kidney may gradually develop a hydronephrosis which may form a fibrous wall at the site of the fusion and allow heminephrectomy at some future time. This might not be a simple procedure from the information we have on this case.

Bryant Building.

NEUROTOLOGIC STUDIES IN EPILEPSY

PRELIMINARY REPORT *

ISAAC H. JONES, M.D.
LOS ANGELES

On first thought it seems a far cry between the ear, nose and throat and epilepsy. For many years the medical profession has regarded epilepsy as due to a lesion of the cerebral cortex. In recent years, the profession has begun to realize how many phenomena may be produced by lesions of the lower centers, particularly the basal ganglions and brain-stem. Robert Bárány has recently advanced the theory that the center of consciousness is probably located in the basal ganglions, rather than in the cerebral cortex. In the last few years, many neurologists have come to consider that the seat of the disturbance which results in attacks of epilepsy may be in or near the brain-stem. It therefore occurred to me that neurotologic studies, particularly of the vestibule, might shed some light on the integrity of the brain-stem, in patients who suffer recurrent epileptic seizures.

The present report is the outcome of examination of twenty-seven epileptic patients, entirely from the point of view of the ear, nose and throat. General and neurologic examination of each of these cases were made by one or more of the following physicians: S. D. Ingham, Cecil Reynolds, I. Leon Meyers, F. M. Pottenger, Thomas J. Orbison and Carl Rand, all of Los Angeles. They not only provided the material for study, but also guided me in the interpretation of the findings. Almost all of the patients were seen in private practice, and complete clinical histories are available concerning each patient.

On tabulation of the findings in the twenty-seven cases, no characteristic condition was discovered in the nose, nasopharynx, throat, teeth, mouth, external ear, middle ear or cochlea, nor was there any suggestion of intracranial auditory involvement. In contrast, vestibular impairment or abnormality was found in nearly all the cases. Of the twenty-seven, only three showed normal nystagmus, vertigo and past-pointing, and each

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of these three showed definite subnormality in constitutional responses to the vestibular tests. They failed to show the usual pallor, sweat and nausea that one finds in the normal, after prolonged turning and douching.

ANALYSIS OF CASES

The age ranged between 3 and 54 years; there were twenty-two male and five female patients.

Intracranial pathologic change was reported in thirteen cases; in the remaining fourteen cases there were no definite organic findings. Syphilis of the central nervous system was present in one case, and in one case, either syphilitic encephalitis or arsphenamin poisoning. Arachnoiditis was present in four cases, one of which also showed cerebellar cysts; external hydrocephalus, in two; meningo-encephalitis, in three. Two patients were probably toxic (one of these, following tonsillectomy, has had cessation of fits for the last ten months to date). Spontaneous subarachnoid hemorrhage was present in one case; suspected brain tumor, in one; suspected right parietal abscess, in one, and a large glioma of the right frontal lobe, in one.

SUMMARY OF EXAMINATIONS

1. *Neurotologic History.*—Dizziness was present in three cases; staggering, in two; deafness, in four; tinnitus, in three.

2. *Spontaneous Phenomena.*—Three patients had nystagmus. One had vertical nystagmus upward on looking up, and on looking to the right the nystagmus was noticeably larger in the right eye than in the left—approximately twice as large. One has vertical nystagmus upward each time he has an attack. There were no cases of vertigo. Past-pointing occurred in two cases, and falling and general swaying in three.

3. *After Turning.*—Nystagmus was prolonged in two cases; normal, in five; subnormal, in nine. One patient showed conjugate deviation to the right after turning to the right, and conjugate deviation to the left after turning to the left; another showed oscillatory nystagmus after turning. Another patient, after turning to the right, showed a larger nystagmus in the right eye than in the left eye. Another patient showed conjugate deviation of the left after turning to the left, but no conjugate deviation to the right after turning to the right. Another patient showed conjugate deviation to the right after turning to the right, although after turning to the left there occurred a distinct quick component to the right.

Vertigo after turning was hyperactive in four; normal in four, and subnormal in nine. Diametric inversion occurred in one case; after turning to the right, the patient felt that he was turning to the right instead of to the left, and after turning to the left, instead of vertigo to the right, he had vertigo to the left.

Past-pointing was hyperactive in four cases, normal in three, and subnormal in five. One of these patients showed a poor past-pointing of each arm inward; another showed absent past-pointing of the right arm to the right.

Hyperactive constitutional responses were not noted. They were normal in one case and subnormal in twenty; of these there was a striking absence of any pallor, sweat, nausea or vomiting in eight cases.

4. *After Douching.*—Nystagmus was hyperactive in one case; normal, in three; subnormal, in sixteen; abnormal, in four. One patient had vigorous nystagmus, but a tendency to conjugate deviation on stimulation of each horizontal canal; one patient had perverte nystagmus from the right horizontal and delaye response from the left vertical canals and perverte from the left horizontal; another, perverted nystagm from the right horizontal. Another patient had a larg perverted nystagmus produced by the right vertic canals and also by the left vertical canals; furthermor the right vertical canals not only produced the wron type of nystagmus, but there was a different type o nystagmus in one eye from the other. Another patie showed a tendency to conjugate deviation from th right horizontal canal; also perverted nystagmus fro the left vertical canals and perverted nystagmus fro the left horizontal canal. Another patient presented peculiar phenomenon: when the right ear was douched nystagmus occurred more quickly than usual, and thi nystagmus increased to a fair amplitude; but as th douching was continued, instead of increasing, th nystagmus disappeared entirely. The same phenomeno also occurred in this patient when the left ear wa douched.

Hyperactive vertigo after douching was not observed It was normal in six and subnormal in fourteen; o these, five showed no vertigo response whatever, an one patient showed no vertigo on stimulation of an canal except the right horizontal.

Past-pointing was hyperactive in two, one being hyperactive from the verticals, but normal from each horizontal; normal, in four; subnormal, in eleven; of these, in one case past-pointing was entirely absent. It was abnormal in four.

Falling was hyperactive in one case; normal, in nine; subnormal, in eleven. One patient showed no fall to the right, but was normal to the left. Another patient was normal to the right and subnormal to the left. Another patient had no fall to the right, but was normal to the left.

Constitutional responses were hyperactive in one case, normal in two, and subnormal in twenty; of these there was a striking absence of any pallor, sweat, nausea, or vomiting in eleven cases.

Differentiation between the vertical and the horizontal canals was obtained in six cases. One showed good response from the right vertical canals, but poor response from the right horizontal canal; also good response from the left vertical canals, but poor response from the left horizontal canal. One patient showed no responses from any canal or set of canals, except the right horizontal. In one case the left verticals produced a wider past-pointing than the left horizontal. Two patients showed poor response from the verticals and good response from the horizontals.

5. *Auditory Function.*—In the face of the foregoing varied vestibular subnormalities and abnormalities, it is important to note that almost all of these twenty-seven patients showed normal cochlear function. The hearing was entirely normal in eighteen cases. Two patients showed slight impairment of each cochlea. One patient showed both cochleas dead—it appeared that possibly there were certain islands of hearing; this was the patient with diffuse central nervous syphilis.

SPECIAL COMMENT

From the apparent chaos of the foregoing observations, the following facts are clear:

1. A surprisingly large number showed vestibular impairment and abnormality. All of these vestibular deficiencies were of central type, with only one excep-

ion; the almost uniformly normal auditory mechanisms end to confirm this.

2. One is impressed with the subnormal constitutional responses. After turning, the constitutional responses were subnormal in twenty out of the twenty-seven cases; in eight of these cases there was no pallor, sweat or nausea whatever. After douching, the constitutional responses were subnormal in twenty-one of the twenty-seven cases, and in twelve of these cases there was no pallor, sweat or nausea whatever.

3. Mr. L. C., aged 35, after turning four times to the right was seized with his typical epileptic attack. He did not draw the head in any particular direction. He was quite unconscious; at first he gazed straight ahead with a blank expression, then became pale, and then markedly cyanosed. After recovering consciousness, he stated that he had felt the attack coming on almost at the beginning of the turning.

4. Miss B., aged 25, daughter of an intelligent physician who has observed her closely, showed distinctly impaired vestibular responses both to turning and to douching. In spite of the subnormal vestibular impulse, she manifested terror after turning or douching. We attempted to reassure her, but it was difficult to secure her cooperation, although she was not only intelligent but most willing to help. Finally she said: "The reason for being frightened is that each time you turn me or douche my ear, I feel just as I always do before I have an attack." She had no attack; but on repeated tests over several days, each vestibular stimulation produced her aura.

5. Mrs. O. H. T., aged 47, after three and one-half minutes' douching of the right ear had a "spell"—however, not the same as her usual attacks. All voluntary muscles relaxed; respiration was rapid; there were no convulsive movements. The patient was apparently unconscious, but afterward stated that she did not think she had been completely unconscious but only felt extremely weak and unable to speak. This state of collapse was not a vestibular phenomenon in the usual sense; it was decidedly different from a state of shock—in fact, there was a singular lack of constitutional responses. Although the douching had been continued three and one-half minutes, there was no pallor, sweat or nausea. Later, douching the left ear produced another "spell"; she did not lose consciousness, but became flaccid and relaxed—not so marked as after douching the right ear.

6. F. R., a boy, aged 12, was placed by Dr. Robert Bárány on a board attached to the turning chair. The patient lay on the right side and was turned to the right. After the turning, the patient exhibited a fit in which his legs were drawn up and his body and head were bent downward, exactly in the vertical place in which the semicircular canals had been stimulated. He "doubled up like a jack-knife." He did not lose consciousness, but he was not mentally clear for a considerable period afterward.

7. I observed N. R., a boy aged 10, in three attacks. In each instance the head was drawn backward and there was a large nystagmus; this nystagmus on one occasion was a pure vertical upward; then on two other occasions it was upward and to the left, with an almost equally quick movement downward and to the right. The parents stated that this nystagmus has been present in each of the hundreds of attacks that they have observed since the onset of his epilepsy at the age of 2.

No conclusions, even tentative, should be drawn from the foregoing. We must bear in mind that perhaps the next twenty-seven patients might show perfectly normal responses to vestibular tests. However, the phenomena suggest that the fairly well known vestibular mechanism is connected with the unknown mechanism through which epileptic phenomena are produced. It seems possible that neurotologic study of a very large number of epileptic patients might not only throw some light on the eternal problem of epilepsy but also bring forth information concerning the basic physiology of consciousness.

ABSTRACT OF DISCUSSION

Dr. Hugo A. Kiefer, Los Angeles: This work is absolutely new. When one gets into the subject of epilepsy he is impressed with the magnitude of the subject—there are so many different types, there are so many different causes, so many different precipitating factors, such a complexity of symptoms. When one tries to seek one cause, the problem becomes one of exceeding difficulty. Some of the results the author has shown us are certainly very startling. They are quite different from what we have been accustomed to read in textbooks. When one considers the abnormal reaction to stimulation of the vestibules that has been found in almost all the cases mentioned, one cannot but be impressed with the fact that there must be some close association between the vestibular apparatus and epilepsy. No one would want to say at present, for instance, where the center of consciousness is located. I believe the old theory was that it lay in the cortex. The new theory is that it probably lies in the basal ganglions. We know the changes that take place in the cortex under the spell of unconsciousness. We know that there is an anemia of the cortex. We know that the anatomic changes that take place in some cases of idiopathic epilepsy in the outer layer of the cortex; namely, a gliosis. These things seem to controvert any conclusion that abnormality of the basal ganglions may be responsible for the production of this disease.

Dr. William F. Bonner, Wilmington, Del.: In a paper I read last October before the Association of Military Surgeons on the labyrinthine reactions in syphilis, I called attention to an epileptic in whom a brain lesion was discovered by means of the Bárány tests. The diagnosis of syphilis was made secondary to the discovery of the brain lesion.

Dr. Cecil E. Reynolds, Los Angeles: Some of these cases presented baffling problems. In others, the nature of the pathologic changes had been definitely established at operation. Broadly speaking, the most striking thing was that the cases presenting established cortical lesions gave hyperactive responses, normal in quality, but those which were established as basal cases gave abnormal responses. In the case mentioned by Dr. Jones that Bárány investigated I had operated three months previously, and the man was better than he had been, but the horizontal turning induced a characteristic seizure. At operation I had found definite pathologic changes at the base. In several other cases in which I had found pathologic changes under the cerebellum, Dr. Jones found abnormal vestibular responses with perfect hearing. Three patients had their characteristic seizures when they were turned or douched, and as two of these were not subject to frequent seizures at the period of this examination, I think that this is a significant fact. Two of these were most probably toxic cases, and one of the patients is subject to almost daily petit mal attacks (sometimes more) ever since intensive arsphenamin treatment ten years ago. I cannot help feeling that he has posttoxic lesions in the brain stem. His responses to turning and douching are markedly abnormal, in addition to an attack being induced thereby.

Dr. Samuel Ingham, Los Angeles: The importance of this subject needs no emphasis, and studies that lead to any definite findings are worthy of serious consideration. One of the most baffling things in the subject of epilepsy at present is the absence of any constant objective findings.

The actual cause of the manifestations of epilepsy and the location in the brain where the explosion is set off are matters of theory. There is a good deal of evidence that the importance of the cortical centers has been overestimated, and that disturbances of the lower centers have been overlooked. The findings reported in this paper, i. e., abdominal vestibular reaction to standard tests, constitute a high percentage of objective evidence; probably higher than has been obtained from any other one method of study. Confirmation and further observations are needed along this line.

CATARACT EXTRACTIONS PERFORMED BY PROF. JOSEF MELLER OF VIENNA, 1919-1921

REVIEW OF TWO HUNDRED AND FORTY-NINE OPERATIONS *

HANS BARKAN, M.D.
SAN FRANCISCO

There are two good reasons for presenting this paper. The first is that the statistics of cataract operations performed by Professor Meller will show what can be done in the way of obtaining good results under the most trying circumstances imaginable. The other, to present an accurate statement of operative results obtained by one operator on a uniform material over a sufficient number of cases by standard methods. Recent literature has been entirely too full of loose statements regarding cataract results; statements which give visual results as, for instance 20/20 or over, and do not give the percentage of cases in which the vision was 20/200 or less; papers by inexperienced operators covering a small number of cases with unripe and hasty deductions, and finally, broad statements regarding the high percentage of excellent visual results obtained by the exclusive use of some one method without statistics covering the percentage of losses, or mention of the sequelae and incidents of the operation tending to produce poor results. We have yet to find an analysis of cases in either the Smith or the Barraquer [1] method, such as we may find if we go back some years and look over the very carefully prepared statements of Knapp [2] in 2,300 cases, of Haab in 500 cases, and of Noyes' [3] compilation of 10,661 linear extractions and a further 5,566 linear extractions at the hands of six skilful operators, as well as that of Ring,[4] who analyzed 1,032 cases of combined extraction and 1,123 of simple extraction at the hands of Knapp, Agnew, Webster, H. Derby, Schweigger and others. Parker's [5] paper, analyzing his results in 1,034 cases, and the thesis of Meyling,[6] analyzing the results of the clinic at Leyden in 1,058 cases, are the only recent papers bearing comparison with the analysis of cases of twenty and twenty-five years ago. In reviewing the cases of operation in Meller's clinic, I took from the very carefully prepared histories containing mention of every possible preoperative and postoperative incident only those in which operation was performed by Meller himself. About as many more operations as here listed were performed during the same period by his skilful assistants, A. Fuchs and Bachstetz. For the sake of a standard comparison, however, the records of Meller's operations alone were taken.

The conditions during the first year of this operative material were such as have seldom, if ever, obtained in a university clinic of such reputation. These conditions, owing to the postwar state in Vienna, were enough to discourage any but the most courageous operator. The material, never particularly intelligent or cleanly, was worse than ever. Patients had had no opportunity, time or money to keep their bodies in physical repair. No dental, nose or throat work, no treatment of skin diseases, was possible. Observing a nephritic or diabetic diet, in patients nourished on poor potatoes and sawdust bread, was out of the question. Many of them traveled long distances in emaciated condition with sunken eyeballs, due to malnutrition, arriving at the clinic in poor shape mentally and physically, old and decrepit people after the years of suffering and starvation. At the clinic they did not have the reception accorded them in former years. The food was not much better there than at home. The wards and the operating rooms were not heated, so that Meller often operated with icy hands. No gas was available; the trained helpers of former years were dead, sick or missing. There were no agar, no dyes and no possibility for a bacteriologic examination. The instrumentarium was old and in bad condition; good instruments had been used up. The instruments available were of poor nickel and poor edge. In spite of these conditions, work was commenced, and in a very short time the beds were again full of cataract patients who had, some of them, waited during the entire war years for the time to come when they could gain entrance to the hospital in Vienna.

TABLE 1.—*Methods of Operating*

Hess	180
Combined extraction	46
Preliminary iridectomy	2
Weber's loop	8
Lance incision	8
Simple extraction	3
Discission	2
Total	249
Uncomplicated cases, total	174
Cases in which good vision could not be expected	75
Vitreous loss, total	5%
Vitreous uncomplicated cases	1.34%

Of pre-operative attention to teeth, nose, throat, skin or general constitutional diseases, there was, and could be, very little. Teeth were not extracted, tonsils not removed; and although diabetic patients were first sent to the medical wards and an attempt made to reduce their sugar, any painstaking efforts to get the individual into good condition for his operation were out of the question. Bacteriologic examination of the conjunctiva, for reasons stated, was not performed. If the tear ducts were patent and no gross conjunctivitis existed, operation was promptly performed. Table 1 shows the method of operating. Whenever possible, the method of Hess (performed previous to Hess by Chandler of Boston, and Pflüger of Bern) was used.

TECHNIC OF OPERATION

The patient walks to the operating table, which is firmly anchored to the floor. The operator sits at the patient's right hand side, and therefore operates on the right eye with his left hand and on the left eye with his right hand. The assistant stands opposite the operator, and by means of his

* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Barraquer: Phakoeresis, Am. J. Ophth. **3**, No. 10.
2. Knapp: Arch. f. Augenh. **23**, 1891.
3. Noyes: Tr. Am. Ophth. Soc., 1879.
4. Ring: The Combined Versus the Simple Extraction of Cataract, Med. Rec. **37**, 1895
5. Parker, W. R.: Senile Cataract Extraction, J. A. M. A. **77**: 1171 (Oct. 8) 1921.
6. Meyling: Operatics aan de Lens van 1895 tot 1918 Vericht in de ooghcilkundige Klinick te Leiden.

mbs spreads the lids apart. A nurse at the head illumi-tes the field with the Hess hammer lamp. Another nurse the head stands holding the pledgets soaked in weak rcuric chlorid solution. The instruments are boiling at e left hand of the operator, and can be taken out and put ck into a small sterilizer by the operator himself quickly d without lost motion. After cocainization with 4 per cent. cain and finally a drop of 10 per cent., an incision embrac-g a liberal upper one third of the cornea and ending with

TABLE 2.—*Fundus Lesion and General Complications*

Number of Case	Condition	Vision
Men		
1	Toxic amblyopia with central scotoma	6/36
5	Senile atrophy, optic nerve	6/18
53	Fresh choroiditis and vitreous opacities	6/60
64	Optic atrophy, postneuritic	fingers, 1 m.
83	Deafness, hemiplegia, senility	??
89	Von Recklinghausen's disease, with previous retinal hemorrhages	6/18
90	Amblyopia, toxic	6/36
114	Nephritis, chronic, and arteriosclerosis	6/8
124	Cataracta nigra	6/12
130	Amblyopia exanopsia	6/24
121	Myocarditis with beginning decompensation	6/18
12	Glaucoma, chronic	fingers, 1 m.
43	Heterochromia iris, with precipitates	6/18
23	Retinochloroiditis, old, central	6/60
68	Atrophy, nerve, postneuritic central scotoma	6/12
81	Retinochoroiditis, central	6/60
105	Diffuse chorioretinitis	6/12
125	Senile macular changes, disk pale, inversion of vessels	6/60
136	Choroiditis, probably tuberculous	6/18
17	Central macula corneae	6/24
19	Subluxation of lens	fingers, 1 m.
30	Nystagmus, congenital	6/24
80	Chronic iridocyclitis, tuberculous	6/60
88	Chronic iritis	6/8
106	Nystagmus, atrophic iris	L. P. and P. in 1 m.
92	Adhesions, iris to lens	6/18
Women		
15	Tremulous iris	6/8
51	Cataracta accreta calcarea	6/18
71	Tatooed scar, cornea; optical iridectomy	6/18
73	Incipient zonular opacity, cornea; old macula; old iridocyclitis	fingers, 0.5 m.
80	Macula corneae; marked irregular astigmatism	6/24
94	Central macula myopia gravis	6/60
44	Heterochromia	6/18
43	Glaucoma, chronic	6/18
45	Glaucoma, chronic	6/9
89	Glaucoma, chronic	6/60
16	Mental depression	?
32	Mental confusion	6/60 ??
35	Cataracta nigra	6/36
46	Cataracta nigra	6/12
69	Cataracta nigra	6/12
17	Choroiditis disseminata	6/36
49	Nephritis, chronic	6/12
60	Macular changes, senile	6/12
65	Central choroiditis; retinal hemorrhages; central scotoma	6/36
66	Atrophy, nerve; choroiditis disseminata; vitreous opacities	fingers, 0.5 m.
77	Central choroiditis with central scotoma	fingers, 3 m.
82	Central choroiditis with vitreous opacities	6/24
99	Central choroiditis with central scotoma	fingers, 1 m.
104	Temporal pallor of disk with central scotoma	fingers, 2 m.
109	Macula corneae; central myopia gravis	6/36

small conjunctival flap is made. This incision is made requently with one forward and one backward sweep of the nife. Occasionally a third short stroke with the knife edge arried almost facing the operator is taken to cut through ne conjunctival flap. The capsule forceps are promptly ntroduced and as large a bite as possible of the anterior apsule taken. Meller spreads the arms of the forceps apart o that they often dilate the sphincter, obtaining a large piece f capsule. The upper lid is held with the thumb of the left and, pressure is exerted by the index finger of the right and against the lower lid, and the cataract is expressed. Meller expresses an amazing quantity of cortex by never claxing on this pressure and thereby not allowing cortical nasses to sink backward. No irrigation and no spoon to hovel out cortical remnants is employed. The iris is then eponated so as to obtain a perfectly round pupil. The conjunc-ival flap is stroked over the cornea, the base of the iris is ulled out slightly by means of sharply bent Hess forceps, and he smallest possible basal iridectomy performed. Should some ortical masses still be in evidence after this procedure, nassage is again employed, and occasionally a surprising amount of cortex is expressed through the basal iridectomy. The iris is again brought into position, the conjunctival flap folded into place, and the eye closed. A binocular mask or tin cups covering both eyes do for the dressing. The patient walks back to his bed, and if the anterior chamber is formed at the dressing next morning, he is allowed to sit on a chair with the unoperated eye open. In uncomplicated cases the patient is discharged in from ten days to two weeks, at which time visual results are recorded. He is asked to return four weeks afterward for the estimation of his permanent glasses.

FACTORS GIVING THESE STATISTICS AN EXCEPTIONAL VALUE

1. Each patient, after having been examined with the utmost detail by the assistant, is presented to Professor Meller, who himself examines the patient the day before, or the morning of, the operation.

2. Every operation was done by Meller, to whose surgical judgment and skill it is not necessary to refer.

3. The material is composed of approximately the same type of individual.

4. The patients were seen daily and the eyes dressed by men of experience.

5. Every postoperative complication arising was seen by Meller.

6. The final status of the case was observed and dictated by Meller.

7. Each case was from beginning to end so carefully described, and even incidents of practically no clinical importance so thoroughly recorded, that no misunderstanding could exist in the mind of any reviewer of these cases as to what had occurred and as to what the final results were.

RESULTS OF OBSERVATIONS

Two hundred and forty-nine cases came to operation. Of these, the uncomplicated cases total 174, the complicated cases, seventy-five. It is to be seen immediately that the percentage of complicated cases in this material is very high.

Table 2 gives the essential complicating factor in each case. These cases were selected from the others

TABLE 3.—*Myopia Gravis (Seventeen Cases)*

Number of Case	Vision
Men	
25	6/8
28	6/12
34	6/6
35	6/12
79	6/18
112	6/24
Women	
13	6/12
25	6/60
31	6/24
40	6/18
63	fingers, 3 ft. (ret. det).
67	6/36
69	6/12
88	fingers, 6 ft. (vit. opacities)
94	6/60
101	6/12
109	6/36

with this point in view; namely, that any condition existing before operation, which would make it impossible to secure good vision, irrespective of the type of operation, should be put into a separate table. A careful study of this table is urged. The unexpected good vision often in cases of small promise is surprising.

Table 3 gives the results in the myopic cases. "Myopia gravis" from the case records means myopia exceeding 10 dioptèrs. There were seventeen such cases. Not an infection occurred, in spite of some

vitreous loss. Considering the widespread fundus changes found in almost all of them, the visual results are surprisingly good, with only one case a dead loss, owing to retinal detachment occurring two months after operation.

Table 4 lists the diabetic patients. Of these there were seven, running from 4 to 10 per cent. of sugar.

TABLE 4.—*Diabetes*

Number of Case	Vision
Men	
115	6/60
116	6/18
118	6/18
133	6/8
Women	
52	fingers, 3 ft.
97	6/12
107	6/36

Many other cases in this material showed traces of sugar, or a low percentage, and are not included in this statement. There was no infection, and the poor vision in several of these cases can be referred to fundus changes.

Table 5 shows the number of vitreous losses and the vision. I would point out that not one such eye was lost. A number of the patients had useful vision, and it will be noted that some of these had myopia gravis, and that most of these cases belong to the complicated series. Imagine such vision as these patients show if an operation, such as the Smith-Indian, had been used. The total vitreous loss was 5 per cent., and this in a material of which 18 per cent. can legitimately be called complicated in the sense of eyes likely to give trouble during operation. The vitreous loss in the uncomplicated cases equals 1.34 per cent.

TABLE 5.—*Vitreous Loss*

Number of Case		
Men*	Condition	Vision
25	Myopia gravis	6/8
41	Lens does not present Weber's loop	6/36
81	Lens does not present considerable pressure used	6/60
92	Traumatic cataract; adhesions, iris	6/18
118	Lens does not present pressure	6/18
Women†		
2	Hypermature lens, loss minimal	6/18
8	Vitreous with incision	6/12
25	Myopia gravis, slight loss	6/60
31	Myopia gravis, slight loss	6/24
43	Glaucoma, chronic; unruly patient	6/18
73	Old iridocyclitis; zonular opacity of cornea; corneal maculae	fingers in 1 m.
110	Minimal loss	6/18

* All belong to the complicated group, except Case 41.
† All belong to complicated series except Cases 2, 8 and 110.

Table 6 gives the main postoperative complications. Rupture of the wound occurred with relative frequency, but in only one case was it of consequence as regards the final vision. No great number of these ruptures occurred on any one specific day; that is, no particular number occurred on the first day out of bed, or on the first day of walking about the ward. The occurrence seemed to depend on the patient himself. Those with a chronic cough, and stupid, nervous and irritable people formed the candidates for rupture of the wound. The majority of these ruptures occurred in the first hundred cases of the series when skilled attention in the wards was not available, and very little control over the patient's actions could be observed. The iritis cases, numbering twenty-six, include every case which showed an adhesion of the iris to cortical remnants accompanied by ciliary injection. Many of these can scarcely be dignified by calling them a postoperative complication. Sixteen of them in no way disturbed the patient or formed the basis for subsequent disturbance of vision in the form of pupillary exudate. The other ten were marked cases of iritis, four occurring in patients with high grade diabetes, and two in severe chronic nephritis cases. The two acute infections requiring immediate enucleation occurred on the second day.

Table 7 gives the vision of the uncomplicated cases in three columns. The first column on dismissal two weeks after the operation, the second, the final vision ascertained between four and six weeks after the operation, and the third the vision at dismissal of those who did not return. Of these, quite a number did not return because of difficulties in travel and finances. No doubt many were satisfied with the vision obtained, and we see from the second column that they undoubtedly improved in a marked fashion from four to eight weeks after leaving. Many of those not returning therefore had much better vision later than is credited to them

TABLE 6.—*Postoperative Complications*

	Number
Rupture wound	27
Iritis	26
Iris prolapse	4
Glaucoma	2
Vitreous in wound excised	1
Infections, acute, enucleation	2

in Table 3. They may have obtained glasses in their home, or their other eye remained with good enough vision so that its use was satisfactory enough and a return to the clinic not thought to be of particular advantage. When one studies the first and second columns, one can readily see that those not returning for final vision, in the third column would, if they had returned, swell considerably the number of the final visions, second column, of 6/12 or over. This conclusion is justifiable when one notes the large number of cases in the first column below 6/12 and the relatively few below 6/12 in the second column, and how, in the second column, the number of those

TABLE 7.—*Final Vision; Uncomplicated Cases; Total*

	Vision on Dismissal Column 1	Vision Final Column 2	Vision on Dismissal and Not Returning Column 3
6/5	1	5	1
6/6	14	32	3
6/8	9	20	5
6/9	6	15	1
6/12	49	23	17
6/18	43	9	15
6/24	12	4	3
6/36	15	2	7
6/60	7	1	2
Fingers, 3 ft	8		
Fingers, 2 ft	1 (6/12 on discission)		
Fingers, 20 ft	2 (6/12 and 6/18 on discission)		
L. P. P. N.	1 (6/18 on discission)		
L. P. P. N.	1 (Enucleation beg. atrophy)		
Acute infection	2 (Enucleation)		

over 6/12 has increased in comparison with the first column, and necessarily from those below 6/12 in the first column. In the first column nearly one half of the cases fall into the group of 6/12 or better, two weeks after operation, a most striking fact. In the second column, ninety-five out of 111 have vision of 6/12 or better. Of these, only two have this increase over their vision on dismissal by virtue of a

scission. One of the cases was raised to 6/18 from ngers at 2 feet; another to 6/18 from perception of ght.

It can be safely stated that, if discission had been erformed, the twenty-three cases in the second column f 6/12 and the sixteen cases below 6/12 would easily ave fallen into the group of 6/9 in the first case, and /12 or better in the second. As most of the patients ere satisfied with 6/18, and as many of them had an noperated eye of 6/18 or better, discission was not alled for in this type of material. One notes also lmost without exception that the patients dismissed ith 6/12 and 6/18 move up into the 6/9 or 6/6 olumn when returning four weeks afterward. It was ound that in 81 per cent. of all cases a clear view as obtained of the fundus at dismissal, and that there as a description of the fundus in these, showing in striking fashion that there was present in this per-entage a clear hole through cortical remnants or an ntirely clear pupil. This can be traced to the con-istent use and the perfect use of the capsule forceps. Even when considerable débris remained at operation—hich was not often—a remarkable amount of absorp-ion had taken place in two weeks, owing to the fact hat the epithelium of the anterior capsule could not roliferate over the capsulectomy area, and that the queous therefore had constant opportunity to exert s action on such cortical débris as was still enclosed in he capsule. The use of the capsule forceps also rend-red unnecessary many discissions that would undoubt-dly have had to take place had the cystotome been sed. Only in the myopic cases does this advantage of orceps over cystotome not always apply, for in these here is sometimes epithelium on the posterior capsule hich thickens and forms an obstruction to good vision o that in these cases the effect of the capsulectomy orceps is sometimes less marked. Among the visions f less than 6/60 we note fingers at 3 feet eight times. hese cases were as follows:

1. A very unruly patient during operation; extraction with otal iridectomy. At the first dressing there was chemosis f the flap; the wound edges were gray, and there was arked iritis. The second day there was hypopion. The atient was discharged with slight ciliary injection and a ense pupillary membrane.

2. Myopia of 10 diopters, with a Hess extraction. There ere hyphemia and slight iritis, with considerable cortex uring healing. The patient was discharged with consid-rable cortex and ciliary injection, and did not return.

3. Hess extraction was performed without operative or ostoperative incident. The patient was dismissed with con-iderable cortex, and did not return.

4. Hess extraction was performed; the iris showed a endency to bulge into the wound. There was a slight pro-apse of the iris the third day. There were iritis, hyphemia, nd organization of the cortical remnants, with marked iliary injection and dull cornea. The patient was dis-issed with an organizing pupillary membrane and subacute ritis.

5. Hess extraction was performed in a patient with chronic ronchitis. There were slight hemorrhages about the nasal dge of the wound several times, and on the eleventh day here was considerable blood in the anterior chamber.

6. A patient, aged 87, in poor physical condition, had had he sac removed four weeks before operation. The opera-ion was a Hess extraction without complications. Two lays later, a violent iritis and profuse hypopion occurred. Milk injection seemed to stop the process short of its usual ourse. The patient was dismissed with a pupillary mem-rane and slight hypopion.

7. The Hess operation, without incident, was followed by ritis, deep chamber hyphemia from the hemorrhage of the iris vessels, secondary glaucoma, and occlusion of the pupil. The patient was dismissed against advice with a mixed injection, dull cornea, deep chamber, discolored iris, pupil small, synechiae numerous, and pupillary membrane; he did not return.

8. The Hess operation was performed on a man, aged 75, whose tear sac had been excised; prolapse of the iris occurred on the second day after excision. The nasal pillar was pulled upward; there were blood and a small amount of cortex in the pupil on discharge.

Five of these eight patients were never heard of again. Three of them returned, two with vision of 6/18 and one with vision of 6/24. The remaining patients with vision below 6/60 were given serviceable vision by discission, as noted in Table 8. Three eyes were lost: one was enucleated because of beginning atrophy following iridocyclitis and two removed because of acute infection occurring on the second day after operation.

In summing up the final vision and considering the uncomplicated cases first, we can fairly say that the results are surprisingly good. I say "surprisingly" advisedly. With the material and conditions as they were, it is safe to say that any method aiming to extract the lens by pressure or pull or both combined would have resulted in a large number of unsatisfactory results. If one discounts altogether the material and the conditions, the statistics still remain exceedingly satisfactory, as can be seen by the fact that ninety-five out of 111 returning for final estimation of vision had 6/12 or better without discission. In judging these visions it must not be forgotten that the refractions from which these visual results were obtained were not in many cases particularly accurate. There was an immense amount of work to do, and many of the refractions in the first hundred cases, at least, were done by men not expert. The amount of attention which we in private practice devote to the utmost correction of our cataract patients was certainly miss-ing. Refraction as done in private practice might not materially alter the 6/18 column or those lower, but might easily raise the 6/12 to 6/9, or the 6/9 to 6/8 in a fair number of cases.

Using the Hess method with anywhere near Meller's skill, we would not exchange these results for any method that might bring us a few extra 6/5 cases, and, just as certainly, judging from the statistics of the Smith operation in this country, increase our total losses and irreparably poor results by a good margin. Hardy [7] gives the results of forty-one cases, five months after the Smith operation, giving all due credit to Smith's unfamiliarity with his surroundings and the general psychology of operating under these conditions. There was vitreous loss in eleven, or 23 per cent.; iritis in twelve, or 34 per cent.; iridocyclitis in 36 per cent.; choroidal hemorrhage in five, or 12 per cent., and prolapse of the iris in nine, or 24 per cent. There was perception of light in six; amaurosis in four, and enucleations in three. Vision was not recorded, but bad, in four. One can scarcely comment. Fisher's [8] recently corrected statistics of Smith's operations in Chicago give 64.3 per cent. of thirty-one eyes as 20/30 or better. It was not stated what the vision of the remaining eyes was. If we further consider that discissions in twenty-three out of ninety-five of these cases would raise the twenty-three of 6/12 vision in practically all cases into the 6/9 or better column, I

7. Hardy, W. F.: Cataract, Am. J. Ophth. **5**: 961 (Dec.) 1922.
8. Fisher, W. A.: Corrected Report of Colonel Smith's Cataract Operations, Am. J. Ophth. **6**: 124 (Feb.) 1923.

believe that we should cheerfully perform these discissions in what would be 24 per cent. of our cases, and we should then be left with ninety-five cases out of 121 averaging 6/9 or better. And if we further increased our discissions by sixteen cases, we should raise our material in the 6/18 to 6/60 column to an average of 6/18 at least. That only two acute infections took place in this material is astonishing, and is a great tribute to the marvelously rapid and smooth operating of Meller.

In reviewing these statistics and remembering two years during which I had the privilege of being in Meller's ward assisting him in the great majority of operations, I feel that the teeth, the tonsils and the sinuses play a very minor part as direct agents in ocular wound suppuration, and that the skill of the operator, the handling of few instruments, and gentleness of manipulation are the decisive factors. Along this line of thought, let us go back a few years. In 1892, Haab performed 600 consecutive operations, with only one eye lost by infection. His statistics are very minute and painstaking. It is safe to say that, in his material of Swiss peasants, not every abscessed tooth was pulled before operation. In 1,284 extractions reported by Köllner [9] in 1906, the infections were 0.5 per cent.

In this article, no reference is made regarding attention to teeth, throat or sinuses. In 600 cases of Hess between 1905 and 1909 at Wurzburg, only one was lost by infection. I believe thoroughly in putting the patient in good general condition and in eliminating gross foci of infection. I would much rather, however, operate on a patient in good general condition with some abscessed teeth or foul tonsils than on a patient without tonsils and without teeth but old, feeble and with poor circulation. In Meller's series, the vitreous loss of 5. per cent. in the total number of cases, and of 1.34 in the uncomplicated cases, is small. Loss of vitreous is infrequent, partly because of the method of holding the lids apart with the thumbs. The patient does not feel the constant disagreeable pressure of the speculum; the lids can be released instantly, and between the various steps of the operation are allowed to be closed. The patient is requested to open his eye at various times, which he does easily and naturally, and only then are the lids separated by the thumbs. The whole process is one that eliminates, as far as is possible, the almost certain damage done by the well known "squeezer." Referring to some of the vitreous prolapses in other statistics, we find 1 per cent. in Haabs'; 5.8 per cent. in 10,661 compiled by Noyes, and for six operators with 5,566 extractions, 4.8 per cent. A. von Graefe had 2.8 per cent. in 699 cases. Meyling, reporting the extractions in Leyden from 1895 to 1918, a total of 1,058, records 6 per cent. with iridectomy in 315 uncomplicated cases, and 3.9 per cent. in 129 without iridectomy. Ring, in 1,032 cases of combined extraction, records 6 per cent., and in 1,123 of simple extraction, 3 per cent. Incidentally, he states that in the simple extractions iritis was less by 1.33; suppuration less by 0.61, and total failures less by 1.59.

Statistics are notoriously fallacious unless all the factors leading up to them are rated and apportioned equally, as they fall to one side or the other of the comparison, and one can see that unless simple extractions are done in an unbroken series including an average number of complicated cases, a fair comparison with results obtained in a series of combined extractions cannot be made. Usually, extractions with iridecton are done in the more complicated type of case; an naturally, in a great number of them more unpleasa incidents are reported, else, indeed, the judgment o the operator in having decided that these patients neede an iridectomy would come into question. Most of th statistics of the period quoted were brought togethe because of the contest between the adherents of th combined and those of the simple extraction. The Hes extraction eliminates this contest. It leaves the patien with a round pupil and cosmetically perfect eye. I avoids the unpleasant dazzling of the iridectomy a well as the disturbing effect of whatever astigmatism there may remain, which is decidedly less appreciate with a round pupil than it is with a coloboma. It provides, however, the essential of the total iridectomy namely, the protection against iris prolapse. The peripheral iridectomy, lying as it does in juxtaposition to the apex of the incision, allows aqueous to flow through it and separate iris tissue from the lips of the wound. There were just two iris prolapses in the 180 Hess extractions, and two in the combined. An operator capable of performing a Hess extraction need not even in immature cases turn to procedures that are admitted by most operators of experience today to have too great a percentage of loss. A large capsule bite, persistent massage of the débris, and a peripheral iridectomy will yield, though perhaps with from 10 to 20 per cent. of discissions, as good an average visual result as any intracapsular operation, and much less actual loss. I believe firmly in exposing every fifth patient to the possible dangers of a discission rather than exposing every fifth patient to the dangers inherent in the Smith method. Discissions in modern days of asepsis cause trouble in only rare cases.

If the discission is done with two needles and subconjunctivally, the danger of infection and traumatism to the ciliary body is practically nil. Denser membranes can be removed as Hess was already in the habit of doing in Wurzburg in 1909, by opening the chamber with a lance and extracting with forceps, or, as he now does, by inserting specially constructed iris scissors into the anterior chamber, and cutting across the membrane. We must be more than fair in looking about for methods that will still further improve our cataract results. Our first consideration should remain the highest amount of good vision compatible with the least amount of danger. The time may come when a large series of the more radical methods of cataract operation is accurately worked up. Witness the literature involving more than 20,000 cases of the classic method thoroughly worked up and statistically checked. Not before such a time have the adherents of the intracapsular method, and particularly the Smith and Barraquer methods, any firm basis on which they may even enter a discussion. Their claim to fame lies in their relatively high percentage of 20/20 or better cases. They look with disdain on the columns of 20/30 and 20/40 vision. What, after all, do we mean, practically, with these figures? Our cataract patients do not spend the rest of their existence wandering around the streets with Snellen's charts carried 20 feet ahead of them by an obliging sandwich man. The man with 20/30 can as readily tell, at a block's distance that which is important to see, as for instance, the number of a street car, or the hand of a traffic officer, as can the man with 20/20. The man with 20/40 can at three quarters of a block's distance see these objects as well as the two others.

9. Köllner: Erfahrungen an 1,284 Kataract Extractionen mit Iridectomie. Ztschr. f. Augenh. **15**, 1906.

And all of them can read the newspaper. The method that gives the great majority from 20/20 to 20/40 and a small minority vision poorer than this will remain, I believe, the method of cataract extraction until some much safer method than the Smith-Indian at least, or the Barraquer is devised. This method may consist of a further evolution of such procedures as advocated by Knapp, Török and Verhoeff.

CONCLUSION

I cannot do any better than give, if not the words, at least the thought, expressed in Parker's recent papers; namely, that intracapsular procedures must stand the test of comparison with the combined extraction performed on patients selected with equal care. I should add that even the combined extraction will not quite stand the test of comparison with the extraction with Hess' peripheral iridectomy, and capsulectomy with capsule forceps. Lancaster's remarks, discussing Parker's paper, struck me as being particularly happy. He stated that the combined operation would take us by storm if it were now published for the first time. I am sure his remarks equally fit the Hess operation with Meller's results.

MODERN AIDS TO CATARACT EXTRACTION *

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Although a number of writers have called attention to the advantages of paralyzing the orbicularis by the injection of procain before operating, it hardly seems as though the method were as widely adopted as it deserves to be. In my opinion it constitutes one of the greatest advances in the technic of cataract extraction that has been developed in recent times.

I began to use it more than two years ago, and it has proved so valuable that now it is a routine procedure in all cataract operations performed in my service at the Massachusetts Charitable Eye and Ear Infirmary. The technic of the injection is probably well known to you all. It is made slightly posterior to the point at which the vertical tangent of the external wall of the orbit meets the horizontal tangent of the lower orbital margin. The needle is introduced along the lower orbital margin close to the bone, so far that the injection will reach nasally to the line of the inner canthus. It is then withdrawn and introduced upward along the external margin of the orbit until the injection reaches the level of the upper margin of the orbital wall. I find that 2 c.c. of 2 per cent. procain, to which a small amount of epinephrin has been added, is enough to accomplish the desired purpose, 1 c.c. for each injection. In seven or eight minutes, the operation may be begun; in from ten to fifteen minutes, the full results of the injection are obtained; the lids are relaxed and remain so for an hour or more.

I have analyzed the last 100 cases of cataract extraction done in my service. The time covered runs from Dec. 1, 1921, to March 1, 1923, a period of fifteen months. These cases are unselected, but form the general run which come to the clinic and to the office. Naturally, linear extractions done on young patients are excluded, also patients having a dislocated lens and patients in whom the cataract was a complicated one showing synechiae and the like; one case of expulsive hemorrhage has also been excluded. Of the operations, I performed seventy-two, including thirty-nine private cases; twelve were done by Dr. R. C. Cheney, and sixteen were divided among the three successive senior house surgeons. In four cases there was loss of vitreous, 4 per cent. Two of these were house surgeons' cases. In one of the latter, extraction was carried out by the Török method, combining traction with the Kalt forceps, and pressure with the squint hook on the lower part of the cornea.

My own percentage of vitreous loss was two cases out of seventy-two slightly more than 2.5 per cent. In one of these, an earlier case, the patient was a bad actor who had a fluid vitreous, and I am confident that the injection was not properly given, for he succeeded in squeezing out the speculum. The second case went without incident until, during the toilet of the wound, a large bead of vitreous appeared without the slightest pressure on the part of the patient. I thought it was the beginning of a choroidal hemorrhage; but, as it neither advanced nor receded, I felt obliged to excise the vitreous and close the wound. Both of these patients obtained vision of 6/6 or better, a fact that is neither here nor there, but was gratifying to me. In every suitable one of my cases an attempt was made to extract in capsule by the Knapp method; perhaps a quarter succeeded. In nearly all cases an iridectomy was done. In two cases the lens was dislocated by the Barraquer apparatus and then extracted by pressure.

It is easy to make figures prove any point, and we cannot place too much reliance on them. It is very hard to compare series of cataract extractions on account of different methods used and the varying skill of different operators. Although the figures are not present to show it, I know that my vitreous loss with lid injection is very considerably less than in the days before we used it. Of other series I may be permitted to quote one or two. In 232 cases of combined extraction, Schoeler lost vitreous in 14, i. e., 6 per cent. Ring compiled the cases of various operators. In 808 simple extractions, there was a loss in 4.27 per cent. In 1,032 combined extractions, there was a loss in 7.23 per cent. In Dr. Barkan's report of Meller's series, the vitreous loss in the hands of a very skilful operator was 5 per cent. for all, and 1.34 per cent. for uncomplicated, cases, Parker's series gave a loss of 10.1 per cent. in 1,421 cataract extractions. Meyling (quoted by Barkan) gives 6 per cent. in 315 cases with iridectomy, and 3.9 per cent. in 129 simple cases. No two series are run on exactly similar lines.

Cases excluded by one man will be reported by another. I believe that vitreous loss, however, is more frequent in any form of extraction in capsule, and I wish to lay emphasis on the fact that a number of the patients in the series here presented were operated on in this way.

An indispensable condition for success in intra-ocular operations is perfect anesthesia. It is rarely that even an inflamed eye cannot be rendered anesthetic by local methods, and complete anesthesia will eliminate many complications. We use one or two drops of 10 per cent. cocain solution, in addition to the three or four drops of 4 per cent., over a period of ten minutes or more. In restless and fearful patients and in those with congested eyes, in glaucoma and intra-ocular foreign bodies and the like, when a general anesthesia

* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

is not to be used, we inject the orbit with 1 or 2 c.c. of a 2 per cent. solution of procain and epinephrin.

Various exact directions for injecting the orbit are given in the books and articles on local anesthesia. I find that it is simpler and less painful to introduce a 3.75 cm. needle either at the outer or the inner canthus through the already cocainized conjunctiva. It is passed backward and slightly toward the center of the orbit for 3.75 cm., and an injection of 1 to 2 c.c. of procain-epinephrin is made. In special cases, the injection may be made both at the inner and the outer sides. Perfect anesthesia results. Superficial subconjunctival injections do not seem to be in my hands as effective, and may interfere with the field of operation.

In a case in which the orbital injection is not used in cataract extraction, the corneal flap is always lifted, and 4 per cent. cocain is dropped on the iris before iridectomy is performed. With lid injection and complete anesthesia, it rarely happens that the patient has difficulty in looking down. When it does occur, injection of the superior rectus with procain or a stitch through the muscle, will remedy it. The effects of lid injection pass off in an hour, the local anesthesia somewhat earlier. As Colonel Smith has so well pointed out, the discovery of some procedure by which the extra-ocular musculature can be paralyzed for a week after operation would be a boon to humanity.

I suppose we all have cases in which the wound opens and prolapse takes place during the forty-eight hours after operation, and even later. In my experience this usually occurs in women, and is often due to vomiting induced by purely psychic causes. We have been unable to eliminate this complication, although various methods have been tried. Morphin, while effective in some cases, undoubtedly induces nausea in a certain percentage of persons. The "nausea mixture" used at the Knapp Hospital is of some value. In some cases we have used successive doses of chloral and bromid, the night before operation, the morning of operation, and another that night. I believe this also helps, but the accident still is a dreaded one and one to be seriously considered.

I believe that the best protection is in suture of the wound. I need not go into the history of the suture of cataract wounds. It is fully discussed in the recently issued volumes of the Graefe-Saemisch handbook. Kalt's method of corneal suture seems to have been most used. Ellett has two excellent articles on it in the American literature. There are certain disadvantages in the corneal suture which are overcome, I believe, by the method used for the last few years by my colleague, Dr. Verhoeff, and described by him. A very small flap of conjunctiva is dissected at the upper limbus and laid over the cornea. In the denuded area and about a millimeter above the limbus, a bite is taken in the sclera with a fine double-armed suture. The needles are then passed through the small conjunctival flap, the thread is wet, and the loop is then laid on the cornea and sclera so as to offer the least obstruction to the corneal section. After the lens has been delivered, the threads are pulled through the flap, tightened and tied, and we have a mattress suture holding down the flap.

With lid injection and complete anesthesia, the technic of this suture is much less troublesome than it was previously, the principal objection to it being that it renders the corneal section somewhat more difficult. I take it that most of us do not like to be diverted in making our corneal section by having to avoid threads, however well placed. This difficulty may be avoided by not completing the stitch until after the corneal section has been made. The conjunctival flap is dissected, and the stitch placed in the sclera. The ends are then laid back over the patient's upper lid and forehead. Two needle holes are now made in the small conjunctival flap with a slightly larger needle. The corneal incision and iridectomy having been made, the threaded needles are passed through the holes in the flap already made for them; these holes are found without effort, on account of their size and the smallness of the flap. The needle eye and its loop of thread pass through without resistance. The needles and loop are now disposed at one side, the lens is extracted, the threads pulled tight, and the stitch tied. Once the thread is pulled tight, the surgeon has complete control of the eye. Remaining cortical material may then be milked out at one side of the stitch, the anterior chamber may be irrigated if desired, and the toilet of the wound completed.

That many eyes are saved by the suture I have no doubt. Of course, this modification of the stitch cannot be used in certain cases, such as a dislocated lens.

I do not wish to be understood as advocating the stitch in all cases of cataract extraction, any more than I would advocate the same operation for all cases. I believe, however, that in certain cases it is indispensable, and I wish to stress the fact that with lid injection and adequate anesthesia, it is easy to complete the stitch after the corneal section has been made. I have done it many times without accident.

REPORT OF CASES

Case 1 is a good demonstration of the efficacy of the stitch:

Case 1.—J. H., a woman, aged 74 years, was operated on in 1921. The operation was performed without incident in the early morning, and at the evening visit she was resting comfortably. During the night she had an uncontrollable attack of vomiting, and got rid of most of the vitreous, and the eyeball had to be enucleated. She then told me, for the first time, that she had been subject to attacks of vomiting all her life. In December, 1922, she decided to have her remaining eye operated on. A stitch was put in, and although she vomited slightly before leaving the table and again more vigorously after being put to bed, the wound held and healed perfectly.

Another case is also pertinent:

Case 2.—A woman, aged more than 70, who had recently arrived in this country, was led into my office. She showed as marked a degree of blepharospasm as I have ever seen. It had existed for years. She had entropion of both lower lids, there were marked trachomatous scars of the conjunctiva and corneas, and the corneas were markedly vascularized. It was possible to make an examination of the eyes only after prolonged cocainization and with the use of lid elevators. The right eye showed an immature cataract, and the left, a mature one. The entropion was relieved by operation, but the blepharospasm persisted. The slightest attempt on my part to separate the lids was always met by an intense contraction of the orbicularis. The eyes were very deep-set and the palpebral fissures were very narrow. It was not without qualms that I consented to remove the cataract. The lids were thoroughly injected, a canthotomy was performed, an orbital injection of procain given, and a stitch passed through the insertion of the superior rectus to bring the eye down and forward. The extraction proceeded without incident, although there was a continuous blepharospasm in the other eye. The wound healed well.

CONCLUSION

By using these aids, we can operate in the ordinary case of cataract extraction with much greater security,

while in the difficult case the chances of ultimate success are much greater. Dislocated lenses may be removed with a nominal loss of vitreous, or with none at all.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. BARKAN AND DERBY

DR. W. H. WILMER, Washington, D. C.: Rupture of the wound in 10.8 per cent. of the cases is high. The prolapse of the iris in four cases, 1.6 per cent., is also rather high, especially as two of the operations were performed according to the Hess method. Hess himself, in 600 cases, had 0.66 per cent. of iris prolapse. I feel that the patients themselves and the want of necessary postoperative nursing were alone responsible for these high percentages. Four patients were discharged with considerable cortex. Irrigation of the anterior chamber, in addition to the operator's method of expression of the cortex, might have made this unnecessary. Acute infection in two cases, or 0.8 per cent., would be somewhat high in normal conditions, but not for the circumstances confronting Meller. Under the best modern conditions, there has been an almost complete elimination of acute infection of the wound. I have not had any infection of the wound since 1915. I agree with Dr. Barkan in his view that focal infection plays a relatively minor part in wound infection; but I do feel that it has a most important rôle in later endogenous infection; for instance, in the very annoying iridocyclitis, that sometimes occurs about the tenth day. As one's time of operative experience lengthens, in private practice fewer normal cataract cases present themselves and more one-eyed people with all sorts of complications come for advice and operation. In cases of this type, preliminary iridectomy has, I feel, a distinct place in modern ophthalmic surgery. There is no mechanical reason why Meller's operative methods should not give as large a percentage of 20/20+ vision as the various forms of intracapsular operations, provided there is a needling in every case that requires it. Meller's results are excellent, in view of the conditions under which the operations were performed. The number of cases in which the vitreous was lost was very small even for the best operative conditions, especially as he did not drug the subjects or attempt to paralyze the orbicularis. During the last three years, my own percentage of loss of vitreous is 8.33 per cent., but this occurred in a series of operations in which the complicated cases formed 47.2 per cent. of the whole, and in no case was a good result interfered with. With an opportunity for later discission of the capsule, and a careful correction of the refraction, the high visual percentage would have been even greater. And I express my admiration for Meller, this great "master of fate," and his successes. A fairly large operative experience over a space of a number of years makes me feel that the patient's best interests are conserved by the operator's following the particular line of technic that he has thoughtfully selected and patiently perfected.

DR. CHARLES MAGHY, San Francisco: The worst complication that follows a cataract extraction with loss of vitreous is infection, either in the lips of the wound, or as a panophthalmitis. A mattress suture placed in the sclera and conjunctiva, by firmly closing the incision, would prevent vitreous from occupying the lips of the wound. In this way, some of the cases of infection might be prevented. In the cases of endogenous infection, it matters little whether or not vitreous loss has taken place. The author states that the cases were unselected, and that approximately one quarter of the operations attempted by the Knapp method were successful. I should like to ask Dr. Derby whether it has been his experience that in the cases in which he had trouble in dislocating the lens, the patients were chiefly under 50 years of age. In my opinion, it is much easier to dislocate the lens in a man of 60 than in one fifteen or twenty years younger, as in the former we have to overcome the suspensory ligament, while in the latter we frequently have to consider an attachment of the lens to the hyaloid. Another factor that should be taken into consideration in choosing the method of extraction is the type of cataract, the intracapsular operation being better adapted to cases of immature or hypermature lens. It would appear from Case 2 that blepharospasm is best controlled by paralyzing the orbicularis muscle. I know of no method that will prevent psychic vomiting. At Moorfields Eye Hospital, during nearly five years' service, I saw very few cases of loss of vitreous that could be attributed to vomiting. By far the largest number of patients who lost vitreous did so at the time of operation, by squeezing the lids together. In some cases, however, there was prolapse of the iris, especially in cases of simple extraction. I feel that had the orbicularis muscle been paralyzed and the mattress suture employed, many of these patients would have had an uneventful recovery. If we are willing to admit that vitreous loss in cataract extractions, even when moderate in degree, is more frequently followed by prolapse of the iris, prolonged healing, impaired vision and even infection, than in the cases in which no loss takes place, and also that, in spite of taking every precaution, both before and after the operation, a certain proportion fail because of an inflammatory reaction that sets in from three to five weeks after the lens has been removed, under the guise of a plastic iritis, the statistics set forth, by the author, showing a vitreous loss in two cases out of seventy-two operations, a loss of approximately 2.5 per cent., should be sufficient evidence to warrant the adoption of paralyzing the orbicularis muscle and the use of the mattress suture.

DR. JOHN O. MCREYNOLDS, Dallas, Texas: I feel that this suture is a most valuable adjunct to the safety of cataract extraction. It may be considered under three heads: 1. Does it do any harm? 2. Does it do any good? 3. Can it be easily introduced? With reference to the first, in fully nine tenths of my cases I introduce the sutures, and never have I seen the slightest infection or distressing reaction following. I have sometimes allowed them to remain for a month after operation without producing the slightest disturbance. Can it do any good? It certainly can do a great deal of good in many ways. It insures the quickest possible union. It enables the patient to get up more safely on the following day, and thus helps to prevent postoperative mania. It also enables the patient to leave the hospital a week earlier than would otherwise be judicious. I would say that there is one objection to the mattress suture. It means four introductions of the needle instead of two, and the tying of a mattress suture causes more puckering than in the method of Barraquer. The procedure that I use is to make a moderately long conjunctival flap. If one makes it too long, it places the line of incision too high underneath the lid. I do not like to have the threads in my way during the extraction of the lens. I generally prefer to insert the sutures at a later stage, because I want the eye free of threads when making the incision and extracting the lens. The suture is introduced through the lower conjunctival flap from without inward, and then passed through the upper conjunctival flap from within outward. If one happens to have a broad flap, there is no objection to introducing an additional suture. When I have reason to apprehend vitreous loss, I introduce the sutures before the extraction of the lens.

DR. KASPAR PISCHEL, San Francisco: I should like to confirm the advantages of paralyzing the orbicularis muscle before cataract operations. I saw this method first three years ago at Axenfeld's clinic. He showed me the article by Rochat of Groningen, Holland, who had described this method as akinesia. Since then, it has become so popular abroad that when I was in Vienna last month akinesia was the routine preparation for all cataract operations at Dimmer's and Meller's clinics. For sutures I would suggest a material that will not scratch and will be absorbed in a few days. Such a material is furnished by rat-tail tendons. I have been using them for years in all conjunctival wounds.

DR. DORLAND SMITH, Bridgeport, Conn.: Statistics are always interesting, and often valuable, if we remember that there are many unavoidable sources of error and do not, therefore, take our statistics too seriously. The statistics presented in these papers offer a good illustration of this. The miserable conditions under which Meller had to operate seem to make his success the more remarkable, but there is one real exception to this which is apparent when we think a moment. His patients were grossly undernourished, and on that account there must have been a predominance of sunken eyeballs; and

we all know that a sunken eyeball is much less likely to lose vitreous and to develop iris prolapse or rupture of the wound than a prominent eyeball. This was an exceptionally favorable circumstance in this series of operations, and should be taken into consideration in measuring the value of the statistics. I cannot altogether agree with all of Dr. Barkan's conclusions. Of the many ways of successfully extracting cataract, Dr. Barkan has made an admirable report on one. But we must not forget the others, nor forget the fact that, however well a man may know and perform one operation, he will fail of his highest efficiency if he does not consider the possibilities of other methods of operation, or shuts his eyes to their advantages. I also want to repeat the plea made to the American Ophthalmological Society last year, that those of us who can do so with safety should make use of intracapsular methods, not in all cases, but in such cases and in only such cases as we can use them without more force than we have to use in the average von Graefe or Hess operation. And I believe that there are many such cases, if we take the trouble to learn how to pick them out.

DR. W. B. LANCASTER, Boston: Dr. Wilmer suggested that there are certain points in the operation at which different men will make different selections in formulating their technic. That is, there are several procedures that may, perhaps, be equally good. There are others, however, in which there is a great superiority in some one method. Irrigation is an important addition to the operation. The suture certainly comes under the heading of the class of procedure that some men will approve of and some men will not. It is decidedly to be rejected. It complicates and prolongs the operation, and adds comparatively little security. What does it protect against? It is said that it protects against prolapse of the vitreous. But that is a rather rare complication. I always use a large conjunctival flap, unless I make a mistake in making my incision. I do not mean extending far back, but a flap that extends all the way round. I start my incision in the conjunctiva and end it there, so that the whole wound is covered with conjunctiva. In that way I get such immediate closure that I tell the nurse to allow the patient to get up the first night, if there is any neccssity; for example, any difficulty in voiding that requires getting out of bed. It gives me a great deal of satisfaction to hear that anesthesia is strongly approved, because for a long time I have been an ardent advocate of better anesthesia. I think that that is the most important advance we have made. I think that more troubles in cataract operation come from imperfect anesthesia than from all other causes combined. I use cocain instead of procain, and inject it under the conjunctiva and not into the orbit, except in exceptional cases. I made deep injection as a routine in a series of cases eight or ten years ago, but it did not seem to be necessary, so I gave it up in favor of superficial injection. It makes considerable difference where one makes the deep injection. Dr. Derby said that it did not matter whether it was the inner or the outer side of the eyeball. I have found that if we inject deeply into the orbit along the external rectus, we frequently paralyze the external rectus muscle so that the eye rotates toward the nose. This is awkward when one makes the conical incision. Then, in order to work on it, one has to rotate the eye outward with forceps. If one injects along the internal rcctus, the eye will tend to rotate out. Furthermore, if one injects up and in so as to affect the superior and the internal recti, both, one does not have to tell the patient to look down; the eye rotates down itself and is much better under control. I do not make injection into the lids as a routine procedure. The profcssion should take into account another cause of prolapsed vitreous than the pressure of the orbicularis muscle, and that is, the pressure of the external ocular muscles. In some cases when the lids are held entirely away from the eyeball, but when the patient makes a squeezing motion, the eyeball recedes perceptibly into the orbit. In fact, many years ago Donders and others, studying the position of the eyeball in the orbit, showed that when the eye is closed, the eye recedes into the orbit.

DR. RODERIC O'CONNOR, San Francisco: The most important thing in cataract work is to know how the patient is going to behave when one comes to extraction, and I do not think one can know that unless one has done a preliminary operation of some kind. It is easy to think that patients are going to behave, but they fool one sometimes. I like a preliminary iridectomy, although in some cases I have performed a preliminary iridectomy according to Curran. In that way I get the effect of the Chandler operation and know what the patient is going to do. At the same time, I can regulate the size of the opening. I use an exceedingly useful precaution, and that is a stitch in the center of the upper lid, leaving an end 2 inches long. This helps a great dcal as a tractor both in closing the lids and in the dressings. Another stitch I use below the cornea to keep the patient from looking down, thus lessening gaping of the wound. As to using a sharp knife, in my work in the Philippines I learned how to sharpen my own knives so that they really are sharp, and frequently I use the same knife for years. When time is important, a preparatory capsulotomy in the morning and extraction in the afternoon will allow one to finish the entire operation in a much shorter time than doing it all at once.

DR. ANDREW TIMBERMAN, Columbus, Ohio: We say that our ideals are reached; but have we an ideal in the cataract operation, and if so what is it? Are we to be satisfied with anything less than that ideal? If we were to put it to a vote we would all say that the ideal way to extract a cataract is in the capsule. It is only a question of whether it is safer to leave a part of the capsule in, or whether it is safer and better to extract the cataract in its capsule. I think the majority of us would say that the extraction not within the capsule for us today is the safer operation; but I voice the sentiment expressed here a few moments ago when I say that I think we shall have come to a sad day if the members of this profession and of this section give up the ideal of extracting the cataract within the capsule. We attempt with every device to make our operations safe, but I am quite certain we shall make a mistake if we do not pursue the different methods offered to us and try them—try to reach that perfection of technic which will prepare each one of us as members of our profession to do that operation, whether the operation according to Hess, as described in Dr. Derby's paper, whether the operation as done by Smith, or the operation performed by Barraquer.

DR. W. H. WILDER, Chicago: Dr. Derby's paper is valuable because it brings to our attention a means of making the cataract extraction a safer procedure, whatever method of operation may be employed. I have used this method of controlling the action of the orbicularis for two years or more, ever since I heard of it from Van Lint of Holland, to whom I think the credit belongs for first introducing it. I have found it eminently satisfactory, and practice it as a routine measure. I also combine it with the method of deep anesthesia. I do not know that Gallemaertz first suggested that method, but he advocates it—injecting deeply with a hypodermic needle, 3.5 cm. long, from 1 to 2 c.c. of 2 per cent. procain solution around the ciliary ganglion. If it is placed along some of the straight muscles, it blocks them so that the patient is quite powerless to look down or up or sidewise, according to the muscle that is blocked. But I feel certain from my own experience that it is of distinct benefit and has helped me grcatly. We all know how frequently there is loss of vitreous if the patient gets a chance—he needs only one chance, and that lasting but a fraction of a second—to squeeze down on the speculum. Blocking of the orbicularis muscle is of very distinct advantage, and any one who tries it (it is a simple procedure) will observe that the patient has very much less control of this muscle than he had before the injection.

DR. WILLIAM ZENTMAYER, Philadelphia: Occasionally after such injections, an embarrassing complication follows. When one uses the speculum, it may not hold very securely, and is apt to fall out.

DR. ALLEN GREENWOOD, Boston: May I suggest that the proper placing of the sutures does not materially disturb the operative procedure. I have proved that to my own satisfaction. If one lays the threads to one side, one does not notice them again until one is ready to use them. Properly placed sutures also lessen the amount of postoperative astigmatism.

DR. HANS BARKAN, San Francisco: Dr. Smith spoke of the sunken eyeball. It is true that cases of that sort have a certain advantage; but when the eyeballs are too much sunken, they are a disadvantage. These sunken eyeballs are the kind found in patients who die of long continued malignant disease. The eyeballs are so far back that one can scarcely get the knife in and get the iridectomy forceps behind the lids. Dr. Lancaster spoke of the operation being called the Chandler operation. He is absolutely right. Chandler was the first man to do that type of operating. I called it the Hess operation in this particular paper because it is known as the Hess operation in the clinics of Europe where this work was done, and is called that to distinguish it from the complete iridectomies that Meller did. Dr. Lancaster also spoke of the use of the shovel being a part of the Hess operation, which is true; but it is not used in Vienna. During the last two years my brother and I have used the shovel, and it is amazing to see what a mass of cortex can be brought out by the Hess shovel. Statistics in the paper show that there was comparatively little vitreous lost, and I know that there was comparatively little squeezing, and that gives us a good deal of the vitreous loss. I think that the squeezing comes at the time we have the speculum in and when it comes out. If one operates without a speculum, with the assistant holding the lids with his thumbs, one has very little squeezing indeed. I think that with that precedure I could answer Dr. O'Connor's question as to how patients will behave. They will behave well, provided a speculum is not used.

DR. GEORGE S. DERBY, Boston: I am not sure that I have explained clearly how this suture is inserted. It gives a much firmer union than any additional stitch can give. We have all seen large conjunctival flaps, subsequent prolapse, and a bead of vitreous under the conjunctival flap. That cannot occur with this suture, which clamps the small conjunctival flap down on the sclera. In regard to Dr. Maghy's remarks about the dislocation of the lens in old and young people, I think Knapp brings out very thoroughly that it is easier to dislocate the lens in older people. We see a certain amount of faulty apposition of the wound surfaces when the mattress suture is not exactly put in place, but that all disappears by the second day. The astigmatism is decidedly less in these cases. In regard to what Dr. Lancaster said about not using sutures becauses he seldom sees the escape of vitreous, even if it happens very infrequently, I do think it is a great advantage to put in these sutures. Another advantage of putting in the sutures is that it is a preliminary procedure, and one can often tell from it how the patient will behave during the operation, and take subsequent precautions.

[NOTE.—See also letter by Lieut. Col. Henry Smith, under Correspondence, this issue.—ED.]

Spread of Venereal Disease in Siam by Plural Marriages.—The system of plural marriages, combined with the simplicity of divoree that prevails in most Far Eastern countries, is beyond doubt one of the most important agents in the spread of these diseases. This can hardly be considered with a view to any change. It is hardly the province of a public health officer to dictate the matrimonial policy of a country. It would most certainly be highly impolitic to attempt so to do. Under existing conditions it is, of course, possible for an infected man to injure any number of virtuous females who, under a system of monogamy, would in all probability escape such injury. It must be admitted that the marital state of the better class Eastern female is, perhaps, considerably improved over that of years gone by. There is a growing tendency on the part of the more modern Eastern man to limit his number of wives and to accord them greater personal freedom than heretofore. The low class female is no better off than she was a thousand years ago, and she is extremely fortunate who, as the result of her physical attraction, becomes an unofficial member of the family of a wealthy and more or less considerate personage. As to the unmorality of the lower classes, suffice it to state that it will take considerable more time, money and energy than any of the existing social organizations are spending before the average native will be convinced of the error of his ways.—R. W. Mendelson: *Am. J. Pub. Health* **13**:828 (Oct.) 1923.

SOME OBSERVATIONS ON IRIDOTASIS IN THE TREATMENT OF GLAUCOMA *

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The number of methods of treatment of glaucoma seems to be proportionate to the number of theories advanced as to the causation of the condition.

Uncertain as is our present knowledge of the pathogenesis of this singular eye trouble that we call glaucoma, it is little wonder that in attacking it we aim at its most prominent feature, increased intraocular pressure.

We may feel that if we have by some means succeeded in reducing this increased pressure, even for a considerable period, we have restored the eye to a normal condition; but such an impression is in many instances far from the truth, as everyone with much experience must have observed.

The conditions that operated to bring about the increased intraocular pressure may insidiously continue to affect the eye, even if the pressure is lowered by operation, and may be manifested by changes in the lens, the uveal tract, optic nerve and retina that ultimately destroy the sight. Such miscarriage in our treatment is probably seen more frequently in cases of noncongestive or simple glaucoma than in those of congestive, or the acute type, whose tension has been successfully lowered by operation at an opportune time.

Nevertheless, the immediate danger that we seem called on to combat is the continued increased intraocular pressure, and at the present time our therapy seems to be most deeply concerned with its reduction. But our methods of examination are more or less uncertain, and often we cannot feel sure that increased intraocular pressure exists. Again, we often cannot say that a tonometric reading is normal or abnormal. What may be normal for the eye of one person may be abnormal for that of another. This applies to cases of noncongestive or chronic glaucoma, those of the congestive or acute type being in a class about which there would be no uncertainty as to the abnormality of the tension.

The congestive type of cases, according to our present views, present positive enough indication for operative interference, and in these there can be no doubt of the value of operations. We all recognize the debt owed to Von Graefe, De Wecker and other pioneers in the treatment of acute glaucoma by iridectomy. But in the noncongestive cases, the indications for operative treatment are not so clear, and more careful examination is frequently necessary to determine whether operation is the wisest procedure.

Careful observation and record of the intraocular pressure as determined by the tonometer, its variations after use of miotics or mild mydriatics, careful charting of the visual fields, study of the region around the blind spot to determine central or paracentral scotoma, etc., are all necessary in order to discover the early stages of a so-called simple glaucoma.

What will guide us in determining whether or not operative treatment should be employed in early cases of noncongestive glaucoma in which tension is at no time very high? This question has formed the subject of many interesting discussions by ophthalmologists.

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* Read before the Section on Ophthalmology at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

We seem to be a little more ready with an answer in recent years, since the introduction of more accurate tests for tension, the more careful study of the changes in the visual fields, particularly those in the central fields, and the modern operations that seem to offer more hope of success in this class of cases than does the time honored iridectomy, which is so valuable in the acute congestive form. It is my practice to resort to operation if the continued and reasonable use of miotics fails to keep the tension well within normal limits, or fails to hold in check the contracting visual fields, even if the central vision is normal.

The purpose of this paper is not to discuss the general subject of glaucoma, or methods of examination to detect it, but to present the results of its treatment in a small number of cases, by a certain method of operation that I think has not been very generally tried out, in this country at least, largely, I suspect, because of a certain prejudice or rather a feeling that it defies some of our cherished traditions in regard to the vulnerability of the iris.

When we consider the great variety of operations that have been proposed and practiced with varying results for simple noncongestive glaucoma, we realize the uncertainty of our operative therapy and the fact that the ideal operation has not yet been devised. Iridectomy, so valuable in recent congestive cases with a shallow anterior chamber, fails frequently in the mild noncongestive cases, unless from imperfect technic or some accident a cystoid scar results.

The observation that low tension frequently followed after badly performed iridectomies in which part of the iris remained attached to the wound, thus resulting in a cystoid cicatrix, prompted certain operators, Schlösser,[1] Herbert,[2] Holth[3] and Borthen,[4] to endeavor to bring about incarceration of the iris in a wound at the limbus under proper antiseptic precautions and in such a way that the prolapsed iris would be subconjunctival.

All of these operators claimed to get good results with their methods. Holth claimed that in his first series of forty-five cases of iridencleisis, 85 per cent. had good drainage and normal tension, and in a later series of eighty-seven operations, he reported that there were no bad results, and 86 per cent. of successfully filtering scars.

Borthen[4] varied the operative technic of Holth by a method which he called iridotasis, in which he performed no iridotomy nor iridectomy, but merely placed a small part of the iris beneath a flap of the conjunctiva. With this method, he performed fifty operations and obtained excellent results so far as drainage was concerned. Later,[5] he described a slight change in technic, consisting chiefly in an enlargement of the conjunctival flap, and excision of a small piece of iris, not including the sphincter.

Borthen thinks that the slight traction on the iris as it is drawn into the wound tends to draw the iris away from the cornea at points distant from the incision, and thus frees the iridocorneal angle. This suggested the name iridotasis.

My interest was aroused in this procedure years ago by the favorable comments of Harrower[6] and Roy,[7] who have used it in cases of glaucoma, with marked success. Since then, I have made use of it in a number of cases, and must admit, in spite of the prejudice I had against it at first because of cherished pathologic opinions about the tenderness of the iris, that it is an operation of merit if properly performed, and, so far as my experience allows me to judge, is no more dangerous than any other operation for glaucoma, and not as dangerous as some.

1. Schlösser, in Elschnig: Augenarztliche Operations-Lehre **1**: 894, 1922.
2. Herbert: Tr. Ophth. Soc. U. Kingdom **23**, 1903.
3. Holth: Ann. d'ocul. **137** (May) 1907; **142** (July) 1909.
4. Borthen: Arch. f. Augenh. **65**, 1909; **68**, 1911.
5. Borthen: Arch. f. Augenh. **69**, 1911.
6. Harrower, D.: Tr. Amer. Ophth. Soc., 1912; 1913; Arch. Ophth. **47**: 37 (Jan.) 1918.
7. Roy, Dunbar: Ophth. Rec. **25**: 129 (March) 1916; Late Infection Following Iridotasis, Arch. Ophth. **47**: 42 (Jan.) 1918.

TECHNIC

With slight differences, the technic that I employ is that described by Borthen. The same scrupulous antiseptic precautions are observed as in any operation in which the eyeball is entered.

Local anesthesia with 4 per cent. cocain solution is usually sufficient.

The conjunctiva is seized with small toothed forceps, high above the limbus and cut horizontally with Stevens scissors as in making the conjunctival flap for an Elliot trephining. The cut need not be made very long and should not extend too far down the sides; for a thick flap and one that will lie easily in place afterward without a suture is desired. With closed scissors as a dissector, or with a special blunt dissector, the middle portion only of the flap is separated from the sclera down to the limbus, which is easily reached. Care should be taken not to buttonhole the flap, and not to break up any more of the submucous tissue than is necessary to expose about 4 or 5 mm. of the limbus. The preparation of the flap differs from that described by Borthen, who prefers to make it narrower.

The limbus, having been reached, the eye is held downward with a fixation forceps by an assistant, while the operator, holding up the conjunctival flap with forceps so that he can see the place of entrance for his knife, passes the point of a keratome 1 mm. from the edge of the cornea into the anterior chamber only far enough to make an incision 4 mm. long. For this purpose, Borthen uses a special knife having a shoulder, so that it cannot penetrate beyond a certain point. The same precaution as to the direction of the keratome is to be observed as when making an iridectomy, only in this instance the knife does not enter the chamber very far, and in withdrawing it, the point of the knife should be turned forward toward the back of the cornea, so that the lens may not come in contact with it as the aqueous gushes out.

Through the small wound, with very delicate iris forceps, introduced closed, the iris is seized at its pupil margin and gently drawn into the wound, the operator making sure that its black, posterior pigment layer surface is exposed to view; in other words, that portion of the iris is turned over.

In order to insure this, if the iris prolapses on withdrawal of the knife, it may be replaced gently with an iris spatula so that it can be seized exactly at the pupil margin, and then brought out as desired. The iris must not be pulled too strongly with the idea of getting a large prolapse, as this will make such a small pupil that it may be covered by the eyelid.

If the cut is too long, the iris may slip back, but this is not likely to happen with a 4 or 5 mm. opening. Borthen recommends the use of atropin before the operation, so that the paralysis of the sphincter iridis will prevent a contraction and replacement of the iris. I have not followed this plan, as the iris after employment of atropin becomes thicker; and it seems more difficult to make the incision and accurately to seize the iris.

Immediately after the iris is properly in the wound, the conjunctival flap is replaced, and if properly made usually requires no sutures. If it shows a tendency to fall down, a small central suture will secure it.

Only the eye operated on is bandaged. Atropin is used the following day, and the patient allowed to sit up at the end of the second or third day. If the operation has been successful, more or less pronounced edema of the conjunctiva is observed when the eye is dressed on the day after the operation.

In the cases reported herewith in abstract, a careful study was made of the vision, fields, both central and peripheral, ranges of tension as shown by the Schiötz tonometer [8] before and after the use of miotics, appearance of optic disk, etc.

Unfortunately, it has been impossible to get recent reports, or to make recent examinations on all of the patients, and in some instances it has been necessary to take merely the report of the patient himself as to the condition of his eye.

REPORT OF CASES

CASE 1.—*Single operation.* E. G., a woman, aged 27, seen, April 27, 1914, with right vision 20/15 +, left 0, tension, right, 22 mm., left 50 mm., suffered from congestive glaucoma of the left eye, secondary to uveitis. An iridotasis was performed, Nov. 15, 1915, on the left eye, with good results. Congestion had almost disappeared within twelve days after the operation. One month later, the tension went up to 47 mm., and there was a large bleb (due to improper draining away into the surrounding subconjunctival tissue) at the site of operation. Pilocarpin was ordered. When seen seven months later, the eye was quiet and tension normal. Seven years later, the tension was: right, 22 mm., left, 24 mm.

CASE 2.—*Double operation.* P. Z., a woman, aged 55, seen, Nov. 27, 1915, had a congestive glaucoma of each eye. Vision was: right, 20/50, left, 20/100; tension, right, 15, left, 70 (a few days later, right 55). Iridotasis was performed on the left eye, November 29, with good result. A few days later, right vision was reduced and tension was very high. A posterior sclerotomy was performed on the right eye, December 6, and two weeks later an iridotasis was performed, with good results. Three months later, the right vision was 20/40, tension, 20 mm.; the left vision was 20/30, and tension, 25 mm.

CASE 3.—*Single operation.* Dr. J. T. M., a man, aged 53, seen, Dec. 20, 1915, had a noncongestive glaucoma of the right eye. The sight was limited to perception of hand movements; the field was much contracted. Left vision was 20/20 —; tension, right, 62 mm., left, 27 mm. An iridotasis was performed on the right eye, December 27, with good result. One week later, the tension was from 15 to 18 mm.

CASE 4.—*Single operation.* W. H. S., a woman, aged 62, first seen, March 29, 1907, was seen a second time, Feb. 2, 1917, this time with a congestive glaucoma of the right eye and a noncongestive of the left. The right vision was reduced to perception of fingers at 6 feet, the result, in part, of an old choroiditis. The left vision was 20/40, with moderate contraction of the fields. The tension was 90 mm., right. February 5, I trephined the right eye, and did an iridotasis on the left. Five weeks later, the tension was: right, 27 mm., left, 18 mm. Two years later, right tension was 22 mm., left, 15 mm. A recent report says the eyes do not bother her.

CASE 5.—*Double operation.* J. L. W., a woman, aged 72, seen for the first time, Aug. 28, 1917, when the right vision was limited to perception of fingers at 6 inches, and left vision was 15/200, with field much contracted, and the tension in each eye was 45 mm., underwent a double iridotasis, September 3. The reaction was slight. Nine months after the operation, the tension was, right, 10 mm., left, 22 mm. The left iris had pulled out of the wound somewhat, and a cataract had developed. No recent report has been received.

8. Tension is that with the Schiötz tonometer unless otherwise stated.

CASE 6.—*Single operation.* F. A. H., a man, aged 62, seen, April 4, 1918, had a double noncongestive glaucoma. Vision was: right, 20/40, left, 0; tension, right, 23, left, 20. A few days later, right and left tension was 35. April 28, an iridotasis was done on the right eye with good results. The reaction was slight. Nearly five years later, the right vision was 20/50; the field was much contracted and tension was 30 mm. The nerve head was quite pale.

CASE 7.—*Single operation.* M. P., a woman, aged 78, seen, May 24, 1918, whose condition was diagnosed double noncongestive glaucoma, was able to perceive hand movements with the right eye; with the left, fingers at 10 feet (cataract). Tension was: right, 60 mm., left, 28 mm. May 27, I did an iridotasis on the right eye, and an iridectomy on the left. The reaction was slight. Two years later, right and left tension was 15 mm. The cataract was removed from the left eye, after which the left vision was 20/200, vitreous opacities were present. A report in January, 1923, says the patient has no trouble with the right eye and still sees with the left.

CASE 8.—*Single operation.* H. H. L., a man, aged 77, with a simple noncongestive glaucoma of the right eye, was seen, Sept. 28, 1918, at which time vision was: right eye perception of light; left, 20/50 (incipient cataract, left eye). Tension was: right eye, 70 mm., left, 20 mm. An iridotasis was done on the right eye with good result, tension being reduced to 15 mm. A letter received four and one-half years after operation says that the eye remains normal in tension.

CASE 9.—*Single operation.* F. W. L., a woman, aged 51, a patient for many years, for whom, in 1907, I did an iridectomy on the right eye for simple glaucoma, had a tension remaining low for years, but there was a gradual loss of vision. The blood pressure has been rather high, sometimes around 200. Jan. 14, 1917, she was found to have a noncongestive glaucoma of the left eye. At that time, the right vision was 0, left, 20/20, with contracted fields; tension, right, 60 mm., left, 55 mm. Oct. 4, 1918, I did an iridotasis on the left eye. There was a slight hemorrhage into the anterior chamber at the time of the operation, but this cleared up very shortly and the tension came down to 25 mm.; later to 20 mm. Nearly four years later, the vision was 20/30 and tension, 15 mm. There was no improvement in the fields. A rather large bleb was still present over site of operation.

CASE 10.—*Single operation.* F. D., a woman, aged 72, seen, Nov. 12, 1918, suffered from an acute congestive glaucoma of the right eye. At that time the vision was: right, hand movements; left, 20/30; tension, right, 90 mm., left, 20 mm. November 25, I did an iridotasis on the right eye, with good result. Four months later, the tension was 25 mm. Vision continued the same. A large cystoid scar lies over the operative field. There has been no recent report.

CASE 11.—*Single operation.* J. W., a woman, aged 59, had a noncongestive glaucoma of the left eye when seen, Dec. 9, 1918. The vision was: right, 20/20, left, 20/100, with contracted fields; tension, right, 27 mm., left, 70 mm. December 26, I performed an iridotasis on the left eye. The reaction was slight. Four months later, the left vision was 20/70; left tension, 18 mm. One year after operation, the left vision was 20/100; tension, 14 mm.; field, same. There was a large bleb at the operative site. No recent report of the patient's condition has been received.

CASE 12.—*Double operation.* W. F., a man, aged 35, seen, Dec. 11, 1918, suffered with double noncongestive glaucoma. The vision was: right, 20/200, and field much contracted; left, 20/50, and field moderately contracted. The tension was: right, 60 mm., left, 45 mm. Jan. 3, 1919, I operated on the right eye and, January 9, on the left eye, an iridotasis in both cases, with good result. Two months later, the right vision was: 20/50; left, 20/30. Tension kept within normal limits. March 5, 1923, right vision was 20/200, left, 20/50; tension, right, 24 mm., left, 26 mm.

CASE 13.—*Single operation.* G. W. S., a man, aged 67, with a noncongestive glaucoma of the right eye, was seen, Dec. 12, 1918. His left eye had been removed. Vision was 20/100, the field contracted. The tension, right, was 40 mm. Feb. 13, 1919, I did an iridotasis on the right eye, with good result.

Two weeks later, the left vision was 20/50, and tension, 19 mm. He has not reported since. A letter report, in April, 1923, says he still has fair vision and no trouble.

Case 14.—*Double operation.* E. R., a woman, aged 56, seen, Feb. 11, 1919, had a double congestive glaucoma, with vision in the right eye, 0; in the left, perception of fingers at 3 feet. Tension was: right, 60 mm., left, 65 mm. I did an iridotasis on each eye, Feb. 17, 1919, with good result, but slightly more reaction than usual. The tension remained normal and the vision of the left eye improved to 20/50. Ten months after operation, right vision was limited to the perception of shadows; left vision was 20/50. Tension was: right, 20 mm., left 15 mm.

Case 15.—*Double operation.* G. R., a woman, aged 64, seen, Sept. 13, 1919, had noncongestive glaucoma in each eye, had a vision in the right eye limited to perception of fingers at 2 feet, in a small island in the lower outer quadrant. Vision of the left eye, 20/30, with good field and the blind spot very slightly enlarged. Tension was: right, 47 mm., left, 27 mm. September 26, an iridotasis was done on the right eye with good result and slight reaction; but tension two months later was 40 mm. November 20, iridotasis was done on the left eye with good result, very little reaction, and tension, two weeks later, 15 mm. Three years later, the left field was still good, and tension remained low: right, 22 mm., left, 18 mm., but the central vision fell to 15/200, because of a cataract. This has not yet been removed.

Case 16.—*Double operation.* J. C., a man, aged 62, had a noncongestive glaucoma of each eye when seen, Nov. 10, 1919. The right vision was 0, the left, 20/50, and the fields were contracted. Tension was: right, 60 mm., left 44 mm. An iridotasis was done on each eye, Nov. 11, 1919, with good result, the reaction being slight. One week after operation, the tension was: right, 10 mm., left, 20 mm. Three weeks after operation, the right vision was limited to perception of light; left, 20/50. Tension each eye was 20 mm. Dr. Johnston of Portland, Ore., who referred the case, writes, March 23, 1923, that right vision is limited to perception of light; left vision is 20/40. Tension is: right, 11 mm., left, 13 mm., and is sometimes as low as 8 mm.

Case 17.—*Single operation.* J. W. B., a woman, first seen in 1905, at the age of 46, when she had absolute glaucoma of the right eye; tension, +3; vision, 0 (left, 20/30), six weeks later had the right eye enucleated. Fourteen years later, she returned with a noncongestive glaucoma of the left eye. The vision was 20/70, and tension, 50 to 55 mm. Six weeks later (Nov. 20, 1919), an iridotasis was done on the eye, with good result and slight reaction. The result was good for fifteen months, when a violent panophthalmitis developed, which she said started at the site of the iridotasis. It was of several days' duration when seen by me, and did not yield to treatment; evisceration was performed, enucleation being regarded as dangerous, and a specimen was not obtained. The infection was streptococcic.

Case 18.—*Single operation.* A. M., a woman, aged 64, seen, Nov. 3, 1919, had a noncongestive absolute glaucoma of the right eye. The vision was: right, 0; left, 20/70. Tension was: right, 60 mm., left, 20 mm. I did an iridotasis on the right eye, November 24, with good result, but considerable reaction. The tension was somewhat reduced. Six months later, the tension was: right, 40 mm., left, 24 mm. There has been no recent report.

Case 19.—*Double operation.* C. W., a woman, aged 49, had a noncongestive glaucoma of each eye. When seen, Nov. 20, 1919, the central vision was: right, 20/50, left, 20/70. Both fields were contracted, the left a little more than the right. The tension was: right, 60 mm., left, 80 mm. An iridotasis was done on the right eye, December 8, and on the left eye one week later. The result was good; the reaction, slight. Two weeks later, the tension was: right, 17 mm., left, 18 mm. In the right eye, the iris partly slipped back. Over three years after the operation, right vision is 20/40, left, 20/50; and tension is 12 mm. in each eye.

Case 20.—*Single operation.* N. M., a man, aged 60, whose condition was diagnosed acute congestive glaucoma of the right eye, Nov. 29, 1919, had a right vision limited to perception of hand movements, and a left vision of 20/20. Tension was: right, 70 mm., left, 17 mm. Dec. 11, 1919, iridotasis was performed on the right eye, with good result. The tension fell to 12 mm. after the operation. A letter received over three years later says that the tension has remained normal since the operation, and there is some vision (amount not stated). The left eye remains well.

Case 21.—*Double operation.* H. J. G., a man, aged 55, having double noncongestive glaucoma, was seen by me, Dec. 9, 1919, at which time the vision was: right, 20/30, left, 20/50, with the fields much contracted in each eye. The tension was: right, 60 mm., left, 65 mm. After the use of myotics, the right was 34 mm., the left, 35 mm. December 31, I did an iridotasis on the left eye, and a week later on the right eye. The result was good; the reaction, slight. One month after the operation, the tension was: right, 20 mm., left, 15 mm. The tension has remained low, and the fields have been fairly well retained. Three years after the operation, the right vision is 20/30; the right tension, 10 mm., the left, 22 mm.

Case 22.—*Single operation.* E. A., a woman, aged 67, seen, Jan. 14, 1920, had a noncongestive glaucoma of the left eye. Vision was: right, 20/30, left, 15/200, with the left field much contracted. The tension was: right, 18 mm., left, 47 mm., which was reduced by myotics to 30 mm. January 26, I did an iridotasis on the left eye. The reaction was slight; the result, good. Tension became normal. Five months later, the left vision was 20/200. Since then, because of lenticular haze, the vision has fallen to perception of fingers at 8 feet. The tension remains low: right, 15 mm., left, 16 mm.

Case 23.—*Single operation.* E. J. W., a man, aged 64, seen, Feb. 24, 1920, had a noncongestive glaucoma of each eye. At that time, the vision was: right, 20/40. The fields of each eye were contracted. Tension was: right, 42 mm., left, 45 mm. An iridotasis was done on the right eye, March 25, with good result. Tension became normal. Two months later, right vision was 20/30, left, 20/30; tension, right, 14 mm., left, 45 mm. June 28, I did a trephining of the left eye. Tension became quite low (8 mm.), persisting so for some time. Over three years later, April 9, 1923, a letter from Dr. C. E. Smith of DeKalb says that the right vision is 15/50, the left, 15/30; the right tension, 13 mm., the left, 6 mm.

Case 24.—*Single operation.* E. G. B., a man, aged 40, who had a myopia of 10 diopters, a posterior staphyloma, rather advanced choroidal changes and a congestive glaucoma, was seen, April 2, 1920. The vision was: right, 11/200, with the field half its normal size, and the blind spot twice its normal size; left, 0 (due to an old metastatic (?) choroiditis). The tension was: right, 50 mm., left, 20 mm. April 13, an iridotasis was done on the right eye. The result was good; the reaction very slight. Four months later, the tension was 17 mm. At this time the left eye was enucleated. Eighteen months after iridotasis, the eye was unchanged. The tension was 22 mm. Thirty months after operation, there was still no change.

Case 25.—*Single operation.* J. S. A., a man, aged 47, whose condition was diagnosed as double noncongestive glaucoma, was seen, May 11, 1920, with a right vision of 20/50, left, 20/50. The fields were moderately contracted, the left more than the right. Tension, right and left, was 57 mm. each. June 7, an iridotasis was done on the left eye, with good results. The tension became normal and remained from 17 to 20 till the patient was last seen, two and one-half years later. The right eye was trephined, September 17, and its tension came down and has remained same as the left. When the patient was last seen, in January, 1923, the right vision was 20/40, the left, 20/50; tension, right, 18 mm., left, 18 mm.

Case 26.—*Single operation.* I. R., a man, aged 58, whose condition was diagnosed as right congestive glaucoma and left anophthalmos (old absolute glaucoma), and whose vision was 20/100 and tension 47 mm., when seen, July 27, 1920, underwent iridotasis, August 25. The result was good, the reaction very slight; but gradually, although the tension has

never been above 17 or 18 mm. in the last two and one-half years, the vision has fallen to 15/200. Feb. 24, 1923, the tension was 17 mm.

CASE 27.—*Double operation.* J. A. L., a woman, aged 62, with double noncongestive glaucoma, Sept. 30, 1920, had a right vision of 2/200, left, 20/30; tension, right, 40 mm., left, 35 mm. October 19, an iridotasis was done on the right eye, and three days later on the left. In each case, the result was good, and reaction very slight. Two weeks later, the tension was: right, 14 mm., left, 12 mm. Three months after operation, the right vision was 2/200, the left, 20/30; tension, right, 16 mm., left, 14 mm.

CASE 28.—*Double operation.* G. S. S., a man, aged 65, who had double noncongestive glaucoma, when seen, Jan. 18, 1921, with a right vision of 20/20, left, 20/70, with right field contracted and left field much contracted, and tension, right, 31 mm., left, 33 mm., underwent iridotasis of the left eye, January 22. The iris was fragile, and some blood escaped into the anterior chamber. The eye cleared quickly and vision soon returned to 20/20. Two years later, vision was 20/40, and tension, 15 mm. Dec. 12, 1921, an iridotasis was done on the right eye, and a similar fragile iris was found and blood oozed into anterior chamber. One month later, the eye was cleared, and the vision was 20/20; the tension, 24 mm. Three months later, this tension went up to 40 mm., and an iridectomy was done. One year later, the right vision was 20/30, and tension, 19 mm.

CASE 29.—*Double operation.* G. E. P., a man, aged 54, with a double noncongestive glaucoma, who was seen, Feb. 10, 1921, had a right vision of 20/50, left, 20/30. There was a scotoma coming very close to the fixation point in each eye. Tension was: right, 38 mm., left, 40 mm. Iridotasis was done on the right eye, February 14, and on the left, four days later. The result in the right eye was good, and in the left eye, good, except for some blood which escaped into the anterior chamber. This was absorbed in ten days, but there was slight reaction during this time. One month later, the right vision was 20/40, left, 20/40 +. Tension on the right was 15 mm., the left, 22 mm. Fifteen months later, the right vision was 20/50, the left, 20/50 —; the tension, left and right, 10 mm.

CASE 30.—*Single operation.* J. J. D., a man, aged 51, had a double noncongestive glaucoma. The right eye had been operated on (iridectomy) three years before. Feb. 13, 1922, the right vision was limited to perception of light only, the left was 20/40, with the field much contracted. Tension was: right, 47 mm., left, 55 mm. April 18, an iridotasis was done on the left eye, with good result, and very slight reaction. Three weeks later, the right tension was 26 mm. (pilocarpin pushed). The left tension was 10 mm.; left vision, 20/50 —. Ten months later, the left vision was 20/70, and tension normal, 18 mm.

CASE 31.—*Single operation.* D. E. R., a man, aged 63, who had a double noncongestive glaucoma (previous iridectomy of the left eye, in March, 1922), was first seen, May 5, 1922. Vision was: right, 20/15, left, 20/200; tension, right, 45, left, 53. May 9, I trephined the left eye, with good result, and two weeks later, performed an iridotasis on the right eye, with good result and very slight reaction. One month later, the right vision was 20/15, the left, 20/120; tension, right, 20 mm., left, 15 mm. Six months later, the tension remained normal in each eye.

CASE 32.—*Single operation.* W. H. S., a man, aged 71, seen, Dec. 5, 1921, with left noncongestive glaucoma, had no vision in the right eye, from optic atrophy. Vision in the left eye was limited to hand movements in the temporal field only. Tension was: right, 25 mm., left, 44 mm. May 11, 1922, an iridotasis was done on the left eye. The conjunctival flap was thin, and in healing lay quite flat; but gave good drainage, with slight reaction. One month later, tension was: right, 26 mm., left, 24 mm. There is no late report.

CASE 33.—*Double operation.* S. B. P., a woman, aged 61, had a double noncongestive glaucoma (absolute in the right eye). Vision, May 16, 1922, was: right, perception of fingers at 6 inches; left, 20/20 —. Tension was: right, 40 mm., left, from 25 to 27 mm. May 26, iridotasis was done on the left eye, and, June 5, on the right eye, with good result and slight reaction. One week later, the right vision was limited to perception of fingers at 6 inches; left vision was 20/30 —. Tension was: right, 12 mm., left, 13 mm. August 31, a report from Dr. Dorsey, Wichita, says that the right vision is limited to perception of light; tension is 35 mm. (McLean); left vision is 20/30; tension, 25 mm. (McLean).

CASE 34.—*Single operation.* T. D., a woman, aged 66, seen, July 29, 1920, with double noncongestive glaucoma, had a right vision of 20/30, with field contracted; left, 20/120, and field much contracted. Tension was: right, 30 mm., left, 40 mm. Oct. 31, 1922, an iridotasis was done on the left eye, with good result and slight reaction. Tension fell to 17 mm., and subsequently (six months later) to 12 mm. Vision also fell to 8/200. The right eye has remained unchanged. March 10, 1923, the right tension was 26 mm., left, 11 mm.

CASE 35.—*Single operation.* G. E. R., a man, aged 61, who had a double congestive glaucoma, Dec. 1, 1922, perceived light at times with the right eye. The left vision was 0. Tension in each eye was 100 mm. Dec. 4, iridotasis of the right and iridectomy of the left eye were performed with good result. The right eye cleared more quickly than the left, but a month later the tension in the right was 45 mm., in the left, 85 mm. Jan. 3, 1923, the right eye was trephined and the left eye enucleated.

CASE 36.—*Single operation.* N. F., a man, aged 59, had a noncongestive glaucoma of left eye, Dec. 1, 1922, the right vision was limited to light perception (old adherent leukoma due to penetrating injury many years before). The left vision was 20/30, with a large Seidel scotoma, but a good field. Tension was: right, 18 mm.; left, 60 mm. Jan. 1, 1923, iridotasis done on the left eye, with good result, and not much reaction. For a short time after the operation, there was a rather large choroidal detachment. This replaced itself in two weeks, at which time vision was 20/50, and tension, 15 mm. Three months later, a letter from Dr. Hornbogen says that the tension remains low.

SUMMARY

In this series of thirty-six cases, iridotasis was performed forty-eight times, twelve of the patients having had operations on both eyes.

Congestive Cases.—Ten of these operations were done for acute congestive glaucoma, and in seven of these the reaction following was slight, and the tension was reduced to normal.

The two operations in Case 14 were followed by some reaction, but the tension was reduced and was still normal ten months afterward.

In Case 35, a severe congestive type in an eye blind for over a month, and with a tension of 100 mm., the reaction was not as severe as in the fellow eye, also blind with high tension, on which an iridectomy was done. The tension of the eye undergoing iridotasis was reduced to 45 mm. A later trephining brought it to normal, but with no return of vision.

Tension had remained normal when last observed or heard from seven years after operation in one case; three years after in one; two and one half years in one; from ten to fourteen months in three; from three to four months in three; total, 9. Tension was not reduced in one case.

Noncongestive Cases.—Thirty-eight of the operations were done for chronic or noncongestive glaucoma, and in all of these except Case 18, the reaction following the operation was slight. In all of them the healing was uneventful, and the tension was reduced to normal or below.

In Case 18, an absolute glaucoma of the right eye, the tension was temporarily reduced, but six months later was 40 mm.

In Case 28, the tension was reduced and remained normal for one month. Three months later, the tension again rose to 40 mm., and iridectomy was done, since which time tension has remained normal.

Following four operations, there seemed to be hypotony in Cases 29 (double), 34 and 36, the tension becoming as low as 10 mm. and 11 mm.

In Case 36, the tension was not measured with the tonometer, but it seemed low by palpation, and there was detachment of the choroid, which was replaced one week after the operation. Late report says the eye is in good condition.

From reports received, there seems to be as yet no ill effects from the hypotomy noticed in the other cases.

Hypotony has persisted in one eye of Case 23, following trephining, tension at last report being 6 mm.

Tension had remained normal when last observed or heard from three years or over in seventeen cases; two years or over in three; one year or over in three; less than one year in twelve; total, 34.

Patient 17 developed panophthalmitis from probable streptococcus infection fifteen months after a successful operation, and neglected coming from the country to the hospital. All attempts to save the eye were futile, and it had to be eviscerated. The infection had apparently entered the eye through the old wound.

COMMENT

After forty-eight operations, tension was reduced for a varying time in forty-four, about 90 per cent. As to the permanence of the result, it is impossible to draw any conclusions, for the cases are not always available for further study, and reports received are frequently misleading. The patient may have poorer vision or may be blind, and still the eye may be draining well. He may still have fair vision and the tension may be increased.

When we reflect how varying are the conditions that may be present in cases of glaucoma, we appreciate how difficult it is to arrive at fair and logical conclusions as to the merits of any operation for its relief, even if we have numbers of operations, done by the same operator.

No definite standards of efficiency have ever been set for such operations, and possibly with our present knowledge cannot be. Speaking generally, ophthalmologists are probably agreed that any operation for this condition should be able to reduce the intraocular pressure to normal limits, should be reasonably simple so that the ordinarily skilful surgeon could perform it, and should expose the eye to the least possible immediate or remote danger.

It seems to me that the simplicity and ease of performance of this operation will be unquestioned by any operator who takes time to practice it. The only difficult step is the opening of the anterior chamber, which is by no means as difficult as that necessary in an ordinary iridectomy, a La Grange sclerectomy, or a trephining. The incision is so small that it is little more than a paracentesis, but it must be made with the utmost care.

As to its ability to bring about drainage of the anterior chamber, I think the accumulated experience of the men who have tried it will show that it is not lacking. Whether this drainage results from the drawing away of the root of the iris from the filtration angle, as Borthen maintains, or whether the prolapsed iris acts as a living seton along which the aqueous can escape into the subconjunctival cellular tissue are questions which await further study and solution. The study by Verhoeff[9] of an eye enucleated after iridotasis seem to show the necessity or wisdom of drawing out th iris sufficiently so that its sphincter will be out of th wound and there will be no likelihood of the anterio surface of the iris attaching to the anterior lip of th corneal wound. Such an adhesion would check th drainage desired.

As to the danger of this operation, either immediate or remote, continued experience will have to determine this.

Certainly, the immediate danger is small. The iris is not wounded, and for this reason there is less liability of hemorrhage than in any of the operations in which it is cut. This is a very important consideration in cases of hemorrhagic glaucoma, or in cases with high blood pressure, in which the iris vessels may be very fragile, as I found in some of my cases, Case 9 particularly. There is less danger of injuring the ciliary body than in trephining, cyclodialysis, or any of the sclerectomies.

The usual results observed, absence of pain, prompt reduction of tension, rapid recovery from the operation, with such very slight reaction (certainly in my experience less than that following other operations) all speak for a minimum of traumatism of the eye, compared to most other operations devised for the same purpose.

As to the remote dangers, I think many, like myself, at first hesitate to use it because of a traditional reverence for the iris and a feeling that its incarceration may spell disaster. Further experience and pathologic examination will enlighten us on this point. Late infection may occur after any operation in which the eyeball is entered.

If I were asked my preference in congestive glaucoma, I should say iridectomy, although iridotasis has served well in numbers of cases. In noncongestive cases, I can say that I think this operation has given me on the whole as good results as trephining or any of the sclerectomies, including La Grange or cyclodialysis. In certain cases, I think I should say I preferred it: viz., in those in which there is high blood pressure with indications of atheromatous blood vessels, in which there would be reason to fear that the iris vessels might be very fragile and would bleed easily with any iris cutting operation; and again in cases in which a previously performed iridectomy, trephining or La Grange operation had failed to accomplish the desired result.

It seems to me it should not be used in an eye that has a developing cataract, for the misplaced pupil and iris would add to the difficulty of the incision should a subsequent extraction be necessary.

122 South Michigan Avenue.

9. Verhoeff: Histological Findings after Iridotasis, Arch. Ophthalmol. **45**: 5, 1916.

Whole Time Local Health Officer.—The fundamental need is not for the development of numerous specialties, to be introduced into local communities independently, but for the establishment of an efficient, whole-time local health service through which the measures necessary for the benefit and protection of the public health may be conducted in logical sequence and in proper relation to one another. Until such a single definite program of local, state and federal health work is generally recognized and adopted, different agencies will continue to work at cross purposes, appropriating bodies will lack confidence and withhold support, the medical profession will be subject to constant irritation from many sources, and the general public will remain confused and skeptical.—W. S. Draper: *Public Health Rep.* **38**:2717 (Nov. 16) 1923.

INSULIN IN DIABETIC COMA, COMPLICATING PREGNANCY*

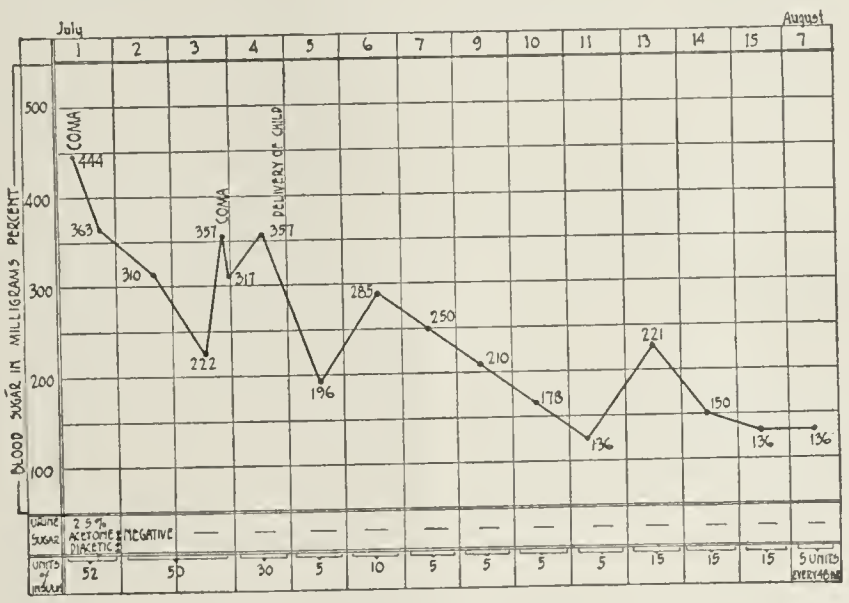
WILLIAM S. REVENO, M.D.
DETROIT

The efficacy of insulin as an antidote for diabetic oma has been sufficiently well established to prompt oslin [1] to state that "deaths from diabetic coma are nnecessary accidents that can be avoided by sensible reatment. If the patients die from coma at the present ime, it is a disgrace to the medical profession."

While the literature abounds in reports of cases of liabetic coma complicating various conditions, no nstance has been found in which a well advanced pregnancy has had to be reckoned with along with the oma. The case here reported is of interest, therefore, ecause it deals with just this sort of situation.

REPORT OF CASE

Mrs. E. F., aged 42, Syrian, housewife, mother of five children, was brought into Providence Hospital, June 30, at 1 p. m., in a semicomatose condition. Her temperature was 97.4, the pulse was very weak and thready, with a rate of 100, and respirations were rapid, shallow and difficult. The family history was negative. The patient had always been well and able to conduct her household duties until two years before, when she began to feel weak and lost weight very rapidly. She had four or five miscarriages at two to three months during the year previous and the year following the onset of her trouble. A physician whom she consulted at this time informed her that she was suffering from diabetes, but she failed to take his verdict seriously and so neglected treatment, with the result that she had been gradually losing in strength and body weight. she became pregnant again in November, 1922, and was feeling quite comfortable without any untoward symptoms—and still without treatment—until three days before her entrance into the hospital. At this time she began to feel drowsy, her thoughts were confused, and she had considerable difficulty in respiration. This condition continued unabated until seen by her physician, Dr. R. L. Fellers, June 30, when dyspnea was so marked and acidosis so evident that she was immediately sent to the hospital.



Progress of case.

I saw the patient at 8:30 a. m., July 1. She was comatose, her breathing was distinctly of the Kussmaul type, and her breath reeked of acetone. Emaciation was marked. The temperature was 95 and the pulse 110, weak and thready. The pupils were dilated, and reacted sluggishly to light. The mucous membrane of the mouth was parched, the teeth were covered with sordes, and the throat was reddened and dry. The chest was narrow; there was marked muscular atrophy, and the skin was wrinkled and parchment-like. The respiratory excursions were very shallow. There was fairly good resonance throughout. The heart was not enlarged or displaced, and the apex beat was barely palpable. Auscultation revealed no adventitious pulmonary sounds; the heart sounds were faint and rapid. No murmurs were heard. The systolic blood pressure was 108, the diastolic, 80. The abdomen was enlarged to the size of a thirty-six weeks' pregnancy; the fetus was in the right position, floating; the cervix was undilated, and the presentation was breech. Fetal movements or heart sounds could not be made out. The obstetric examination was made by Dr. Walter E. Welz.

Glucose and sodium bicarbonate in 5 per cent. solution was immediately started by rectum, and 2 units of insulin, as a desensitizing dose, was given. A blood sugar estimation at this time showed 0.444 per cent. The urine was positive for acetone and diacetic acid, and contained 2.5 per cent. sugar. At 9:10 a. m., 10 units of insulin was given intravenously. This was repeated in an hour, and again at the end of another hour. The patient had so far shown no response. A blood sugar determination taken at 11:45 a. m. showed 0.363 per cent. Accordingly, at 12:20 p. m., 20 units of insulin was given intravenously. Within ten minutes the patient began to show a marked improvement in pulse and respiration, and by 1 p. m. regained consciousness sufficiently to ask for a drink of water. She had received in all 52 units of insulin before she was brought out of coma. She was now put on 5 unit doses subcutaneously at hourly intervals, and received eleven such doses. Sodium bicarbonate in 30 grain (2 gram) doses was given every three hours, and fluids were given ad libitum. She had a rather restless night, but remained conscious throughout, sleeping at short intervals. At 9:30 a. m. the following day, the blood sugar was 0.310 per cent. She was given 25 units of insulin because she still showed slight air hunger, was very restless, and her breath had a marked acetone odor. Within an hour the patient quieted down, but only for a short while, when she again began to manifest respiratory difficulty. The temperature was still subnormal and the pulse was still rapid, weak and thready. Insulin in 5 unit hourly doses subcutaneously was again started, and by the time she had received 30 units, her respiratory embarrassment had ceased and her general condition was decidedly improved so that the interval between doses was lengthened to five hours. Since the patient manifested some signs of hunger, she was placed on a 1,000 calory diet made up according to the high fat, low protein, low carbohydrate principle set forth by Newburgh and Marsh.[2] She had a fairly comfortable night, but toward morning she became restless again. The blood sugar at 9:30 a. m. was 0.2222 per cent. The urine was negative for sugar, but showed a trace of diacetic acid. Breakfast was refused. The patient was very restless, and by 11:30 a. m. relapsed into a comatose state. She was given 30 units of insulin intravenously, and by 3 p. m. had regained consciousness. The blood sugar immediately preceding the administration of the insulin was 0.357 per cent., and within an hour after consciousness was regained it was down to 0.317 per cent. The systolic blood pressure at this time was 98, and the diastolic, 86. She took her evening meal with apparent relish and rested fairly comfortably until about midnight, when she began to have typical labor pains at twenty minute intervals. These continued until 4:35 a. m., when the interval between pains decreased to five minutes. The patient was immediately transferred to the obstetric department. From 4 p. m. of the day previous until 5 a. m., July 4, she had received 50 units of insulin subcutaneously (given in 5 to 10 unit doses at periods of from two to three hours). Despite this almost constant administration of the insulin, the blood sugar this morning was 0.357 per cent. The urine, however, was negative for sugar, acetone and diacetic acid. Insulin was now given in 10 unit doses at hourly intervals until delivery of a

* Read before the Highland Park Physicians' Society, Oct. 4, 1923.

1. Joslin, E. P.: Insulin in the Routine Treatment of Diabetes, discussion at meeting of Association of American Physicians, May, 1923, abst. J. A. M. A. **80**: 1726 (June 9) 1923.

2. Newburgh, L. H., and Marsh, P. L.: The Use of a High Fat Diet in the Treatment of Diabetes Mellitus, Arch. Int. Med. **26**: 647 (Dec.) 1920.

living premature female child was made at 3:20 p. m. (The child died at the end of sixteen hours. No necropsy was performed.) The patient was very restless until about 10:30 that evening, when she quieted down and fell asleep. The insulin was given in 10 unit doses at four hour intervals until 6:30 a. m. The blood sugar at 8 a. m. was 0.1968 per cent. Only 5 units of insulin was given before the noon meal, July 5. The condition of the patient on this day was the best that it had been since her entrance into the hospital. Urinalysis was negative for sugar.

The blood sugar on the following morning, July 6, was 0.2857 per cent., but the urine showed no reduction with Fehling's or Benedict's solution. Ten units of insulin was given one-half hour before breakfast. This day showed still more improvement. July 7, the blood sugar being down to 0.250 per cent. and the urine still sugar-free, only 5 units of insulin was given, one-half hour before breakfast. The patient was put on a 1,400 calory diet based on the same principle as previously mentioned. Improvement continued unabated. The circulation was markedly improved. The patient was in excellent spirits. The same treatment was continued, July 8. July 9, the blood sugar was down to 0.210 per cent.; on the morning of the 10th, 0.178 per cent., and on the 11th, 0.136 per cent. The diet was increased to 1,800 calories a day, and the patient continued to improve in every way. She was gaining in weight, rested well, and was very comfortable at all times. On the morning of the 13th the blood sugar rose to 0.221 per cent., and dosage of insulin was increased to 15 units for the day. This brought the blood sugar down by the following morning to 0.150 per cent., and on the day she left the hospital the blood sugar was 0.136 per cent. on a dosage of 15 units in 5 unit doses given half an hour before each meal. The urine remained negative throughout. The blood sugar, August 7, was 0.136 per cent. The urine was negative for sugar. At this time she was receiving 5 units of insulin every other day.

COMMENT

While this case presents several points of interest, the most important is the question as to the cause of the severity of the symptoms previous to delivery as compared to the sudden change for the better immediately following parturition. In this respect it may be said that the abrupt change simulated very closely the response of a patient suffering from one of the toxemias of pregnancy to either therapeutic or spontaneous abortion. Whether or not the presence of the fetus had anything to do with the maintenance of the blood sugar at a high level is a question to be decided only by the reaction of the patient and her behavior subsequent to delivery. Incidental or not, parturition marked the turning point in the progress of this case to a successful termination.

There is one "lead" to be followed through, however, and that is the presence of a comparatively high renal threshold, as evidenced by the absence of sugar in the urine even when the blood sugar was as high as 0.357 per cent. One might easily incline toward the existence of a concomitant renal involvement, despite the lack of elevation of the blood pressure, yet substantiated somewhat by the presence of small amounts of albumin in the urine during the third and fourth days. The existence of this associated renal involvement may be assumed to have produced a toxemia of mild enough type to be masked by the more urgent condition, yet of sufficient severity to account for the failure of the relatively large quantity of insulin administered before delivery to depress the blood sugar and to relieve the patient completely of air hunger and acidosis. Further evidence which might throw added light on this problem not being available, this question must necessarily stand unsolved.

However, the fact remains that, despite the comparative recency of the discovery of insulin, its value t diabetic patients, particularly when moribund, has bee proved beyond the least vestige of doubt.

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TROPICAL SPRUE

A CRITICAL STUDY OF CASES *

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Of forty-five cases of tropical sprue occurring in India, Leonard Rogers [1] reports a probable cure in only one, and no material improvement in twenty-six. Tropical sprue may be considered, therefore, a very serious nutritional and diarrheal disease. Nearly all the patients seen in the New York district have acquired and developed the disease in some foreign country where sprue abounds. But in the last ten years, many cases have been reported as originating in our Southern states, and a number of cases have developed in persons who had left a sprue district apparently well and had not shown symptoms of the disease until from a few months to many years after residence in a northern region supposedly free from sprue. DeLue [2] mentions the development of a case near Boston, but his description makes the diagnosis doubtful. One patient developed the disease in New Hampshire, but this patient had lived in North Carolina twenty-five years before, and had visited Florida once since.[3] Bovaird [4] mentioned a patient who, after leaving Porto Rico, had lived under highly favorable conditions on Long Island for two years before developing the disease. He recorded two other cases in which the patients had first noticed symptoms four months after their return to the United States. Bahr [5] reports a case that was seven years in developing, after the return of the patient to England, and Thin [6] reports a case that developed seventeen years after the patient's return to England. Moreover, a few of the patients with sprue come directly to us from sprue countries with the condition not diagnosed. It would seem, then, that some knowledge of sprue cases may be of considerable importance in this country, even to northern physicians.

Sprue is mostly insidious in its onset, often beginning with a slight occasional diarrhea in several successive seasons or years, and with later a sore mouth either accompanying the diarrhea or in the interim between diarrheal attacks. A recurring diarrhea of undiscoverable cause, with the gradual development of anemia and loss of flesh and strength, must be considered suspicious, even in the absence of sore mouth.

One of us (B.) has seen thirteen cases in New York, one from the Philippines, three from China, one

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* Read before the New York Academy of Medicine, April 17, 1923, and the American Gastro-Enterological Association at Atlantic City, April 30, 1923.

1. Rogers, Leonard: Bowel Diseases in the Tropics, London, Oxford Medical Publications, 1921.
2. DeLue, F. S., in discussion on Bovaird, David: A Study of Tropical Sprue, or Psilosis, J. A. M. A. **77**: 758 (Sept. 3) 1921.
3. Wood, E. J.: Am. J. M. Sc. **110**: 692 (Nov.) 1915; Clinical Manifestations of Tropical Sprue, abstr., J. A. M. A. **70**: 1791 (June 8) 1918; The Recognition of Tropical Sprue in the United States, ibid. **73**: 165 (July 19) 1919; U. S. Naval M. Bull. **13**: 449 (July) 1919; J. Trop. Med. & Hyg. **23**: 201 (Aug. 16) 1920.
4. Bovaird (Footnote 2).
5. Bahr, P. H.: Tr. Soc. Trop. Med. & Hyg., London, 1914.
6. Thin, George: Psilosis or Sprue, London, J. and A. Churchill, 1897.

from Korea, one from Java, one from Cuba, one from Louisiana (the patient had formerly lived in Haiti), and five from Porto Rico. Four of these we had no opportunity to study, though we have the details of one, a fatal case with necropsy in Bovaird's series, reported by Barach and Murray.[7] We have not included this case in our series. In the other nine, there were four mild cases and five severe ones. Of the latter, two patients died and necropsies were performed, one is now cured, one returned to Porto Rico moderately improved and has been untraceable, and the remaining one is improving rapidly. Five of the patients came to us at about the same time last autumn, and gave us an opportunity to gain more data relating to the disease. In these five, we have made extensive mycologic studies.

It is not our intention to discuss the whole picture of sprue. But in our knowledge of this disease there are some points about which authorities differ, and we will give our experience in these regards.

THE BLOOD

In the literature we find varying ideas regarding the red cells and hemoglobin, Stitt[8] and Wood,[3] for example, stating that there is a high hemoglobin index, Low[9] that the index is about 1, and Barker,[10] Rogers[1] and Bovaird[4] that the index is low and secondary anemia the rule. Among our cases, in five of the seven patients who lived, the blood was that of a secondary anemia. In one it was normal. In the other one who lived and still suffers from sprue, whose condition is shown in the accompanying illustration, the hemoglobin index in July, 1920, was 1.15, with hemoglobin, 46, moderate poikilocytosis and marked anisocytosis. Now, three years later, the hemoglobin is 88 and the red cells, 3,900,000, the index being 1.13, with practically no poikilocytosis or anisocytosis. In the two patients who died, the index was high, and the blood showed characteristics of the blood in pernicious anemia. One severe case began with hemoglobin of 45 and an index of 0.75, but with improvement to hemoglobin, 65, and an index of almost 1.

The white cells are generally described as showing a leukopenia with a low proportion of polymorphonuclears. In our series, only two cases showed this picture, one a fatal case; the other patient is now improving. The latter gave a count of 5,200, with polymorphonuclears 44 per cent. in 1920; 4,900 with polymorphonuclears 72 in 1921, and 9,200 with polymorphonuclears 36 at the beginning of this year. In one fatal case in which there was a high hemoglobin index, the leukocytes numbered 5,000, with polymorphonuclears 60 per cent. One severe case gave a count of 7,300, with 50 per cent. of polymorphonuclears, and the other five cases gave a polymorphonuclear percentage of from 60 to 72 and a count of from 6,000 to 7,300. Only one showed eosinophils, which were 3 per cent. Van der Scheer[11] found eosinophils (12 per cent.), unaccounted for otherwise, in only one of his thirty-three cases.

Rogers[1] remarks that a rapidly progressive pernicious anemia is a most serious complication, especially observed in patients beyond middle age; and it would seem probable that most of the high index figures with leukopenia and low polymorphonuclear count have been obtained from patients in this condition. But noteworthy in these cases is the absence of subcutaneous fat, which in ordinary cases of pernicious anemia is retained.

WASSERMANN REACTION

In all of Bovaird's thirteen cases and in five of ours that were tested, the Wassermann reaction was negative.

BLOOD PRESSURE

The blood pressure was regularly low, the systolic ranging between 80 and 110, and the diastolic between 52 and 80.

URINE

The most noteworthy finding in the urine was indican, which was present in all cases, whether the patients were having diarrhea or constipation. Several writers have mentioned the high indican content. Urobilin was reported by Manson-Bahr[12] and Rogers,[1] and was found by us three years ago in the patient still living, who had the pernicious anemia blood picture described heretofore, i. e., hemoglobin 46, and hemoglobin index 1.15. Now, with hemoglobin 88 and a hemoglobin index of 1.13, there is no urobilin in the urine. In the two patients with typical pernicious anemia, who died, the urine was negative for urobilin.

STOMACH CONTENTS

Wood[3] states that in sprue cases there is an absence of hydrochloric acid. In 1916, Brown[13] reported a case in which there was both gastric and pancreatic achylia, and later he reported two cases in which there was gastric anacidity, two in which there was subacidity, and one in which there was hyperacidity. In Bovaird's[4] cases, six showed anacidity, one subacidity, and six normal acidity. In thirty-three cases, Van der Scheer[11] found normal contents in twelve, hyperchlorhydria in one, hypochlorhydria in fourteen and achlorhydria in six. Pratt and Spooner's[14] patient had achylia.

We have records in eight of our cases. The six patients who lived showed one-hour acidities of 64/106, 66/80, 40/54, 40/56, 22/34, and one with a pernicious anemia blood picture, who had several test breakfasts in three years, showed gradual increase from 30/46 to 58/82. Of the two who died (both with pernicious anemia blood pictures), one gave 0/20 with rennet and pepsin both present, and the other 0/20, and later 0/9, with no rennet or prorennet at either test.

PANCREATIC FERMENTS

In five cases, Brown[13] reported pancreatic achylia in three, and some degree of pancreatic deficiency in the other two; and this, coming from one who is such an authority on the pancreatic ferments, had the effect of creating the impression that pancreatic achylia is usual and to be expected. His cases were all chronic and severe. He tested with great care for trypsin, amylase and lipase. Simon[15] tested three cases and found no pancreatic deficiency. Bovaird[4] reports trypsin absent in four, diminished in one, and normal in three, and amylase absent in one, diminished in two, and normal in four. He found trypsin without amylase and amylase without trypsin. In Pratt and Spooner's[14] case, trypsin was obtained from the duodenal contents and

7. Barach, A. L., and Murray, H. A.: Tetany in a Case of Sprue, J. A. M. A. **74**: 786 (March 20) 1920.
8. Stitt, E. R.: Diagnostics and Treatment of Tropical Diseases, Ed. 4, Philadelphia, P. Blakiston's Son & Co., 1922.
9. Low, G. C., in Price's Practice of Medicine, Oxford, 1922.
10. Barker, L. F.: Monographic Medicine, New York, D. Appleton & Co. **3**: 490, 1916.
11. Van der Scheer, A., in Mense's Handbuch der Tropen Krankheiten, Ed. 2, **3**: 451-507, 1914.
12. Manson-Bahr: Manson's Tropical Diseases, New York, William Wood & Co., 1921.
13. Brown, T. R.: Bull. Johns Hopkins Hosp. **26**: 289 (Oct.) 1916; Am. J. Med. Sc. **161**: 501 (April) 1921.
14. Pratt and Spooner: Tr. A. Am. Phys., 1912.
15. Simon, S. K.: South. M. J. **14**: 255 (April) 1921.

the feces, though other tests pointed to deficient pancreatic activity.

In seven of our cases, trypsin tests were repeatedly made on the feces, and, in some cases, on the duodenal contents. In four, they were persistently strong, in one strong at first, later nearly absent, and recently strong again, in one slight and in one absent. In the patient who died, with 0/20 and 0/9 of acidities in the gastric contents, trypsin was persistently present in the stool and duodenal contents, even shortly before death. In the case in which there were the highest gastric acidities, trypsin was absent.[16]

BILE

Bile pigment in the stool was regularly present in our cases, as shown by Schmidt's [17] mercuric chlorid test. The duodenal contents showed ample bile in three cases, one shortly before the patient died. Wynter-Blyth,[18] Van der Scheer,[11] Hunter, Harley and Goodbody [19] and others have shown it to be present in the stool in the form of leuko-urobilin.

REACTION

The reaction of the stools was highly acid during the periods of highly fermentative diarrhea, but at other times, in some cases, was alkaline. This had no relation to the presence or absence of indican in the urine.

FAT

Fat in the stool is characteristic of the disease. A normal stool shows from 8 to 25 per cent. of fat in the dried feces.[20] Schmidt [17] says that 20 per cent. is the outside limit of normal for a patient not on an excessive fat diet. In eight sprue cases in which there was probable involvement of the pancreas, Cammidge [20] found from 39.8 to 76.1 per cent. of fat; and in five cases in which there was no suggestion of pancreatic involvement, he found from 34.3 to 57.7 per cent. In four patients, Bovaird [4] found the fat from 25 to 48 per cent.; in cases with absence of pancreatic ferments, Bahr [5] reported from 70 to 90 per cent., while in a case without pancreatic deficiency Pratt [21] found 59 per cent. In one case, Pratt and Spooner [14] reported a fat loss of 45 per cent. In one of our cases, in which the trypsin was much diminished, the total fat of the dried stool during a period of constipation and on a mixed diet with fruit and low fat content was 16.7 per cent. In another, the dried diarrheal stool showed 38 per cent. of fat. In a patient, who did not have sprue, whom necropsy proved to have an absolutely normal pancreas, Whipple [22] found 80 per cent. of fat in the stool.

In estimating the fat in the stools, both the frequency of the stools and the character and amount of the fat in the diet are factors of great importance. Diarrheal stools regularly contain a high fat percentage. In regard to diet, Gaultier [23] found that in a normal person on a diet containing 96 gm. of fat in the form of meat and bacon, 17.2 gm. was recovered from the feces, while on a milk diet containing 95.1 gm. of fat the amount recovered was only 3 gm. Schmidt and Strasburger [17] and also Harley and Goodbody [19] noted that, as the quantity of fat in the food increased, the stool fat tended to increase out of proportion. In a normal subject of the latter authors on 4 pints of milk a day, the stool fat amounted to 2.18 gm., while on 4½ pints a day it was 2.95 gm., and on 5 pints a day it was 5.13 gm. In a sprue case on a Schmidt diet containing 99 gm. fat, Rademaker [24] found the stool fat 48.23 per cent., and in a patient on 2 liters of milk daily containing 60.22 gm. of fat, Wynter-Blyth [18] found the stool fat 63.7 per cent. In seven sprue cases, Van der Scheer [11] made eleven estimations, of which we quote two as examples: on a daily ingestion of 60 gm. of fat, the fat in the stool was 38.2 per cent., and the loss of fat in the stool 74.5 per cent.; on 87 gm. of fat, the stool showed 34 per cent. and a loss of 76 per cent.

Cammidge [20] states that normal stools show about 1 per cent. of neutral fat and about 9 per cent. each of free fatty acid and soap. Thus, a high neutral fat would suggest the absence of the fat-splitting frement lipase. In three cases Brown [13] found absence of lipase. Bovaird [4] noted in three cases that the neutral fat was from 11 to 35 per cent. of the total, and in one case in which necropsy showed a negative pancreas the neutral fat was 60 per cent. In Whipple's [22] nonsprue case in which the pancreas was normal, the neutral fat was 62.5 per cent. Cammidge [20] is of the opinion that the higher total fat figures in sprue indicate both deficient pancreatic secretion and deficient intestinal absorption, but it is probable that the high fat figures are due in most cases, not to the absence of lipase, but rather to a combination of diarrhea with inability of the intestines to absorb even soaped and emulsified fat, because of the involvement of the lacteal capillaries in the intestinal atrophy.

EXAMINATION WITH THE SIGMOIDOSCOPE

In two of nine cases examined, Bovaird [4] found minute granular areas suggesting ulceration, in one an area of necrosis, and in several others a raw-beef color to the mucous membrane. In six of our cases, the sigmoidoscope revealed nothing abnormal except a greater or less degree of hemorrhoids, with, in two cases, excoriation and fissuring at the anus.

TONSILS

It is noteworthy that five of our patients showed diseased and pus-exuding tonsils.

ANATOMIC FINDINGS

In our two necropsy cases the pancreas was histologically normal and the intestines showed some thinning and chronic inflammation, but not of the marked degree spoken of in the textbooks. In Bovaird's [4] necropsy case the findings were like ours. In one of our patients who is practically well, though with occasional attacks of burning in the mouth and the esophagus, an abdominal operation for removal of the gallbladder and the appendix did not reveal any special thinning of the small or large intestine.

ROENTGEN-RAY STUDY

In three cases a roentgen-ray study of the alimentary tract showed dilatation and sluggishness of the lower end of the ileum and the cecum and proximal one third or one half of the colon.

ETIOLOGY

Infection.—In 1901, Kohlbrügge [25] reported the finding of *Oidium albicans* (*Monilia albicans*), the thrush

16. We regret that, owing to researches being carried on with insulin, our laboratory was so overwhelmed with work that we were unable to have amylase and lipase tests done in the five cases coming to us recently.
17. Schmidt, A. O., and Strasburger, J.: Die Faeces des Menschen, Berlin, A. Hirschwald, 1901.
18. Wynter-Blyth, J., quoted by Van der Scheer, Manson-Bahr and Thin.
19. Harley and Goodbody: Chemical Investigation of Gastric and Intestinal Diseases, London, 1906.
20. Cammidge, P. J.: Faeces of Children and Adults, New York, William Wood & Co., 1914.
21. Pratt, J. H., quoted by Wood.
22. Whipple, G. H.: Bull. Johns Hopkins Hos., 1907, p. 382.
23. Gaultier: Coprologie clinique, 1907.
24. Rademaker, G. A., Jr.: Observations on Indian Sprue, Diss., Leiden, 1906.
25. Kohlbrügge, J. H. F.: Nederl. Tijdschr. v. Geneesk. **2**: 16, 1901.

or sprue fungus of babies' mouths, in the stools and tongue scrapings, and at postmortem in the mouth, esophagus and intestine. Manson-Bahr [12] also found *Monilia albicans* in the same regions, and thought that the ordinary thrush fungus might become virulent in the tropics, especially in the exhaustion states produced by hot, humid climates. In almost all his recently studied cases, Castellani [26] has found monilias, and to these he attributes the fermentative diarrhea, but not the sprue itself. His monilias were of several varieties.

In 1914, Ashford [27] in Porto Rico reported a specific monilia, now known as *Monilia psilosis*. By injecting guinea-pigs and white rats intraperitoneally with his cultures, he produced a rapidly fatal septicemia with diarrhea, and lesions in the lungs and kidneys; and by injections into the tongues of rabbits he produced a general infection and diarrhea fatal in three or four days. Dold [28] remarks that though these experiments resulted in death, they do not prove that *Monilia psilosis* causes sprue.

In February, 1923, Ashford [27] recorded 1,595 cases of sprue seen in the years 1908 to 1921, inclusive. Of these, 502 were diagnosed without laboratory examination, 953 were confirmed by evidence of *Monilia psilosis* infection as shown by cultures of stool and tongue scrapings or by complement fixation tests, and 140 failed to show monilia infection. He states that while only 1.5 per cent. of tropical people living in endemic sprue zones have been found to harbor *Monilia psilosis* without showing its characteristic effects, 87.6 per cent. of his sprue patients were heavily infested with it. "Those that proved negative to *M. psilosis* both mycologically and serologically were usually old chronic cases, often in a state of cachexia, or those in whom the tongue lesions and characteristic diarrhea, once prominent, were quiescent at the time of examination." He had previously reported finding *M. psilosis* in 17 per cent. of ninety-two cases not sprue but with gastrointestinal disturbances with excessive gas formation, in 3 per cent. of normal persons, and in 100 per cent. of forty-nine cases of sprue. Dold [28] of China found *Monilia* or its relatives (yeasts, *Oidia*) in 16 per cent. of nonsprue diarrheal stools, in 7.5 per cent. of normal stools, and in 92 per cent. of sprue stools.

Ashford has treated many cases with a vaccine made from *Monilia psilosis,* with surprisingly good results. In one series treated in Porto Rico while Ashford was in France, Michel [29] reports sixty-two cases in which from three to eight doses of vaccine were given. All had been diagnosed by Ashford, all the patients had *Monilia psilosis* in the stools, and all had positive complement fixation tests. Of the sixty-two patients, forty-nine were cured, twelve improved and one died. Gonzalez-Martinez [30] of Porto Rico obtained positive complement deviation tests with a *M. psilosis* antigen in 91.35 per cent. of his last eighty-one cases.

In one case, Oliver [31] made careful cultural tests and "on two occasions from the stool, twice from tongue scrapings, once from the sputum and once from a tooth abscess, a growth of yeasts was obtained which corresponded *in the main* to *Monilia psilosis* described by Ashford." J. M. Rogers [32] reports *Monilia psilosis* in a case from Korea, and Hannibal and Boyd [33] have reported it in two cases arising in the United States.

On the other hand, many have found monilias that did not meet the cultural requirements for Ashford's *Monilia psilosis,* and many have reported no monilias at all either in tongue scrapings or stools of typical sprue cases.

Many have been content with the finding of monilias by the microscope, while in thirteen cases Bovaird [4] found it thus only once. How much value can be attached to positive findings by the microscope we are not prepared to say, as the organisms may be from the food and killed by cooking; but we believe, with Craik,[34] that a negative microscopic examination is worthless and that cultures give the only reliable data.

Nicholls [35] of India failed to grow any yeast forms from the tongue and mouth scrapings of a number of native cases, and from six out of eleven cases in Europeans, Zinsser got negative cultures from the stool of one of Bovaird's [4] patients that died, and Cecil negative cultures from a typical case from Porto Rico (reported by Bovaird [4]). Manson-Bahr,[12] who has studied many cases and in most has found a monilia or some related species of yeast, believes that Ashford's claims for a specific monilia rest on a very slender foundation. Dold,[28] by infecting dogs, monkeys and mice with various yeasts, obtained lesions similar to those of human sprue, and found an actual invasion of the intestinal mucosa with yeast cells and mycelium. But he considered Ashford's claim to specificity unsubstantiated. He found it impossible to classify the monilias by cultural or biochemical reactions, and he was unable to culture out the *Monilia psilosis* according to the method of Ashford. This agreed with the experience of Manson-Bahr.[12]

It would seem, then, that while a large number of experts in tropical diseases feel that a monilia or some related yeast may be responsible, in the vast majority of the cases, for certain of the sprue symptoms very few consider *Monilia* the causative factor in the disease, very few accept Ashford's specific *Monilia psilosis,* and some report typical sprue cases of all grades of severity without *Monilia.*

Our Monilia Studies.—In the older cases studied microscopically, we failed to find *Monilia.* In our cultural mycologic studies in the recent five cases, we have used as a control three cultures of *Monilia psilosis* sent to us by Dr. McCoy of the Hygienic Laboratory, Washington, D. C. These were from long-standing cultures obtained from cases in Porto Rico six or seven years ago. The three cultures received gave different fermentation reactions on a series of seven different fermentable carbohydrates, indicating either that they are different organisms or different subvarieties of the same organism, or that they represent one and the same original organism, the different samples of which have become altered in their reactions, perhaps through repeated cultivating. Ashford particularly states that the aberrant types may be reinvested with their cultural characteristics by passage through animals, especially

26. Castellani, A.: Brit. M. J. **1**: 338 (March 5) 1921.
27. Ashford, B. K.: Relation of the Genus "Monilia" to Certain Fermentative Conditions of the Intestinal Tract in Porto Rico, J. A. M. A. **64**: 1895 (June 5) 1915; Bol. de la Asoc. Med. de Puerto Rico **15**: 22 (Feb.) 1921; **15**: 249 (Dec.) 1921; Am. J. M. Sc. **154**: 157 (Aug.) 1917; **165**: 157 (Feb.) 1923; Am. J. Trop. Med. **2**: 139-150 (March) 1922; Oxford Medicine **5**, revised sheets issued 1923.
28. Dold, Hermann: China M. J. **31**: 387 (Sept.) 1917; Arch. f. Schiffs u. Tropen. Hyg. **23**: 461 (Oct.) 1919.
29. Michel, Carl: J. Infect. Dis. **22**: 53 (Jan.) 1918; Am. J. M. Sc. **154**: 177 (Aug.) 1917. Tice's Practice of Medicine, Hagerstown, W. F. Prior Company, 1922.
30. Gonzalez-Martinez: Bull. Soc. Path. Exot. **13**: 384 (May 12) 1920.
31. Oliver, W. W.: Cultural Studies on a Case of Sprue, J. A. M. A. **74**: 27 (Jan. 3) 1920.
32. Rogers, J. M: Isolation of Monilia Psilosis in Tropical Sprue (Psilosis), J. A. M. A. **79**: 1677 (Nov. 11) 1922.
33. Hannibal, H. A., and Boyd, M. F.: Am. J. Trop. Med. **1**: 165 (May) 1921.
34. Craik, Robert: Brit. M. J. **2**: 293 (Aug. 21) 1920.
35. Nicholls, L.: Indian M. Gaz. **53**: 409 (Nov.) 1918; J. Trop. Med., Feb. 1, 1919, p. 22.

guinea-pigs, and may undergo alterations in their fermentative properties on artificial cultivation. This procedure is being carried out in guinea-pigs with each of our three Hygienic Laboratory cultures as well as with representatives of each of the several groups isolated from the patients under investigation; but to date we have been unsuccessful in our restorations.

We will omit the details of Ashford's cultural requirements for *Monilia psilosis*, except as follows: "A stab-culture in gelatin gives a growth along the line with arborescent extension of mycelium forming an 'inverted pine tree.' Gelatin is never liquefied. Milk is rendered alkaline, but is neither clotted nor decolorized."

In none of our stab cultures have we had liquefaction, and in no instance have we had the characteristic "inverted pine tree" growth, excepting with the three strains of supposed *Monilia psilosis* sent us from the Hygienic Laboratory and in our one case from Korea, which gave a typical "inverted pine tree" growth when examined on the fifteenth day. In this case milk was unchanged, while from all the Hygienic Laboratory cultures milk showed a very slight acid condition with a coagulum in the bottom of the tubes, thus not meeting Ashford's requirements.

In Case 1, from China, three stool cultures all showed monilias somewhat similar to one of the Hygienic Laboratory cultures (No. 204), but of varying types.

In Case 2, from Java, different stool cultures showed several monilias, one of which closely resembled one of the Hygienic Laboratory cultures (No. 203).

In Case 3, from Korea, stool culture showed some monilias which fairly well corresponded with one of the Hygienic Laboratory cultures (No. 204).

In Case 4, from Cuba, a very persistent case presenting the characteristic Crombie [36] ulcers in the mouth, repeated cultures of stool and tongue scrapings have failed to show any monilias or yeasts of any kind. On direct smear, the stomach and duodenal contents and the stool of this patient have at times shown yeasts microscopically; but these gave no growth in broth cultures or surface seedings on special plating mediums. We suspect that these were cooked yeasts from the bread which the patient was eating at the time.

In Case 5, from Louisiana (a former resident of Haiti), cultures from the stool were negative for monilias, but cultures from the tongue and duodenal contents before death, and from the tongue and colon at necropsy showed a monilia which corresponded very closely with a *Monilia psilosis* culture from the Hygienic Laboratory (No. 203). This was the only case that gave consistent cultural findings of the monilia from all regions of the body, but it did not give the "inverted pine tree."

Thus, in four out of five cases we found monilias by culture, but in three of the patients the monilias obtained at different times have shown different cultural reactions throughout, and in one, a severe case, we could get no monilias from either stool or tongue curettings. Only one gave the characters of *Monilia psilosis* as described by Ashford.

Monilia vaccines obtained from the Hygienic Laboratory were administered in three severe cases, without apparent effect. They were also used as intracutaneous tests on three patients. In two of the patients who showed *Monilia* by culture, the skin reactions were negative, but in the patient who failed to show *Monilia* on cultural tests there was a marked local reaction to 0.01 c.c. intracutaneously of a vaccine of the strength of 1,000 million per cubic centimeter. In three controls, two were negative, and one that reacted positively was a blond northern elevator boy at St. Luke's Hospital, who had never been in a sprue region and is apparently well. The positive reaction showed by a wide areola and tenderness which lasted about four days, and redness with a decided nodule, which persisted between two and three weeks. Of course, an intracutaneous test merely shows susceptibility and not necessarily infection.

A complement fixation test using the vaccine was done in the case that came to necropsy, and was negative. We did not prepare a special *Monilia psilosis* antigen by alcoholic extraction, such as was used by Michel [29] of Ashford's laboratory, who reported a large series of positive complement fixations; but in a well marked or severe case one would not consider that necessary.

Streptococcus Viridans.—Leonard Rogers [1] was disposed to attribute importance to the repeated finding of *Streptococcus viridans* in the mouth, and reported good results from an autogenous oral streptococcus vaccine. His results were confirmed by the work of Nicholls, who obtained complement deviation tests in two out of three cases, and good results from the autogenous vaccines. Rogers suggested that *Streptococcus viridans* might produce conditions favorable for the development of *Monilia*.

Our Case 1 showed *Streptococcus viridans* in stools and tooth cultures. Case 2, in which there was marked mucous colitis, showed *S. viridans* in the mouth and in the mucus of the stool. Case 3 showed *S. viridans* in the stool. Case 4 showed *S. viridans* in the stool. Case 5, in which the patient was acutely ill and evidently septic at the last admission to the hospital, showed at necropsy a purulent gallbladder which gave a pure culture of *S. viridans*.

It is our experience in New York that the streptococcus of the *S. viridans* group is a frequent inhabitant of the mouth and intestines, and we believe that though it may become virulently pathogenic in some cases, it is usually not so. We are disposed to attribute no importance to it in these sprue cases, except in the case which showed it in the gallbladder pus at postmortem, and we consider that this pus was a coincident and not a manifestation of sprue.

A DEFICIENCY DISEASE

In a condition with emaciation, diarrhea, stomatitis and sore tongue, it was not strange to find those who placed it in the list of deficiency diseases. This theory was supported by the fact that the cure seemed to be largely dietary. Patients were promptly relieved by a fresh milk diet. They were often promptly relieved by a fresh fruit diet or a fresh meat diet. If not a food deficiency, how else could one account for complete relief from an exquisitely sensitive mouth, irritable stomach and diarrheal bowels by the ingestion of large quantities of irritating, raw, acid fruit?

We cannot gain any assistance in determining the etiology by the experiments of McCarrison, who fed monkeys on a vitamin-free diet and obtained lesions resembling the initial lesions of sprue; for such experiments might have produced, and usually do produce, entirely different lesions. Elders,[37] however, finds that

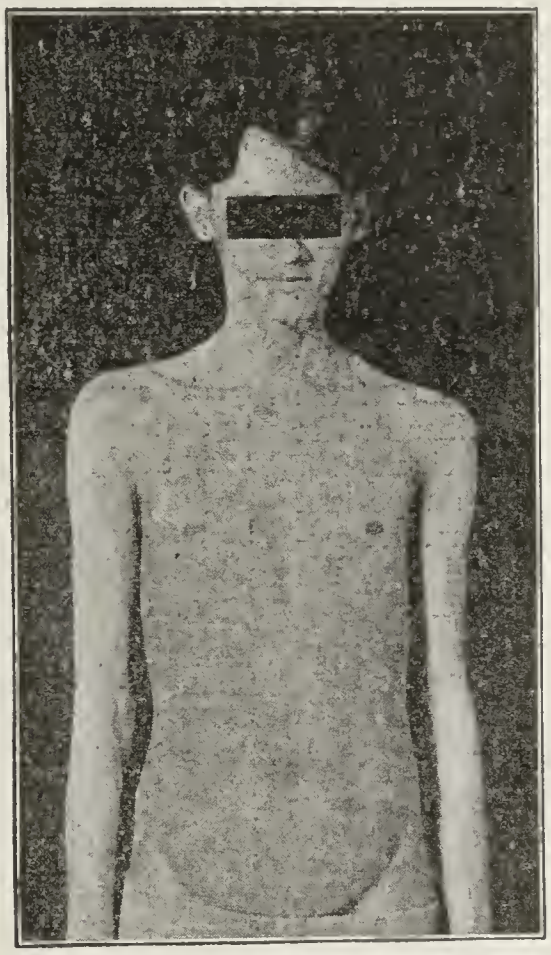
36. Crombie, A.: Indian Med. Gaz., December, 1880; May, 1892.

37. Elders, C.: Nederl. Tijdschr. v. Geneesk., 1917, p. 1253; 1919, p. 1683; 1920, p. 2189.

ıe food of sprue patients has been deficient in the ıiino-acids, in which flesh is rich, and in vitamins . and B. In one of our cases, owing to poverty, there as a notable absence of amino-acid producers in the iet, and in another case, in which the patient was ossessed of wealth, a habitual undereating of these ıbstances all his life. Ashford [27] specifically lays ress on the fact that sprue is a disease of the better asses and not usually of the poor and underfed; yet e states that, on account of climatic diets or digestive r other disturbances, the diet of the sprue patients has een deficient particularly in protein, vitamin B and cer- ain mineral substances, notably calcium and potassium. Most of the Porto Rico cases present a history of aving eaten little meat and an excess of vitamine-less ırbohydrates." But because "there are acute cases of ›rue in newcomers to the Island, usually Americans, ı whom it would be begging the question to assert the resence of a food deficiency, and ıere are also cases who after a rief visit to the tropics have re- ırned to the hearty diet of our Northern cities and have developed ›rue," therefore, he argues, food eficiency alone does not produce ›rue, and the infection by *Monilia silosis* is necessary.

A COMBINED DEFICIENCY AND MYCOTIC DISEASE

This is Ashford's most recent tiologic idea. In an article on the ›nception that sprue is a mycosis ıperimposed on a state of deficiency ı certain essential food elements ıshford (1922) reached the follow- ıg conclusions: "Most frequently ypical sprue is preceded by a hysiologic glandular deficiency rec- gnizable by a deficiency syndrome in hich pallor, lassitude, mental hebe- ıde and gastro-intestinal derange- ıent are prominent. In this condi- ion there is a marked reduction in utput of the digestive glands, par- icularly of the pancreas and intestinal lands. This results in a change in eaction and composition of the in- estinal contents, which brings about high acidity. In this state, *Monilia psilosis* finds a ıedium in which it can colonize and produce the typical icture we know as sprue. In a minority of cases, sprue ccurs in those in whom food deficiency plays no evident art and in whom the disease seems to come by sheer orce of infection; but it is justifiable to suppose that ome other factor has diminished the output of the diges- ive glands to permit the successful implantation of *Monilia*. The organism of sprue usually appears to ınd no propitious medium for colonization, save in ebilitated states, principally due to food deficiency."



Appearance of Patient 4: age, 23; weight, 90 pounds (41 kg.); hemoglobin index, 1.13; hemoglobin, 88.

Manson-Bahr [12] thought that, owing to the hot cli- nate, an exhaustion state might develop which would ›ermit the ordinary thrush fungus, *Monilia albicans*, o become virulent.

So far as our knowledge extends at present, we ccept Ashford's theory of the double cause of the dis- ase, but we are not quite ready to accept his theory hat the superimposed infecting organism is the specific *Monilia psilosis*, or even that it need be any monilia.

PELLAGRA VERSUS SPRUE

It has been a matter of interest to us to speculate on a possible common factor in the two closely related diseases, pellagra and sprue. In pellagra, a monilia has only rarely been found. In the vast majority of cases of sprue, a monilia is present. Could it be possible that these two diseases may have the same or similar underlying conditions, but that the characteristics of sprue mostly come from the added infection of a monilia or some related organism, while those of pellagra are due to some other infection, such as that of a fluorescent fungus with photodynamic properties as recently isolated in some cases by Jobling and Arnold? [38]

It is noteworthy that the chief amino-acid producers, milk, eggs and flesh, are less consumed in warm climates than in cold, and that just these substances have been notably lacking in the diet of pellagrins. We have the statement of Elders [37] and Ashford as heretofore mentioned that they are also lacking in the diet of many sprue cases. May it not be that the change of habit from liberal to sparse consumption of proteins, which is the result of removal from a colder to a hotter region, may account for the special susceptibility to sprue in Europeans and Americans who have gone from a colder country to make their residence in the tropics?

In 1915, Ashford wrote: "May not some of the pellagra of our Southern states be in reality sprue? It would be interesting to study some of the cases without skin lesions in which the diagnosis is pending between these two diseases. I have had so far three cases with stomatitis and white diarrhea which I considered sprue without moniliasis of the tongue, but which later developed the pellagrous eruption." Graham,[39] Simon,[15] Wood [3] and others have called attention to the presence of sprue in the southern United States, and to its possible confusion with pellagra, especially those cases of pellagra that do not present skin lesions. Further, Wood remarks, "It is no doubt true that many cases of pellagra are complicated by sprue." Michel [29] of Porto Rico reported two cases in which both diseases were present.

One of our patients, the Cuban, whose picture is shown, gave a history of poverty during his boyhood and adolescence with absence of milk and only very occasionally any flesh foods or eggs in his diet, which consisted mostly of fruits, rice and potatoes. He developed sprue symptoms several years ago. About the first of this year the skin of both hands seemed to be more pigmented than before, and became abnormally dry and scaly and slightly erythematous at the wrists, and he had a slight eczematous eruption on the backs of both legs. But we have had him gone over very carefully by Dr. Ward J. MacNeal, the pellagra authority, who has concluded that these lesions are definitely not pellagrous and that the correct diagnosis is presumably

38. Jobling, J. W., and Arnold, Lloyd: Observations and Reflections on the Etiology of Pellagra, J. A. M. A. **80**: 365 (Feb. 10) 1923.
39. Graham, quoted by Simon (Footnote 15).

sprue. This is the one recent case in which we have failed to find some form of *Monilia*.

THE SIGNIFICANCE OF THE GEOGRAPHIC DISTRIBUTION

We would call attention to the wide geographic distribution of sprue, as illustrated in our cases. For if monilias are found in most of the sprue cases from all parts of the tropical and subtropical areas of the globe, this finding is suggestive that in most cases an infection with *Monilia* may be the precipitating cause, or at least an important causative factor in the production of the clinical condition recognized as sprue. Moreover, Ashford's claim to specificity for *Monilia psilosis* can be sustained only if in undoubted cases from all parts of the world the monilias found consistently meet his cultural requirements.

CONCLUSION

In sprue we have a disease for which no fully reliable laboratory criteria have been established, and therefore in some of the cases the diagnosis might be questioned. In all but three of our cases the diagnosis came with the patient, and, judged by the history and clinical findings, was accepted by us. In the three diagnosticated by us, the symptoms were severe and gave a striking and characteristic clinical picture of the disease.

We have not completed our research on our present cases, and we are extending it to new cases just arrived. We have also undertaken a study of a series of cultures of *Monilia psilosis* kindly sent us from Porto Rico by Ashford. We therefore refrain at this time from expressing definite opinions as to (1) whether or not *Monilia psilosis* is a distinct species with specificity for sprue; and (2) whether or not *Monilia* is an important accompaniment of most sprue cases. We suspect, however, that the former idea is not true and that the latter is.

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TREATMENT BY NEGLECT

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It seems to be the fundamental rule running through Nature that periods of rest or quiescence alternate with periods of activity, complete or incomplete. In this great world we know that light and darkness, summer and winter, rain and dryness alternate; and in our bodies respiration, heart beats and mental activity alternate with periods of rest. Joy and sorrow, hope and fear, exaltation and depression, love and hate alternate.

When we turn to the field of therapeutics, we can think of many conditions that require some active and immediate attention, such as injuries resulting from accidents; but in all cases—surgical or medical—there comes a period of rest. Following a gallbladder operation, removal of the tonsils or the appendix, the setting of a fracture, the removal of the prostate gland or of a cataract, a period of rest follows; so with therapeutics of medicine, such as drugs, baths and massage, administration is followed by periods of rest.

To abridge this period of rest is in general meddlesome therapeutics. Yet, what is more common with the patient or his friends than to urge the physician to do something—this, that or the other thing? And what physician has not been called on to resist his own impulse to do this, that or the other thing in his extreme anxiety to relieve the patient and hasten his recovery? The man who cannot wait is a man who is keyed u and desires immediate results. He is with us alway and his numbers are legion. He desires quick gai large profits in a financial way, short cuts to educatio and an easy way to heaven. If his illness is at a prolonged he is apt to go from one medical adviser t another. He is likely to try the various cults and cure alls, selecting the one that most appeals to his make-u and temperament, whether on a materialistic or a idealistic basis. Many, many times—too often—th patient's clamor for quick cure has led the physician t change face about in therapeutics far more than is good for the patient or for his own professional development.

Let me attempt more particularly to apply these principles to the treatment of a great group of functional diseases which we call the psychoneuroses, which include hysteria, neurasthenia, psychasthenia and anxiety neuroses. Here commonly the patient is self-centered, given to self-pity, in many cases to an astonishing degree. The fact that his desire and thought are so set on himself and the cure defeats that very object. He pulls, but he does not let go. There is not in the man the alternative that is to be found in the normal man, periods of somberness and foolishness, of activity and rest, desire for work and for play. He wrinkles his brows and sets himself toward the goal of getting well; but he cannot laugh—he cannot let go.

The task before the physician who handles such a patient is to lead him to forget himself; and this obviously cannot be done by merely telling the patient to do so. He must try to bring to the channels normal life, activity in the various ways depending on his make-up, temperament and social situation. He should be taught to work and to play and somehow taught to laugh. Baths, regulation of the bowels, and massage, may all help to these ends, but there is something about the personality of the physician, something of guidance of the patient's whole life, that is vital to the success of the plan in many cases. There is one thing these patients need which they often do not receive; namely, neglect. Not careless neglect, the neglect of a physician not on his job; but studied, careful neglect: the sort of neglect that has for its object to lead the patient to lean on himself and to forget himself. The medicine bottle and the pill box, I often tell people, are crutches and sometimes useful crutches, but always should be dispensed with as soon as it is possible to do so. The physician is a crutch himself, to be dispensed with as soon as the patient can do without him.

The great value of thorough physical and mental examinations of patients has been sufficiently emphasized of late years; but while approving of all this, I am of the opinion that there are patients who are examined far too much. The self-centered psychoneurotic delights in examinations, reexaminations and more examinations. And in these days of many clinical procedures and manifold laboratory tests we run a great risk of overexamining certain of these psychoneurotics. There is a judicious neglect which the physician makes in his visits. It is extremely important and necessary that enough time be given to hear the patient's story; but it is a mistake to spend time in hearing undue repetitions of this story. While the first visit may be of an hour's duration, the next one may be half an hour; and other visits of a minute and half may be most appropriate. There are times when the patient is much better visited once a week or once in two weeks rather than every other day. There is a

type of psychasthenic patient that leans—leans on drugs, on appliances or members of his family, and on his physician. He does the maximum leaning instead of the minimum leaning, and does not look forward to the time when he will not lean at all. The job of the physician is to lead him to lean less and less and, if possible, to walk alone and not lean at all. So it becomes evident that in consideration of all illnesses, perhaps none more than psychoneuroses, there is great wisdom in Ptah Hotep's application:

The archer hitteth the target, partly by pulling, partly by letting go.
The boatman reacheth the landing, partly by pulling, partly by letting go.

AN EXPERIMENTAL STUDY OF MULTIPLE SCLEROSIS*

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AND
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I. CLINICAL HISTORY AND GENERAL DISCUSSION

By Joseph Collins, M.D.

Hysteria and disseminated sclerosis are the nervous diseases of mystery. They are half sisters who reveal their relationship in the way they carry on. The greatest master of modern neurology courted them so assiduously that his name is indissolubly linked with both of them. He did not succeed in making them yield the secret of their being, and his successors have not succeeded. Now that syphilis is being forced into the category of curable diseases, and now that there is hope that we shall be able soon to shape and control by serum and antitoxin diseases caused by cocci and bacilli, hysteria and disseminated sclerosis are the two diseases of the nervous system on which the physician and bacteriologist may concentrate their exploratory urge.

An instructive lesson may be learned from the history of disseminated sclerosis in this country. Less than a generation ago, it was thought to be a rare disease. Less than a generation ago there was scant recognition of neurology, of its claim in college and hospital, and of nervous diseases in the clinic or in private practice. Today it is generally admitted that disseminated sclerosis is one of the commonest organic diseases of the nervous system, and today the teaching of neurology has a place commensurate with its importance in the medical curriculum. In proportion as patients complaining of motor disorder have been examined carefully, methodically and repeatedly, so have the statistics that establish the frequency of the disease come forth.

The first important contribution to our clinical knowledge of the disease was recognition of the fact that the formes frustes of Charcot, the aberrant or atypical forms of the disease, were the rule, not the exception; and that the so-called classical form of the disease displaying itself in spastic extremity, scanning speech, intention tremor, and nystagmus, was the exception, at least in the early stages of the disease.

The second important contribution was that the majority of cases diagnosed twenty-five years ago as examples of myelitis, acute, subacute and chronic, were in reality cases of disseminated sclerosis.

The third and very important contribution was the demonstration that many cases of paraplegia, monoplegia and transitory disturbances of sensation diagnosed as hysteria were cases of disseminated sclerosis.

And finally, a significant clinical fact was recognized when we learned that disseminated sclerosis sometimes pursues a most extraordinary course: that is, not only does it cease to progress, but it practically ceases to be; and the patient, obviously helpless, and apparently hopeless, sheds all manifestations of disease and returns to the engrossments and diversions of ordinary life. Unfortunately this is the exception, not the rule.

It would be an interesting chapter to give the details of how these steps were taken and who was most instrumental in accomplishing them, but I have no intention of doing it here.

All that we know of the occurrence of the disease can be summarized in a sentence: It is a disease of early maturity; it affects males somewhat more frequently than females; it occurs oftener in those who do skilled manual labor than it does in ordinary laborers and brain workers, and it is encountered oftener in northern countries—Great Britain and northern Europe and the northern part of the United States—than in southern. It has followed infectious disease and trauma in such a considerable proportion of the cases that it has been thought that there is a causal relationship between these two incidences and the occurrence of the disease; but this is doubtful. The probabilities are that there is some specific cause of disseminated sclerosis.

Disseminated sclerosis may cause symptoms that parallel those of any and every organic disease of the central nervous system. Every person between the ages of 15 and 45 who complains of motor disturbance of any sort, tremor, spasticity or enfeeblement, or of sensory disturbances, such as tingling, numbness and other paresthesia, especially if they are transitory and associated with motor disorder, should be suspected of having disseminated sclerosis.

With just the same certainty that the loss of the pupillary light reflex indicates syphilis of the nervous system, so does the loss of the abdominal reflex suggest disseminated sclerosis; and as we seek corroboration of a diagnosis of syphilis of the nervous system in the patient whose pupils have ceased to respond to light by examining his tendon jerks, investigating his sensory perception, and testing the reaction of his serum, so do we search in the patient whose abdomen no longer responds to gentle stroking by investigating his superficial and deep reflexes, his ocular mobility, the steadiness of purposeful manual movements, and the rhythm of his articulation. If his superficial reflexes are diminished, his tendon reflexes increased, his eyeballs oscillatory on attempted lateral fixation, if the rhythm of his speech is disturbed, or if he has intention tremor, the diagnosis of disseminated sclerosis may be made with much certainty.

The most constant early symptom of disseminated sclerosis is fleeting, subjective sensory disturbance. It is rarely elicited save on closest inquiry. The most constant symptom which the patient relates is easily induced fatigue, weakness and stiffness of one or more extremities. It is always associated with increased tendon jerks and often with the Babinski big toe phenomenon and allied signs.

The cranial nerves that are most frequently disordered are the first, the third and the sixth, and the display is in lacunar losses of acuteness of vision, cen-

* Read before the thirty-eighth meeting of the Association of American Physicians, Atlantic City, N. J., May 2, 1923.

tral and circumcentral scotoma, transitory diplopia, and nystagmus. The most pathognomonic sign of disseminated sclerosis is pallor of the temporal disks. So far as we know, it is found in no other disease.

The islets of disseminated sclerosis may occur in any part of the central nervous system; hence evidences of encroachment on, and destruction of, any part of the central nervous system may be a symptom of disseminated sclerosis.

No one is ever justified in giving arbitrarily an unfavorable prognosis in disseminated sclerosis, it matters not how helpless the victim of the disease may be; and since many have taken in hand to set forth a declaration of other import, I relate this experience: Twelve years ago there was brought to the Neurological Institute a young athlete, bedridden with spastic paraplegia for nearly a year. Because of fairly definite sensory disturbance, it was thought that he might have a tumor compressing the spinal cord. Repeated examination and protracted observation showed that, in addition to the spastic paraplegia and its customary concomitants, he had loss of abdominal reflexes, nystagmus, enfeeblement of the left upper extremity, and circumcentral scotoma. The vesical sphincter was irritable, the rectal sphincter sluggish. The symptoms had existed for nearly a year, and the state of helplessness which caused so much anxiety to him and to his family was of four months' duration. Repeated inquiry finally elicited the fact that when he was in high school eight years before, he had had an attack of "lameness" that laid him up for several weeks, and that at that time his feet and hands were numb. This man has now been at work for ten years, the advertising manager of a large and engrossing business. He admits that he plays a good game of golf, but I sometimes beat him.

Eighteen months ago, Dr. Noguchi suggested that I select a number of cases of disseminated sclerosis and send blood and cerebrospinal fluid to him, in order that he might test the alleged spirochetal origin of the disease. I selected eight cases:

Case 1.—A man, aged 23, had had dishonorable discharge from the army. The discharge regrettably reflects on the clinical acumen of some of our profession. He was looked on as a malingerer. If spasticity, paralysis, exaggerated tendon jerks, the Babinski sign, loss of abdominal reflex, nystagmus, scanning speech, and intention tremor constitute competent testimony, he has disseminated sclerosis. He was a recent case, therefore, and there is nothing further interesting about him.

Case 2.—A man, aged 35, unmarried, presented a "classical" case of disseminated sclerosis. The noteworthy feature was that he had had profound osteomyelitis as a boy and recovered after a prolonged stay in the Rocky Mountains.

Case 3.—A man, aged 27, had had symptoms for two years. His was an "atypical" case; that is, he had no nystagmus, intention tremor, nor scanning speech, but he was a genuine example of disseminated sclerosis nevertheless.

Case 4.—A man, aged 22, had more of the so-called typical, objective symptoms than in Case 3, and few would doubt the validity of the diagnosis.

Case 5.—A woman, aged 40, had had symptoms only two years. One should always be on the lookout not to mistake such symptoms in a person of 40 for disease of the blood or blood vessels. But, as in so many of these cases, it was found on close inquiry that it was this attack that had existed two years. This patient had had transitory symptoms when she was 26, and again when she was 31.

Case 6.—A man, aged 36, a painter, had a doubtful case. It was thought that his symptoms might be due to lead poisoning, but we never were able to recover lead from the urine, and there was no stippling of the blood corpuscles. As time goes on, one is permitted to say with more assurance that this is a case of disseminated sclerosis.

Case 7.—A man, aged 34, whose symptoms had been in existence three years, had never had any indication of a remission.

Case 8.—A man, aged 46, had been ill during seven years. His disease had frequently been diagnosed as lateral sclerosis, and nobody knows just what that means. Most cases diagnosed as lateral sclerosis are cases of disseminated sclerosis.

Seven of our patients were Jews, and two, Gentiles. This will give cause for reflection only to those who have never been to the Neurological Institute, or who are not familiar with its statistics.

II. EXPERIMENTAL RESULTS IN ANIMALS INOCULATED WITH BLOOD AND CEREBROSPINAL FLUID

By Hideyo Noguchi, M.D.

The possibility is gaining ground that disseminated sclerosis is of infectious origin. Bullock,[1] as long ago as 1913, reported that he had produced the disease in laboratory animals, but it was not until Kuhn and Steiner[2] announced, in 1917, their finding of a spirochete in the blood and organs of guinea-pigs and rabbits inoculated with spinal fluid or blood or both from four exacerbation cases (three fresh and one recent) that the problem appeared to be narrowed down to a definite micro-organism. The spirochete was observed in fresh preparations under the dark-field microscope, also in smears stained by Loeffler's technic for flagella staining, and occasionally in alcohol-fixed organs stained by the Levaditi method. The organism was designated by Kuhn and Steiner as *Spirochaeta argentinesis* from the Latin name of Strasbourg, where the work was carried on.

The description of *Spirochaeta argentinesis* is of interest because of the rather inconstant morphologic features of the organism. By dark-field illumination it was said to vary in length from a fraction of the diameter of the red cell of the infected animal to a whole diameter, while in width it was more delicate than *Leptospira icterohaemorrhagiae* of Weil's disease, being often of extraordinary thinness. There were often highly refractile balls at both ends. Some specimens showed a loop at the end or along the course of the body. The movements were somewhat wormlike, moderately active, but seldom rotatory as in the case of *Leptospira icterohaemorrhagiae*. In stained preparations a small, delicate, straight projection of varying size was observed, resembling a flagellum. In Levaditi sections of the liver of animals, the organisms appeared only in the blood vessels, never in the tissue itself. Only a few isolated blood vessels were involved. No spirochetes were found in human materials.

In guinea-pigs the disease lasted from three days to twelve weeks from the time of inoculation to death. Paralysis was usually present. In rabbits the symptoms consisted of emaciation, inactivity, ruffled fur, paroxysmal drowsiness, increased reflexes, and paralysis before death. No remarkable changes of organs were observed at necropsy, and no organisms grew on culture mediums.

Siemerling,[3] in 1918, asserted that he had observed under the dark-field microscope a similar spirochete in

1. Bullock, W. E.: The Experimental Transmission of Disseminated Sclerosis to Rabbits, Lancet **2**: 1185, 1913.
2. Kuhn, P., and Steiner, G.: Ueber die Ursache der multiplen Sklerose, Med. Klin. **13**: 1007, 1917.
3. Siemerling, E.: Spirochätenbefund in Gehirn eines Falles von multipler Sklerose, Berl. klin. Wchnschr. **55**: 273, 1918.

the brain of a man who died of multiple sclerosis. Büscher [4] and Speer,[5] in 1921, reported each one positive finding. Speer's case was diagnosed by histologic examination of the brain and cord, and the spirochete was found under the dark-field in a fresh preparation from a grayish red focus in the medulla oblongata. A number of larger forms were seen, which in appearance recalled the tetanus bacillus or spermatozoa, or had lateral buds. Also some regular forms resembling *Treponema pallidum*, but perhaps shorter and thinner, were described. The spirochetes remained active in the smear for seven hours. Speer, like Siemerling and Büscher, found no spirochetes in Levaditi sections.

Simons,[6] in 1918, reported positive transmission to rabbits with blood. Marinesco,[7] in 1919, saw active spirochetes in the fluid from the fourth ventricle of guinea-pigs dying of paralysis within from three to four days after intracerebral inoculations of blood serums from two cases of multiple sclerosis. Marinesco failed, however, to obtain similar positive results on repeating the experiments.

Kuhn and Steiner [8] studied thirteen additional cases and found the spirochete in four of six early cases and in one exacerbation case, but none in six old cases. By inoculating blood intra-ocularly, positive transmission to rabbits and guinea-pigs was obtained in six cases. The authors report successful demonstration of the spirochetes in tissues by silver impregnation.

Birley and Dudgeon,[9] in 1921, obtained uniformly negative results with materials from thirty-five carefully selected cases of multiple sclerosis. Stevenson [10] examined thirty-seven sections, from four cases, stained by Jahnel's silver impregnation method, but found no spirochetes.

Kalberlah [11] studied two relatively recent cases; one of the rabbits inoculated with cerebrospinal fluid from the first case showed symptoms of paralysis, and a spirochete was found in the circulating blood, while in the second case numerous spirochetes of indisputable morphology were demonstrated in the blood vessels and liver tissue. Pettit [12] succeeded in producing a fatal disease in rabbits, and in one instance also in guinea-pigs and a monkey, with cerebrospinal fluid from four cases, and organisms resembling spirochetes were found in the cerebrospinal fluid of the animals. In one instance he was also successful in transmitting the disease from monkey to rabbit.

Gerson [13] does not regard the finding of spirochetes in certain instances as satisfactory evidence that they have a specific etiologic relation to multiple sclerosis, and calls attention to the fact that certain cases of syphilis simulate typical multiple sclerosis, whence confusion in diagnosis may have occurred in the instances in which spirochetes were found.

4. Büscher, J.: Spirochätenbefund bei multipler Sklerose, Arch. f. Psychiat. u. Nervenh. **62**: 426, 1920.
5. Speer, E.: Spirochätenbefund im Menschlichen Zentralnervensystem bei multipler Sklerose, München. med. Wchnschr. **68**: 425 (April 8) 1921.
6. Simons, A.: Zur Uebertragbarkeit der multiplen Sklerose, Neurol. Centralbl. **37**: 129, 1918.
7. Marinesco, G.: Etude sur l'origine et la nature de la sclérose en plaques, Rev. neurol. **26**: 481 (June) 1919.
8. Kuhn, P., and Steiner, G.: Ueber die Ursache der multiplen Sklerose, II, Ztschr. f. Hyg. u. Infektionskr. **90**: 417, 1920.
9. Birley, J. L., and Dudgeon, L. S.: Clinical and Experimental Contribution to the Pathogenesis of Disseminated Sclerosis, Brain **44**: 150 (July) 1921.
10. Stevenson, G. S.: Spirochete Stain in Multiple Sclerosis, Arch. Neurol. & Psychiat. **9**: 88 (Jan.) 1923.
11. Kalberlah, F.: Zur Aetiologie der multiplen Sklerose, Deutsch. med. Wchnschr. **47**: 102 (Jan. 27) 1921.
12. Pettit, A.: A propos de la nature infecticuse de la sclérose en plaques, Bull. de l'Acad. de méd. **86**: 824, 1922.
13. Gerson, M.: Zur Aetiologie der multiplen Sklerose, Deutsch. Ztschr. f. Nervenh. **74**: 251, 1922.

Our purpose in taking up the question of the etiology of multiple sclerosis was, if possible, to confirm and extend the observations of Kuhn and Steiner, and to study the spirochete by means of cultivation. As indicated in the experimental protocols presented below, the results were disappointing, being chiefly negative.

The histories of the eight cases available for study have been outlined by Dr. Collins. The general plan of the experiments was as follows:

The blood and cerebrospinal fluid in every instance were utilized within a few hours from the time of withdrawal. The blood was citrated, oxalated, defibrinated, or used in the form of clear serum from the clot. The materials were sometimes inoculated separately into rabbits and guinea-pigs, but more frequently a mixture of blood and spinal fluid was employed. In most cases a combination of two or more modes of inoculation was used. A rabbit or guinea-pig was usually injected both intracerebrally and intraperitoneally, and the rabbits, in addition, often received some material intravenously and intratesticularly. Intra-ocular instead of intracerebral inoculations were performed in some instances. Cultures were set up with ascitic fluid tissue medium, such as that employed for the cultivation of *Treponema pallidum* and other anaerobic treponemes;[14] also in the medium used for growing relapsing fever spirochetes,[15] and in leptospira medium.[16]

Material from Case 1 was inoculated on two occasions, six guinea-pigs and three rabbits being used in the first instance, and four guinea-pigs and four rabbits in the second. Nothing of note developed. In Cases 2, 3, 4, 5 and 6, inoculations were made in each instance into four guinea-pigs and four rabbits, with similar negative results. In Case 7, two guinea-pigs and four rabbits, and in Case 8, three rabbits were inoculated, also without any result that can be interpreted as experimental reproduction of multiple sclerosis.

Among the guinea-pigs, a number of animals showed one or more periods of high temperature, lasting sometimes for several days and being followed by irregular fever. Cultural examination of these animals usually revealed infection with a strain of paratyphoid or hog cholera bacillus. Some recovered; others remained alive, but showed marked emaciation. Rabbits also suffered to some extent from secondary infection. Some died of rabbit septicemia, the cultural and pathologic findings being typical of that infection. Occasionally a peculiar loss of equilibrium was observed, but this symptom is not uncommon in infection with *Bacillus lepisepticus*.

Repeated dark-field examinations of the blood and cerebrospinal fluid while perfectly fresh failed to reveal any spirochetes. Most of the culture tubes remained free from ordinary contaminations, but no spirochetes were found in any of them. Injections of the contents of the culture tubes into guinea-pigs and rabbits produced no symptoms of significance. Dark-field examination of peripheral or heart blood of the inoculated guinea-pigs and rabbits showed no spirochetes. In addition to blood, emulsions of liver, spleen, kidney, suprarenal glands, lymph nodes, and the brain from guinea-pigs or rabbits killed at the height of fever were carefully examined under the dark-field microscope

14. Noguchi, Hideyo: A Method for the Pure Cultivation of Pathogenic Treponema Pallidum (Spirochaeta Pallida), J. Exper. Med. **14**: 99, 1911; Pure Cultivation of Spirochaeta Refringens, ibid. **15**: 466, 1912.
15. Noguchi, Hideyo: Cultivation of Spirochaeta Gallinarum, J. Exper. Med. **16**: 620, 1912.
16. Noguchi, Hideyo: Etiology of Yellow Fever, VI, Cultivation, Morphology, Virulence and Biological Properties of Leptospira Icteroides, J. Exper. Med. **30**: 13 (July) 1919.

without a single positive finding. The usual morphologic elements were present in the citrated and defibrinated blood, in suspensions of the clot, and in organ emulsions, elements such as frequently deceive even the skilled microscopist when seen by dark-field illumination. Errors from this source have occurred in the past and are particularly apt to occur when the illumination is partial, the delicate, tremulous, beaded filaments of varying length and width appearing as if moderately motile, and behaving not unlike the leptospira group of spirochetes. By full central illumination they are shown to be thinner than the leptospiras. These filaments are abundant in blood suspensions kept for a time at room temperature, and there are many swimming forms not attached to erythrocytes. They are undoubtedly derived from altered red corpuscles. They cannot be stained by Giemsa's solution, but are sometimes brought out by Loeffler's stain for flagella. It is, of course, unlikely that Kuhn and Steiner interpreted these filaments as delicate spirochetes of the leptospira group, yet the description of their spirochete strikingly suggests the forms just referred to.

The negative results obtained in the present investigation indicate that the demonstration of *Spirochaeta argentinesis* and the experimental reproduction of multiple sclerosis in guinea-pigs and rabbits are difficult. Renewed effort with material from fresher cases is desirable.

Clinical Notes, Suggestions, and New Instruments

LEFT SUPERIOR CERVICAL SYMPATHECTOMY UNDER LOCAL ANESTHESIA IN ANGINA PECTORIS

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The recent articles of Brown and Coffee, and of Muller, have given added interest to, as well as a summary of, our present knowledge of the control of the sympathetic over the vascular system. The barrenness of the literature on this subject justifies another case report with some remarks on the technic and regional anatomy of this operation.

REPORT OF CASE

G. J., a man, aged 78, a cement worker, born in Germany, who had three healthy adult children over 50, whose father died of cancer at 84, and whose mother died of nephritis at 30, had always been robust. He always had chronic bronchitis, which he believed followed an attack of malaria in childhood. He was a moderate drinker and a very hard worker.

About three years ago, while climbing a hill, he was suddenly seized with a heavy feeling in the chest, over the precordium, which quickly disappeared on resting. Since then, similar attacks have followed exertion, with increasing frequency until February, 1923, when he gave up work, which at that time was the driving and care of a team of horses. During the month of November, 1922, he had a general arthritis, with lumbar pain. This left a residual soreness of the left shoulder, which was difficult at times to distinguish from the onset of an anginal attack. The anginal attacks at first only followed severe exertion, but in March, 1923, they began to awaken him from sleep and became more frequent and severe at night. By April, severe attacks followed any excitement or exertion, such as coughing, eating or defecation; besides these, apparently spontaneous ones became very frequent.

Rest in bed, the administration of iodids, bromids, salicylates, benzyl benzoate, iron, arsenic and calcium lactate did not delay the progress of the disease. The administration of amyl nitrite in 5 minim pearls was started, May 10, and at first it gave almost instant relief. By May 21, the patient was consuming from six to eight pearls a day. His appetite disappeared, and vomiting frequently followed an attack. With increasing frequency and severity of attacks, 1/100 grain tablets of nitroglycerin were given under the tongue every half hour as a preventive, but without success. Slight temporary improvement followed the use of spirit of glyceryl trinitrate. June 13, after weeks in bed, the patient was receiving the equivalent of 1/100 grain of nitroglycerin under his tongue, by a trained nurse, every fifteen minutes night and day, whether sleeping or waking, from fifteen to twenty-five pearls of amyl nitrite during the twenty-four hours; 2 grains of sodium nitrite and 1/4 grain of morphin every three hours. In spite of this heroic dosage, he suffered eight severe attacks in six hours, during which the family thought the patient was dying and had the last sacraments of the church administered.

At this time he was sallow, anemic and gray-haired and fairly well nourished. His wrinkled face, falling in edematous folds under his eyes, caused a sorrowful, masklike expression. There was marked arcus senilis. Entropion of both lower lids associated with narrowed palpebral openings was also present. There was no paralysis of the cranial nerves, and no visible pulsation in the cervical blood vessels. He had no enlarged glands; no tracheal tug was observed. He had a barrel shaped chest held in expansion, and the lungs were large and emphysematous. Occasionally a bronchial râle was heard. His vital capacity was 3.8 liters; there was no visible or palpable apex heat, and no precordial heave. Manubrial dulness was markedly increased. The heart was moderately enlarged, but no adventitious heart bounds were heard. Arterial sclerosis was marked. There were no irregularities in force or rhythm. The right and left radial pulses were synchronous. The abdomen was normal. There was no edema of the feet. Traces of albumin and a few hyaline casts were found in the urine. The hemoglobin was 70 per cent. The systolic pressure was 140 mm. of mercury; the diastolic, 80. The Wassermann test was negative.

Mild seizures lasted about five minutes, while severe ones might last for thirty minutes and be followed by a second attack if the nitrites were withheld for more than fifteen minutes. The onset of a seizure was usually marked by an aching sensation on the median side of the left olecranon, which persisted and extended to both the left wrist and shoulder. After a few seconds a crushing agonizing pain gripped his chest, centering over the precordium. He said his whole body seemed to tingle like "pins and needles" for a few minutes, and then the pain gradually vanished. If he was awake he told the nurse, "she's a-coming again," and then remained quiet if the attack was of moderate severity; but if severe, he might get out of bed and lie prone on his face on the floor, giving vent to slow expiratory groans, which resembled the bellow of a bull. Frequently he had awakened the neighbors, and sometimes the policeman on the beat came into the house to offer assistance. During sleep he became restless and groaned, and if the attack was mild and his nitroglycerin tablet was active and given quickly, he might not awaken.

After an attack, he was exhausted. If vomiting followed, it frequently precipitated a second attack. During an attack, no change in pupils was observable. The palpebral opening narrowed. The pulse was slightly changed, sometimes slower, sometimes a little faster. The blood pressure was difficult to get accurately, but apparently did not change in mild attacks.

After witnessing several of the severe attacks and noting the intense anguish the man was suffering, with the apparent futility of any tried medicine to ward off the rapidly approaching end, I yielded to the repeated demands of the patient and his family to try an almost unknown procedure.

With anatomies differing as to the exact location of the superior cervical sympathetic ganglion, I felt safer in following the general lines laid down by Mayo,[1] except that I used a local anesthetic. I selected the left side because there the onset and greatest severity was displayed.

1. Mayo, C. H.: The Surgical Treatment of Exophthalmos, J. A. M. A. 63: 1147 (Oct. 3) 1914.

June 14, after the patient had passed a night of terrific suffering, under 1 per cent. procain local anesthesia, I made a 3 inch incision over the anterior border of the left sternocleidomastoid muscle, with its upper end on the level of the angle of the jaw when the head was well extended. The incision was deepened until the spinal accessory nerve was recognized, and then nerve and muscle were both retracted laterad. The tips of the lateral transverse processes were almost directly under the fingers and could be readily palpated, as could the pulsation of the internal carotid artery in the carotid sheath on the median side of the incision, which might be retracted mediad while the incision exposed the tips of the transverse processes. Closely hugging the anterior surface of the transverse processes the longus colli et capitis muscle was exposed. On the anterior surface of this muscle, about 1 cm. from its lateral border, the spread out, pinkish-gray ganglion was found just posterior to the carotid sheath. It was about 2.5 cm. in length, 0.75 cm. in breadth, and ⅓ cm. in thickness, fairly firm in consistency, with three or four median and lateral branches each, and a heavier cord extending toward the head and another down the neck to unite with the median cervical sympathetic ganglion.

Teleroentgenographic Examination of Heart at Six Feet Distance from Tube

	Normal Cm.	Patient 5/22/23	Patient 7/14/23	Patient 8/14/23
Transverse diameter of aorta....	4.5	9.3	8.8	8.8
Left ventricle	6.8	9.6	10.8	9.5
Right auricle	3.3	6.2	5.1	6.3
Left auricle	4.5	6	9.3	5.8
Greatest transverse diameter.....	13	15	14.5	15.5
Greatest oblique diameter.....	14	16.8	16.3	16.6

Noting that pinching of the ganglion did not slow the heart rate to rule out the possibility of mistaking it for the vagus nerve, which at a higher level becomes fusiform in shape, I excised it in toto with as much of its several attachments as possible. This was immediately followed by a dull pain over the left ear and the mastoid and occipitoparietal region. There being no hemorrhage, the superficial fascia was closed with a few interrupted sutures of catgut, and the skin was closed with horsehair without drainage.

The patient was returned to his room feeling comfortable, after being absent from it for fifty-six minutes, of which from seven to ten were consumed in changing soiled drapings, the result of a severe attack followed by vomiting and the administrations of nitrites.

If in doubt at any time, there are landmarks that will quickly orient one. While finding the spinal accessory nerve, the submaxillary gland will protrude into the upper end of the incision, and just posterior to it the lateral belly of the digastric muscle. Mediad the pulsation of the internal carotid artery is always available in the carotid sheath, which need not be opened. In the sheath at this level, just anterior and lateral to the artery, is the internal jugular vein; and posteriorly, between vein and artery, is the vagus nerve. Many lymph nodes will be encountered, which if diseased and enlarged from other causes might give considerable difficulty to the dissection, but should offer none in their identification. The second and third cervical nerves lie posterior and lateral to the respective transverse processes. The fourth cervical nerve, from which springs the phrenic, lies at the very lower end of the incision and is out of the way unless one wishes to excise the median cervical ganglion.

With the exception of the first two nights after operation when two ¼ grain doses of morphin were administered for sleep, no morphin, amyl nitrite or sodium nitrite were given. For the first two weeks, nitroglycerin, 1/100 grain, was given in every half hour, and now, after two months, about 1 grain every two hours during the day and every three hours during the night.

July 14, one month after the operation there had been no severe attack; the patient was cheerful, was eating and sleeping better, and was gaining in strength and weight. The left eye seemed slightly depressed, but no narrowing of the palpebral opening was appreciable. The wound was entirely healed and barely visible. There was some hyperesthesia of the left ear, and the mastoid and upper posterior triangle of the neck; the pulse was regular and ranged at about 75 to the minute. There was no paralysis of the head or neck. The systolic blood pressure was 132; the diastolic, 78. A soft systolic bruit was heard over the base and apex.

August 14, two months after the operation the patient was very cheerful and contented, and said that no operation was needed on the right side. His appetite was good, and he slept well, he could also walk a mile a day without discomfort. He took a normal interest in the daily paper and the happenings of his home and in the neighborhood. The bruit over the heart had disappeared. The pulse rate averaged 70. The systolic pressure had dropped to 110, the diastolic, to 75. He was not so short of breath as formerly. His greatest difficulty came during and after eating, when he had a feeling of pressure around the heart.

Teleroentgenographic examination of the heart disclosed that the diameter of the aorta had decreased.

So far there has been effected a complete relief from all severe symptoms.

The results have justified the means used in this case, and it is a justifiable procedure in those severe cases of angina pectoris that do not respond to rest and diet and the administration of nitrites. The incision over the anterior border of the sternocleidomastoid muscle gives a quick easy approach, and it may be safely attempted under local anesthesia when the condition of the patient will not justify the use of a general anesthesia.

CONDITION FIVE MONTHS AFTER OPERATION

November 12, five months after operation, the patient reported that he was in better health than had existed during the last two years. He had gained 26 pounds (12 kg.), and his waist measure had increased 4 inches in circumference. He frequently slept six hours at a stretch, and ate of everything. Overeating, however, was followed by a feeling of fulness and pressure on the level of the sixth rib at its cartilage articulation on the right side. He had not experienced any pain in the heart region, but had an aching pain in both arms and hands when they were cold or he was cold and when he became excited. This left when his hands were warmed. He experienced quicker relief if he took a minimum of spirit of glyceryl trinitrate, with the application of heat. He walked around all day without discomfort, and frequently walked 2 or 3 miles without resting, without discomfort. The scar in the neck was barely discernible. The scar was tender on pressure at the upper end. There was a just appreciable depression of the left eye. The pulse was 72; respiration, 20; systolic pressure, 120; diastolic, 78. There was an occasional extrasystole. No abnormal sounds were heard. There was some irregularity in the force of the beats. Red blood cells numbered 4,900,000; hemoglobin, 87 per cent.

202 Columbia Terrace.

A CASE OF BILATERAL RENAL HEMORRHAGE

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J. S., a man, aged 29, single, salesman, referred to me by Dr. M. H. Hazay, May 25, 1921, had never had urinary or any other disease. About three years ago his attention was called to the fact that the urine appeared bloody; since it caused him no inconvenience whatsoever, he did nothing to relieve the condition. The family history was negative. Recently he applied for a life insurance policy, and was rejected because of hematuria. The patient never had any renal colic, never noticed any gravel in the urine, and was free from any symptoms except the blood from the genitourinary tract.

Cystoscopic examination disclosed neither growth nor stones; the bladder mucosa was moderately engorged with both ureter openings perfectly normal except for the appearance of blood-tinged urine oozing from the two sides alike. Laboratory examination of catheterized specimens[1] showed

1. The patient was catheterized at least four times.

a large amount of blood present, but no other microscopic elements. No tubercle bacilli or renal casts were present. The roentgen ray showed neither abnormal size of kidney nor presence of any shadows.

We lost track of the patient until Feb. 28, 1922, when he returned, utterly discouraged. He had been treated by several physicians, as well as at one prominent hospital uptown, but the bleeding still persisted. He was advised to have his tonsils removed, which was done, without any effect whatever. Cystoscopy was again performed, with the same findings. Five cubic centimeters of silver nitrate solution, 0.5 per cent., was injected into each renal pelvis, and allowed to escape slowly through the ureteral catheters. This procedure was again repeated in five days, so that in all the patient received five treatments. Although the condition had existed for several years, the few local treatments totally cleared it up, so that the patient voided a perfectly clear urine.

Although the treatment resorted to in this case brought about a quick and satisfactory result, nevertheless the exact diagnosis is speculative. The literature reports many cases of renal hemorrhage of undiagnosed origin, or, to be more exact, hemorrhage without localizing a pathologic lesion as a basis for it. Hemorrhage, however, from both sides is rather rare. Of course, we exclude from this group such cases as nephritis with anatomic changes, toxemias, renal calculi, tuberculosis or neoplasms. E. L. Young,[2] for instance, refers to these cases as prenephritic condition of the kidneys. Why the case reported here cleared up by local treatment so promptly could hardly be explained by his theory.

It appears plausible, in view of the result obtained, that the diagnosis in our case was one of a bilateral papillomatous pyelitis, the hemorrhages having been due to vegetations in the pelvis and calices.

17 East Thirty-Eighth Street.

A CASE OF POSSIBLE THIRD INFECTION WITH SYPHILIS

LOYD THOMPSON, M.D., HOT SPRINGS NATIONAL PARK, ARK.

Since the advent of the intensive methods of treating syphilis, reports of second infection with this disease have been of comparative frequency. However, no report of a third infection has come to my notice, and a search of the available literature has failed to find such a report. Therefore this case seems of interest.

A. J., a man, aged 32, first consulted me, April 25, 1916, complaining of a sore on the penis. The family and past history, with the exception of the venereal history, were unimportant. He stated that he had had a sore on the penis in 1911, which was diagnosed clinically as a syphilitic chancre and for which he received one intramuscular injection of arsphenamin. He denied any further evidences of or treatment for syphilis.

Examination revealed an eroded, circular lesion about 1 cm. in diameter on the dorsum of the penis about 2 or 3 cm. back of the corona. This lesion was a typical clinical chancre, moderately indurated, and contained many spirochetes. No scar of the 1911 lesion could be found, although the patient stated that it was close to the present one. He further stated that the present lesion had begun with a small "pimple" about five days previously and about two weeks after a suspicious intercourse. No treatment had been instituted except that the patient had washed the lesion with hydrogen peroxid.

There was a moderate bilateral inguinal adenitis, but no other lymphatic glands could be found enlarged. The blood Wassermann reaction was negative, and the neurologic examination did not reveal any evidences of involvement of the central nervous system.

The patient was placed on moderately intensive antisyphilitic treatment, including weekly intravenous injections of arsphenamin and daily intramuscular injections of mercuric benzoate. In all, he received six injections of 0.4 gm. of the arsphenamin and thirty injections of 0.02 gm. of the mercury. During this time the penile lesion completely healed, leaving a small, white scar, while the Wassermann reaction remained constantly negative.

I did not see the patient again until May 10, 1923, when he once more came to me complaining of "a sore on the penis." Since I had seen him in 1916 he had received two courses of treatment similar to the one I had given him, one in December, 1916, and January, 1917, and one in January and February, 1918, although the Wassermann reaction on several occasions had remained negative. The last test that he had had was in the summer of 1920.

Since February, 1918, he had received no antisyphilitic treatment and had been in good health with the exception of a moderately severe attack of influenza in November, 1918.

Examination revealed a small, indurated, papular, eroded lesion about 0.5 cm. in diameter just to the right of the frenum, which contained many spirochetes. This lesion had been present for three days and had not been treated. The patient admitted a suspicious intercourse one month previous, although he had been married in 1920, and stated that he had been exceedingly careful to wash with a solution of potassium permanganate following the intercourse.

There was a slight, bilateral, inguinal adenitis; and one or two nodes in the cervical region could be palpated. The blood Wassermann reaction was negative, and the neurologic examination showed nothing suspicious of central nervous system involvement. However, after considerable urging, the patient consented to lumbar puncture. The spinal fluid was normal.

The patient was placed on antisyphilitic treatment, receiving eight intravenous injections of arsphenamin and thirty-five intramuscular injections of mercuric chlorid during a period of five weeks. The penile lesion healed rapidly, leaving only a faint scar.

COMMENT

That the infection which occurred in 1911 was syphilitic there seems only slight room for doubt. The clinical diagnosis was made by an experienced physician, and the lesion healed rapidly following the intramuscular injection of arsphenamin. Furthermore, it has been observed by me and by other syphilologists in the early days of the use of arsphenamin that one intramuscular injection of the drug has apparently effected a cure in undoubted syphilis. The second and third penile lesions in this case were unquestionably syphilitic, so we were dealing with a second infection and possibly with a third infection with *Spirochaeta pallida.*

2. Young, E. L., Jr.: Renal Hematuria as a Symptom of a Prenephritic Condition of the Kidneys, Tr. Am. Urol. A. **12**: 220, 1921; Surg., Gynec. & Obst. **31**: 478 (Nov.) 1920.

TREATMENT OF PERTUSSIS WITH INTRAMUSCULAR INJECTION OF ETHER

CLEON C. MASON, M.D., LONG BEACH, CALIF.

This is a preliminary report of twenty-six cases of pertussis treated by the deep intramuscular injection of ether as described by Genoese.[1] The technic as described has been followed except that slightly larger amounts of ether were used.

Of the twenty-six patients, with ages ranging from 6 months to 8 years, sixteen stopped coughing after eight injections and did not cough again; six were definitely benefited, i. e., the paroxysms became less frequent and less severe, and in four cases the course of the disease was not altered in any way.

Care was taken in order to be certain of the diagnosis, as a mild epidemic was prevailing; either other members of the family had pertussis or the child was having typical attacks of whooping, or there was in every case a definite history of exposure.

Of the sixteen patients in whom the cough stopped, none had whooped to exceed four days, six had whooped for the first time on the day the treatment was instituted, and the other ten had whooped from two to four days. Of the six patients definitely benefited two had vomited but had not whooped (later both of these patients developed a mild whoop), and the other four had been whooping for from

1. Genoese, Giovanni: Policlinica, Rome **29**: 1105 (Aug. 21) 1922.

ur to seven days. Of the four not benefited, one had ver whooped, but proceeded to develop a severe attack ich massive doses of opiates did not alleviate; the other ree had been whooping more than seven days.

These patients were all seen in private practice, and in each stance the parents were told that the treatment was purely perimental and that no definite results could be promised. a number of cases not included in the series, the parents iled to bring the child back after a first or second injection. ie reports from the parents regarding the child's progress ere apparently quite candid, varying from enthusiasm to ite the opposite.

The ether injections were made with a long, fine platinum edle, deep into the buttocks. Commercial anesthesia ether as used. In only one instance was there any local reaction. his child developed a large area of induration, which omptly subsided on the application of heat locally. After out three hours, as a rule, there are no evidences of local reness.

The dosages used were: First day, 0.5 c.c., two injections; cond day, 1 c.c., two injections; third day, 1.5 c.c., two jections; fourth day, 2 c.c., two injections; fifth day, 2 c.c., ie injection; each day thereafter, the same amount as on the fth day. These dosages were slightly reduced for children nder one year. The injections did not seem especially painful. ne girl of 7 said that they felt cold and stingy.

Within thirty minutes after the injection there was a ecided odor of ether on the child's breath, which usually per-isted for some three to six hours. Several specimens of urine, ollected at hourly intervals after the injection, were examined, ut in no instance were the acetone bodies found.

From the figures given it will be noted that 60 per cent. f the patients stopped coughing and were apparently cured; 4 per cent. were definitely benefited; 16 per cent. failed to espond or became definitely worse. In nearly all cases in vhich any good was accomplished, the parents remarked on he increased appetite and improved general condition.

If these figures can be verified by a larger series of obser-ations in some institution where the patients can be carefully hecked, and the results accurately controlled, it would appear hat in the intramuscular injection of ether we have a treat-nent for pertussis which, although not wholly certain, will t least go farther in controlling the disease than either he opiates or the vaccines.

Recently, four additional cases were treated by the high ectal injections of 6 c.c of a 40 per cent. ether solution in olive oil. The injections were repeated every six hours. Two of these patients stopped coughing quite promptly, and two failed to respond. This method was employed in order that he treatment might be carried out at home; and, if a larger series proves its efficacy, it will make it much simpler of use and at the same time avoid the chief drawback to the method—he use of hypodermic injections.

It is quite obvious from the figures that the earlier the treatment is instituted, the greater the possibility of good results.

POSTVACCINAL CUTANEOUS REACTIONS

H. J. Templeton, M.D., Hiawatha, Utah

Mrs. C. W., aged 22, never previously vaccinated, was vaccinated during December, 1922, by her mother, a nurse in my employ. This was without my knowledge. The second day thereafter the patient applied to me to have a number of moles removed from her face and neck for cosmetic reasons. Eight or ten of these were easily removed at the first sitting by means of fulguration.

Two days later the patient came to me complaining that all of the areas that had been fulgurated itched and burned. The next day all these areas showed small papules. This led me to make a further investigation, in which I found that the vaccination which her mother had performed was taking nicely. Not only the original scarified area on the arm but also the fulgurated moles "took" at the same time. They all passed through the stages characteristic of a successful vaccination.

By extreme care, the marks on the face were kept small; but, even at that, they left small pock marks.

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

TETANUS ANTITOXIN CONCENTRATED (See New and Nonofficial Remedies, 1923, p. 284).

Cutter Laboratory, Berkeley, Calif.

Tetanus Antitoxin for Human Use.—Marketed in syringes containing 1,500 and 5,000 units each.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1923, p. 284).

Cutter Laboratory, Berkeley, Calif.

Diphtheria Toxin-Antitoxin Mixture.—Each cubic centimeter represents 3 L+ doses of diphtheria toxin neutralized with sufficient antitoxin to conform to the toxicity requirements of the U. S. Public Health Service. Marketed in vials containing, respectively, 1 Cc. and 50 Cc., and in syringes containing one immunizing treatment (3 Cc.) with a sterile needle for each injection.

ANTI-ANTHRAX SERUM (See New and Nonofficial Remedies, 1923, p. 287).

Cutter Laboratory, Berkeley, Calif.

Anti-Anthrax Serum for Human Use.—Marketed in double-ended vials containing 50 Cc. for intravenous injection. Smaller amounts for injection into the tissues about the pustule can be removed and injected with a Luer or other suitable syringe.

ANTIRABIC VACCINE (See New and Nonofficial Remedies, 1923, p. 294).

Cutter Laboratory, Berkeley, Calif.

Rabies Vaccine-Pasteur.—The virus is prepared according to the method of the Hygienic Laboratory of the U. S. Public Health Service. The cords are ground in a small amount of 50 per cent. glycerin and shipped daily. These emulsions are diluted by the physician at the time of injection in small individual dose syringes of sterile physiological solution of sodium chloride that are furnished with the treatment. The treatment consists of 21 daily injections.

DIPHTHERIA IMMUNITY TEST (SCHICK TEST) (See New and Nonofficial Remedies, 1923, p. 323).

Cutter Laboratory, Berkeley, Calif.

Diphtheria Toxin for the Schick Test.—Marketed in packages of two vials, one containing a definite volume of diphtheria toxin and the other containing sterile physiologic solution of sodium chloride with which the toxin is to be diluted before administration. The diluted toxin is of such a strength that 0.1 Cc. given intracutaneously constitutes a 1/50 M.L.D. There are approximately 50 test doses in each package.

CARBON TETRACHLORIDE MEDICINAL (See The Journal A. M. A., April 21, 1923, p. 1143).

Carbon Tetrachloride (Human Use)-P. D. & Co.—A brand of carbon tetrachloride-N. N. R. Supplied only in the form of capsules.

Parke, Davis & Co., Detroit, distributor. No U. S. patent or trademark.

Capsules Carbon Tetrachloride (Human Use)-P. D. & Co., 20 minims.

VERONAL (See New and Nonofficial Remedies, 1923, p. 63).

The following dosage form has been accepted:

Elixir of Veronal: Each fluid drachm contains veronal 2 grains in a menstruum containing alcohol 33.5 per cent.

DIPHTHERIA TOXIN-ANTITOXIN MIXTURE (See New and Nonofficial Remedies, 1923, p. 284).

E. R. Squibb and Sons, New York.

Diphtheria Toxin-Antitoxin Mixture (New Formula)-Squibb.—Each cubic centimeter represents 0.1 L+ dose of diphtheria toxin neutralized with the required amount of diphtheria antitoxin. Marketed in packages of three vials, each vial contains 1 Cc. of the mixture; and in vials containing, respectively, 10 Cc. and 20 Cc. of the mixture.

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SATURDAY, DECEMBER 22, 1922

WHERE ARE THE BILE PIGMENTS FORMED?

For three quarters of a century it has been known that a pigment which can be crystallized in orange-colored rhombic plates occurs in old blood extravasations. This "hematoidin" of Virchow has long been regarded as identical with the pigment bilirubin, which is a normal constituent of human bile; and the relationship is one of the widely accepted evidences of the formation of the bile pigments from the hemoglobin of the blood. It is known from direct experiment that when bilirubin is introduced into the circulation it can be "picked out" by the liver and excreted into the bile. Consequently, it has long been a question whether the biliary pigments are formed elsewhere in the body and merely eliminated by the hepatic cells, or whether the latter actually have the capacity to produce bilirubin and its derivatives within their own substance. The answer to this question has an important bearing on the genesis of jaundice. If the bile pigments are regularly produced elsewhere than in the liver, it must be assumed that the symptoms of icterus are due to an inability of the hepatic parenchyma to excrete them in a normal fashion; whereas, on the hypothesis of an intrahepatic genesis of the pigment, the occurrence of jaundice may equally well be due to obstruction sufficient to stop the outflow of bile, which then enters the capillaries of the liver and also, to a lesser extent, the lymphatics.

Several years ago, American investigators gave a directive turn to the question by demonstrating that the change from circulating hemoglobin will take place as promptly in mammals from which the liver has been excluded from the circulation as in normal individuals. A recent writer [1] has remarked that for ten years these experiments have been widely regarded in all countries as an irrefutable proof that the liver is not necessary for the prompt transformation of circulating hemoglobin into bilirubin, even by investigators who have not been able to reconcile some of their own observations with such a view. A reinvestigation of the subject by Rich,[1] in the Department of Pathology at the Johns Hopkins University, has shown that the experiments which have led to the conclusion that circulating hemoglobin can be rapidly transformed into bilirubin outside the liver are not valid because the method employed—that of observing changes in animals with the so-called "head-thorax" circulation supposedly independent of the rest of the viscera—need not actually exclude the liver from the circulation. The presence of unsuspected collateral circulation must always be reckoned with. In the latest investigation the liver was not merely tied off from all obvious vascular connections but was actually extirpated, whereupon the fate of hemoglobin introduced into the blood stream was studied. Transformation to bilirubin was never observed under such conditions. Rich regards it as necessary, therefore, to abandon the recently adopted belief that there exists a facile and ready mechanism for the transformation of circulating blood pigment into bile pigment outside the liver, and to return to the old view that the transformation takes place normally only within the liver itself.

It will be appreciated that this conclusion is not without significance in relation to the process by which the chemical débris of the continually disintegrating erythrocytes of the blood is disposed of. The prevailing view on the normal fate of hemoglobin is that it is broken up into globin and hematin, the latter in turn yielding hematoidin—thrown off in the bile as bilirubin—and iron-containing materials of uncertain chemical constitution, which are retained. The facts are that a disintegration of red corpuscles takes place constantly, in sickness and in health, and that the body has often to meet new demands and situations thereby arising. The rest of our information is essentially speculation; and, as a recent reviewer [2] has cleverly commented, the reader will not fail to note that much of current theory on blood destruction attests to the theorist's abhorrence of a vacuum. It should be clearly emphasized, however, that the establishment of the liver as the chief factor in the genesis of bilirubin out of circulating hemoglobin does not preclude pigment production in the tissues under such unusual circumstances as are represented by extravasations of blood; nor does it confine the origin of bilirubin to the hepatic cells proper. As Rich has carefully pointed out, the sole function of the liver cells in regard to bilirubin may be an excretory one, and it may be the Kupffer cells—those peculiar vascular structures around which so much speculation has centered of late—that possess the function of converting hemoglobin into bile pigment. The "tempting advantages" of such a view championed by Eppinger [3] remain to be confirmed.

1. Rich, A. R.: Experimental Studies Concerning the Site of Origin of Bilirubin, Bull. Johns Hopkins Hosp. **34**: 321 (Oct.) 1923.

2. Rous, Peyton: Destruction of the Red Blood Corpuscles in Health and Disease, Physiol. Rev. **3**: 75 (Jan.) 1923.

3. Eppinger: Die Hepato-Lienalen Erkrankungen, Enzyklopädie der klinischen Medizin, Berlin, 1920.

THE DIFFICULTIES OF DIETARY REFORMS

The determination of the etiology of a disease, and the discovery of adequate means to prevent it, might be supposed to give assurance of its rapid disappearance. This is by no means always the case. When scientific knowledge runs counter to custom, individual or racial psychology, or economic or geographic conditions, its mandates do not always become established as readily as they might seem to deserve. An instance in practical illustration is afforded by the incidence of beriberi in the Far East. The relation of the disease to dietary deficiencies has been recognized for some time. In certain countries the most important single factor is admittedly the use of polished rice without adequate amounts of vitamin-bearing supplements. The danger would seem to be easily averted by the substitution of unpolished rice for the more modern highly milled product, by the more liberal inclusion of protective foods in the diet, or by a combination of these schemes. Nevertheless an expert [1] familiar with the local conditions has just reported that, although it has been known for twenty-five years that living on a regimen in which polished rice predominates is dangerous to health, while unpolished rice entirely protects against the possibility of the appearance of beriberi, every year over eastern Asia numerous cases of the disease are found in man.

This unfortunate condition is in part the outcome of the preference of the public for the nicely polished rice. The latter has the advantage of somewhat better keeping qualities, in contrast to the less milled product. Jansen [1] has pointed out that up to the present time the predominant part of the population of Java, where his experience has been gained, consists of people living "next to the land" who mill their own rice. The cereal is so pounded by them for use that only a part of the pericarp is removed. The remaining rice grain still contains considerable vitamin B—enough, apparently, to protect the population against a deficiency leading to beriberi. Now, however, as the Dutch East Indies are becoming changed from a rather exclusively agricultural country into a more or less industrial country, a great danger is almost certain to develop, if the population is not going to use other agricultural products besides rice. As Jansen argues, if Java is to be industrialized in the modern sense, much of the population will have neither time nor opportunity to "pound" its own rice.

Progress, which inevitably brings changes in its wake, often, as in this case, initiates unanticipated difficulties. It seems almost ridiculous to speak of the dangers of progress. We need to realize, however, that society is a complex organization, and that all parts and mechanisms need to be kept adjusted and attuned to one another. No one would wish any longer to eliminate the automobile or electrical transmission of power; yet each has introduced specific new dangers into the communities that enjoy the benefits. Coercion fails to bring the desired results in a country accustomed to democracy. Education seems to be the most promising measure of defense against hidden dangers. It is usually a slow process, in which the educator needs constant encouragement and support lest he waver from sheer weariness or despair. Medical history affords eloquent testimony of this.

1. Jansen, B. C. P.: On the Need of Anti-Beriberi-Vitamin of the Animal Organism and on the Amount of this Vitamin in Different Foodstuffs, Mededeelingen van den burgerlijken Geneeskundigen Dienst in Nederlandsch-Indië, Part I, p. 1, 1923.

THE COMMON COLD, AGAIN

The "common cold" is one of the commonest of diseases, and there are few about which so little of a definite character is known. From time to time there is a recrudescence of theories as to the causes of common colds; then comes the period of some special form of therapeutic attacks based on the newest hypothesis; whereupon the vaunted treatment falls into desuetude. It is unfortunately easy to secure "evidences" of efficacy for all manner of proposed reliefs for mild, self-limiting disorders. The cure follows; *post hoc ergo propter hoc*. The extreme enthusiasts for the alleged microbial causation of the common cold have no ear for other possible factors in its incidence; and consequently they must marshal all the antibacterial forces of medicine to combat the cold. Sometimes the superior direction is given to isolation; or again to local antisepsis, or finally to vaccine therapy. It is, however, admittedly a hidden foe that they are trying to subdue. Whether it may appear in the guise of a simple bacillus or in the more evasive form of a filtrable virus no one has really discovered. The cocksureness of the advocates of the theory of infection may be illustrated by a quotation from a recent popular estimate of the subject. "This much we are certain of already: that the majority of so-called 'colds' have little or nothing to do with exposure to a low temperature, that they are entirely misnamed, and that a better term for them would be 'fouls.' In fact, this proportion can be clearly and definitely proved and traced as infections spreading from one victim to another. The best place to catch them is not out-of-doors, or even in drafty hallways, but in close, stuffy, infected hotel bedrooms, sleeping cars, churches, and theaters." [1]

Let us admit promptly and frankly that it is not difficult to defend the infection hypothesis; and we may perhaps recall without prejudice that it was once defended for beriberi and for pellagra with comparative success. But a malady that entails so much human discomfort, gives such dangerous opportunities to secondary invasions, and interferes so often with personal plans as does the common cold deserves critical study. It cannot be dispelled or averted by offhand pronounce-

1. Hutchinson, Woods: Preventable Diseases, Boston, Houghton, Mifflin Company.

ments. Perhaps it will be worth while to listen to an occasional reactionary comment, such as Jordan [2] and his associates at Chicago have recently expressed. Statistical and laboratory data gathered by them from more than two thousand university students in different parts of the United States indicate to these investigators that the common cold is not a simple type of infection, perhaps in some instances not even an infectious process at all. They assert that numerous factors are undoubtedly concerned in the production of a cold; and their evidence does not support the view that a cold is always due primarily to the entrance of some virus from without the body. On the contrary, it appears to them that internal body changes may be the more important factors. These changes are in turn associated closely with outside influences. This general conclusion is not out of harmony with the recently reported experiments of Olitsky and McCartney [3] at the Rockefeller Institute for Medical Research, who have apparently produced typical symptoms in healthy persons by using as an incitant a filtrable agent obtainable from the nasopharyngeal washings of patients during the very early hours of the onset of a cold. For they also stated that transmission failed in cases in which the colds were caused by exposure to the elements, or chilling the body, and not by definite contact with other cases of common colds.

The Chicago bacteriologists have not hesitated to jeopardize the security of some further beliefs of the satisfied hygienists. "Resistance building" has been a favorite tenet in the prophylactic doctrine. The cultivation of an excellent physical condition through exercise, the habit of sleeping with open windows amid all rigors of climate, the frequent use of the cold bath—these are some of the practices expected to lessen the liability to respiratory disorders. Yet the Chicago statistics suggest that exposure to cold and the other lauded preventive measures are by no means as successful as they are supposed to be; nor do the data show that operations on the nose or throat result in marked reduction in the frequency of colds. Various investigators in recent years have failed to find any one species or group of bacteria to predominate in the upper respiratory tract during a cold. We may repeat our own earlier statement [3] that evidently there are colds and colds. To this we may now add the conservative conclusions of Jordan, Norton and Sharp.[2] Whether or not a cold is the result of a specific infectious process in unknown. It is clear, however, that outside influences, particularly those involving the chilling of the body, may serve, they say, to induce a cold, even if these influences cannot be regarded as the most important etiologic factors.

2. Jordan, E. O.; Norton, J. F., and Sharp, W. B.: The Common Cold, J. Infect. Dis. **33**: 416 (Nov.) 1923.

3. Olitsky, P. K., and McCartney, J. E.: Studies on the Nasopharyngeal Secretions from Patients with Common Colds, J. Exper. Med. **38**: 427 (Oct.) 1923; The Common Cold, editorial, J. A. M. A. **81**: 1697 (Nov. 17) 1923.

Current Comment

"A" FORMULA OR "THE" FORMULA?

A quarter of a century ago, when the proprietary evil in the United States was at its worst, a common piece of advertising deceit was that of the fake formula. Knowing that reputable physicians will not prescribe secret remedies, some proprietary medicine concerns resorted to giving what purported to be a formula. On its face, the "formula" was impressive—at least to one not an expert in chemistry. Actually, such formulas were pure fabrications, chemically impossible. The real composition was seldom divulged by such feints at honesty. After the American Medical Association created its own chemical laboratory, the Association chemists demonstrated repeatedly the absurdity of the seriocomic chemistry of even some of the better grade of pharmaceutic manufacturers. It was not long before the crude chemistry and cruder dishonesty of pharmaceutic concerns began to disappear. Yet today there are still a few firms that endeavor to lend plausibility to their wares by resurrecting old methods. On another page [1] is a report of the Council on Pharmacy and Chemistry on Gly-So-Iodonate. The product is exploited to the profession as "the bactericide the medical world has searched for since the days of Lister." A "formula," both qualitative and quantitative, appears on the label. Chemically, the formula is absurd. As the report shows, some of the "declared ingredients" are obviously incompatible, while the chemical laboratory has found that other ingredients are not present in the amounts claimed. Physicians are being urged to use this unscientific mixture. The favorite method of approach, however, seems to be through industrial concerns; most of the inquiries regarding the product have been from physicians connected with industrial concerns seeking advice in order to present it to the respective business managers. Large employers of labor who seek to protect their employees from infection hazards should be given the facts regarding the probable value of vaunted proprietary germicidal agents. From a standpoint both of economy and of rational procedure, it is evident that there are plenty of such agents which can be used to better advantage than this nostrum. Mercuric chlorid is still a favorite, and convenient size tablets are listed by all good pharmaceutic houses; and, should the coagulating action of mercuric chlorid be undesirable, there are on the market accepted brands of potassium mercuric iodid [2] (which may be considered the active ingredient in Gly-So-Iodonate though not declared); there are also the chlorin antiseptics,[3] the tried and true official tincture of iodin—and a host of others. Of course, the

1. Gly-So-Iodonate: Report of the Council on Pharmacy and Chemistry, this issue, page 2132.

2. The following brands are described in New and Nonofficial Remedies, 1923: Mercury and Potassasium Iodide, Merck; Mercury and Potassium Iodid, P. W. R.; Kalmerid Germicidal Tablets Potassium Mercuric Iodide, Davis and Geck. Solutions can also be prepared extemporaneously: mercuric chlorid, 0.06 gm.; potassium iodid, 0.6 gm.; water to make 100 c.c

3. Surgical Solution of Chlorinated Soda, N. N. R. (Dakin's Solution) may be prepared according to methods described in N. N. R., or one of the accepted proprietary sodium hypochlorite solutions may be employed. There are also a number of accepted brands of Chloramine-T and Dichloramine-T described in New and Nonofficial Remedies, 1923.

oice of an antiseptic depends on the condition for nich it is to be used. Certain it is, however, there is scientific basis for mixing antiseptics in any such odgepodge manner as is exemplified by the irrational id mislabeled Gly-So-Iodonate.

THE DIMENSIONS OF THE HUMAN HAND

Physique is in many respects an expression of eredity. This biologic factor enters into the organism roughout all its stages of development. The egg, onklin [1] writes, is not one being and the embryo nother, and the adult a third, but the egg of a human eing is a human being in the one-celled stage of devel- pment, and the characteristics of the adult develop out f the egg and are not in some mysterious way grafted n it or transmitted to it. On the other hand, there an no longer be any question that environmental fac- ors also affect the make-up of the individual as well as ach features of his performance as are due to inherited constitution." Latterly, the rôle of food as a non- ereditary influence in determining physical status has eceived considerable attention. Rational exercise has ng been realized to influence development in some nstances to the extent of producing permanent effects. pecial vocations may bring about a similar result, hough it cannot always be differentiated easily from ossible heredity influences. An interesting illustration as arisen lately as an outcome of a large number of neasurements of the hands of persons engaged in arious occupations. Brezina and Lebzelter [2] of Vienna have observed that vocations involving manual abor affect the breadth and thickness of the hand, but ot its length. The variations in the latter seem to be ssociated with racial and other inherited influences hat are in no way connected with industrial factors. The two-dimensional enlargement of the hands of per- ons engaged in manual tasks calling for considerable muscular effort is in the nature of a functional hyper- rophy involving the skin and contractile tissues. Whether the bones also become enlarged has not been scertained. It is significant to learn that in so small part as the human hand the respective effects of heredity and vocation can be distinguished to some extent.

VACCINATION WITH BACTERIUM PNEUMOSINTES

The rather impressive work of Olitsky and Gates with the micro-organism that they have found in influ- enza and have named *Bacterium pneumosintes* has naturally called for confirmatory and supplementary experimentation. Particularly does the observation of antibody formation in inoculated animals suggest human vaccination as a test of the specific relationship of this organism to influenza. As a preliminary to such a test, Olitsky and Gates [3] injected thirteen volun- teers subcutaneously with a vaccine prepared from two strains of *B. pneumosintes*. Local reactions of mild and transitory character were noted, while constitu- tional reactions were observed infrequently. A transi- tory leukocytosis was produced by the vaccination, and specific agglutinins appeared in the blood serum. The innocuous character of the reaction encouraged definite experimentation on a larger scale, and a cooperative investigation was carried out on volunteers from the army at Fort Myer, Va., and at Governors Island, N. Y. A recent report has been made of the findings.[4] The conditions at Fort Myer were considered favorable, as a definite epidemic of influenza occurred and there was a control group. In the age group 20-24 there were thirty-one cases in the 183 unvaccinated controls (16.8 per cent.) and thirty-eight cases in 202 vacci- nated persons (18.8 per cent.). At Governors Island there was no epidemic in either group, although clin- ical influenza occurred on the island. In the island groups under observation there were only two cases among the controls and five among the vaccinated. Some of the latter were considered quite typical, clinically. The interesting observations set forth in Major Nichols' article do not indicate that vaccination with *B. pneumo- sintes* confers any decisive protection against the present-day disease that goes by the name of clinical influenza. As is well known, attempts at transmission of influenza have been made with nasal secretions, with pure cultures of *Bacillus influenzae* and with other organisms, but never, so far as we know, with *B. pneu- mosintes*. Possibly such experiments would throw further light on any etiologic relationship of this organism.

TEA VERSUS COFFEE: AN EMBARRASSING CHOICE

Many of the so-called "stimulants" that have found widespread use by man have recently been the subject of critical consideration. Fisher and Fisk, in "How to Live," state without reservation that the best rule for those who wish to attain the highest physical and mental efficiency is total abstinence from all substances that contain poisons, including spirits, wine, beer, tobacco, and even coffee and tea. Not a few persons among the millions of our population evidently prefer to "take a chance" on the "milder" sorts of beverages, among which tea and coffee are usually classed. The same writers that prepared the "total abstinence" dic- tum quoted admit that the exact extent to which the "milder poisons" are injurious has not yet been scien- tifically settled. Both tea and coffee are known to contain the alkaloid caffein. Furthermore, there are persons who still declare that the actions of tea and coffee on the nervous system are so unlike that the effects cannot be explained by their caffein content alone. A decision on this point at least is now avail- able. Investigations by the hygienist Lehmann [5] at Würzburg have shown that the exhilaration or wake- fulness, the diuresis and the circulatory manifestations depend primarily on the dose of caffein ingested, whether it is derived from tea or from coffee. Evi- dently the choice between these is analogous to that between chocolate cream drops and chocolate caramels, which has puzzled many a youthful purchaser.

1. Conklin, E. G.: Heredity and Environment, Princeton University Press, 1917, p. 108.
2. Brezina, E., and Lebzelter, V.: Ueber die Dimensionen der Hand bei verschiedenen Berufen, Arch. f. Hyg. **92**: 53, 1923.
3. Olitsky, P. K., and Gates, F. L.: J. Exper. Med. **37**: 471 (April) 1923.
4. Nichols, H. J.: Army M. Bull. (Oct. 15) 1923.
5. Lehmann, K. B., and Weil, H.: Vergleichende Versuche über die Wirkung von Kaffee und Tee, Arch. f. Hyg. **92**: 85, 1923.

Association News

OFFICIAL STATEMENT ON MEDICAL LICENSURE SCANDAL

Executive Meeting of Board of Trustees Issues Public Announcement

At the meeting of the executive committee of the Board of Trustees held December 12, it was decided to issue a statement for the public on the position of the American Medical Association relative to the recent scandal in medical licensure. In accordance with this action, the committee has issued the following statement to the press:

For more than twenty years, the attention of the public has been regularly directed, in official publications of the Association, to the evils from which the present scandal arose. The existence of low grade medical schools which refused to raise their standards, which refused to permit inspection and which refused even to submit lists of their students has been regularly noted. The dangers of multiple licensing boards in certain states which issued permits to practice to men who could not qualify for or successfully pass the regular boards have also been made the subject of warning statements. Since 1918, THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION has published annually the fact that the Connecticut and Arkansas eclectic licensing boards were apparently serving as clearing houses for low grade institutions in Missouri. In 1920, THE JOURNAL pointed out that Connecticut, through its eclectic board, was licensing men who had not studied in eclectic medical schools, and even worse, was licensing some men who apparently had not completed a medical course in any school. The American Medical Association is a body which has no punitive powers. It could not arrest and prosecute; it could only point out to state officials the festering evils which required their official attention. Nevertheless, public officials have consistently disregarded these announcements until the sensational publicity accorded an exposé by a St. Louis newspaper forced the matter on their attention.

The statement of a man under indictment in connection with diploma frauds in Missouri, that there are more than 25,000 physicians in the United States practicing with false credentials has been made the subject of numerous editorials, in which the medical profession has been urged to keep these impostors from deluding the public. At the headquarters of the American Medical Association is a card index which contains a card for every man licensed to practice medicine in the United States. Through this card index, and through its records of the men who attend medical schools, the Association is able to say positively that the number of medical impostors and poorly qualified physicians does not even approximate 25,000. During the past eight years, not more than 2,500 men, who have been given diplomas by low grade medical schools, have received state licenses.

There are today five medical schools in the United States which are not up to the high standard of the remaining seventy-six. If these schools are forced to raise their requirements or else to discontinue, the public will be assured that no men will be graduated in medicine who are not qualified to appear for licensure. If the state licensing boards will then admit to their examinations only those who are qualified, the public will have assurance that any man who can present the license of the state examining board is a properly qualified physician. The existence of multiple licensing boards in certain states, which permit men not qualified for the regular board to pass certain special boards, is a constant menace. Finally, the public will not be safe from the medical impostor until the police power of the state is ever alert to search out and prosecute the man who is practicing medicine without a license.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Chiropractor Fined.—Judge Coleman fined Dwight L. Evans, a chiropractor of Anniston, $100 and costs, November 30, on a charge of practicing medicine without a license, according to reports.

Personal.—Dr. James R. Bean, director of the Birmingham and Jefferson County health laboratory, has accepted the position of director of the public health laboratories of Savannah, Ga.——Dr. Frank W. Brandon has been appointed superintendent of the Wesley Memorial Hospital, Montgomery.

COLORADO

Hospital News.—The Beth Israel Hospital, Denver, was formally dedicated, December 2. This, the second unit of Jewish charitable work in Denver undertaken by Beth Israel, adjoins the Home for Aged Jewish People, opened a few months ago. Unlike the home, the hospital is nonsectarian. Ludwig H. Guldman gave $50,000 toward the building. Every room in the institution has been endowed as a memorial by various donors. Dr. Haskell Cohen will head the medical staff.

DISTRICT OF COLUMBIA

Clinics Opened.—Under the auspices of the Woman's Welfare Association, a clinic for the control of cancer was opened at the Social Service House, Washington, at 2 p. m., December 4, and at 4 o'clock a clinic for asthma sufferers was inaugurated. Until further notice these clinics will be held at these hours Tuesday afternoons. A mental hygiene clinic was inaugurated, December 6. The cancer clinic has no facilities for the treatment of inoperable cases. It will be a clearing house for those who need treatment.

FLORIDA

University News.—A college of pharmacy has recently been opened at the University of Florida with an enrolment of nearly fifty students. Professor Townes R. Leigh, head of the department of chemistry in the College of Arts and Sciences, is director of the new department. Two courses are offered; a two year course leading to the degree of pharmaceutical chemist and a four year course leading to the degree of B.S. in pharmacy.

Annual Antimosquito Conference.—Delegates representing twenty-seven communities of the state in which there are now programs for the eradication of mosquitoes attended the annual convention of the Florida Anti-Mosquito Association in Barto, December 6. George W. Simons, chief sanitary engineer and secretary of the association, opened the meeting, and Dr. J. Y. Porter, Key West, former state health officer, presided. The Rockefeller Foundation films on mosquito control and hookworm were shown.

Check-Up of Quacks.—As the result of investigations covering more than two years, during which hundreds of available records were checked, members of the state board of medical examiners are preparing to proceed against "diploma mill" physicians operating in Florida. According to reports, the governor demanded the reports of Dr. George A. Munch, Tampa, secretary of the eclectic board, several months ago which were refused him. Dr. Munch has now left town, it is said, for a month.——In 1919, a Birmingham, Ala., lithographing house executed an order for a batch of Florida Eclectic Board of Medical Examiners' licenses. Officers who were serving on that board at that time deny any knowledge of placing such an order. In 1917, Dr. V. K. Jindra, Jacksonville, was convicted of a conspiracy to sell a Florida medical license. He is now in prison.——In 1922 the board apprehended Dr. E. Wadge Page, a "diploma mill" graduate, then practicing in Tampa. He left the city and was recently involved in a will forgery case, according to reports.——The public has been urged to cooperate in showing up quacks and to ask alleged physicians to show their diplomas before accepting treatment from them. The medical society of St. Petersburg has decided to advertise the names of the members of the society, to inform the public where they safely may go for medical attendance.

ILLINOIS

Demonstrations Before Medical Society.—Drs. Ralph W. Nauss and R. C. Cook of the state department of public health recently gave a demonstration of Schick testing and smallpox vaccination before the Hancock County Medical Society at Carthage. Lantern slides were also shown. Dr. Nauss conducted a similar demonstration in Galesburg before the Knox County Medical Society, recently.

Society News.—The North Central Illinois Medical Association celebrated its fiftieth anniversary at Streator, December 4. Dr. Roy Sexton presided. The counties of Bureau, DeKalb, Lee, LaSalle, Livingston, Marshall, Putnam, Whiteside and Woodford are included in the society. Drs. Elven J. Berkheiser, Alfred A. Strauss and Edward H. Ochsner, all of Chicago, and Dr. James W. Pettit, Ottawa, gave addresses.

Measles and Diphtheria at Rock Island.—An epidemic of measles at Rock Island, involving 280 cases since December 1, has been complicated by an outbreak of diphtheria. It is reported that seven deaths have resulted among children from diphtheria preceded in each case by measles. A district health superintendent and two bacteriologists have been assigned to duty in Rock Island by the state department of health. Nineteen cases of diphtheria have been reported from Rock Island for the first fifteen days in December.

Chicago

University Donation.—Mrs. Montgomery Ward has donated $3,000,000 to be used for a medical and dental school on the new McKinlock Campus on Chicago Avenue for Northwestern University Medical School. The gift is a memorial to her husband and will be known as the Montgomery Ward Memorial.

Medical School Not Recognized.—An official statement from the Illinois Department of Registration and Education states that the Chicago Medical School was removed from the accredited list several months ago and has not been reinstated, "nor has any promise been made to any one that any such action is contemplated."

INDIANA

Typhoid Epidemic.—According to reports the recent epidemic of typhoid fever in Fort Wayne was caused by pollution from the Maumee River when a check valve connecting the city water with the Pennsylvania Railroad shops failed to operate and allowed the seepage of river water in the city mains.

Society News.—At the annual meeting of the Fort Wayne Medical Society in Fort Wayne, December 4, Dr. John H. Gilpin was elected president; Dr. Willis W. Carey, vice president; Dr. Donald D. Johnston, secretary, and Dr. Homer E. Glock, treasurer.——Dr. James L. Wilson was elected president of the St. Joseph County Medical Society at the annual meeting in South Bend, December 4. Other officers chosen were: Dr. George J. Geisler, vice president, and Dr. Richard B. Dugdale, secretary-treasurer.

IOWA

Society News.—At a special meeting of the Clinton Medical Society, December 13, the following addresses were read: Dr. Harry Mock, Chicago, "Reconstructive Surgery"; Dr. Edwin Miller, Chicago, "Late Ulnar Nerve Palsy," and Dr. George H. Coleman, Chicago, "Peritoneal Pain Sense."

KENTUCKY

Dr. Pusey to Address Meeting.—Dr. William A. Pusey, Chicago, President-Elect of the American Medical Association, will address the Muldraugh Hill Society in Elizabeth, December 29, at the formal opening of the Brown-Pusey House.

Hospital News.—A new building will be erected for the Evangelical Hospital, Louisville, at a cost of $200,000. Construction work will be started in the spring.——The Cumberland Sanatorium, Somerset, has been discontinued.——A four-story and basement addition will be erected at the Booth Memorial Hospital, Covington. The hospital is owned by the Salvation Army.——Excavation has been completed for the foundation of the new $75,000 hospital to be known as Pennington General Hospital, London.——A new institution to be known as the Kentucky Memorial Hospital, Whitesburgh, will be erected in Whitesburgh in the near future at a cost of approximately $100,000.——A new tuberculosis sanatorium will be built under the auspices of the Kenton County Tuberculosis Association, at Covington. Plans call for four or five buildings to be erected at a cost of $125,000.

MARYLAND

Founders' Day.—Founders' Day at the University of Maryland was celebrated, December 19, by the Alumni Association of the Medical School, with a banquet at the Hotel Rennert. The membership of the association consists now of graduates of the old Baltimore Medical College, the College of Physicians and Surgeons, and the University of Maryland Medical School.

Narcotic Bill Considered.—Dr. John S. Fulton, state commissioner of health, called a meeting, December 10, to consider the advisability of enacting a state narcotic law to harmonize with the federal narcotic act. The meeting was attended by Dr. John S. Fulton, A. L. Sullivan and Robert L. Swain, commissioner and assistant commissioner of the bureau of food and drugs; Dr. T. O. Heatwole, dean of the dental department, University of Maryland; Dr. E. F. Kelly, member of the state board of health; Dr. Charles L. Meyers, president of the Maryland Pharmaceutical Association; Dr. B. R. Rhees, representing the federal government; Dr. William T. Watson; Dr. A. P. Herring, commissioner of mental hygiene of Maryland; George E. Henry, chief inspector of police; Sherlock Swann, former police commissioner, and several wholesale druggists.

MASSACHUSETTS

Joint Medical Meeting.—A joint meeting and dinner of the Essex South and Essex North District Medical societies was held at the Essex Sanatorium, Middleton, December 7. Dr. Edward O. Otis presided. Dr. John B. Hawes, II, Boston, spoke on "Pulmonary Tuberculosis, Diagnosis and Treatment."

Prison for Dr. Robb.—Dr. William M. Robb, Boston, was sentenced to from five to seven years in the state prison, December 11, according to reports. Robb pleaded guilty, it is said, to performing an operation on Mrs. Wolschendorf, whose body was found in the Merrimack River in September.

Research on Infantile Paralysis.—Work to determine the cause of infantile paralysis and to prepare, if possible, a remedy, will be undertaken by the Harvard University Infantile Paralysis Commission, it was announced, December 9. The research work will be conducted at the Harvard Medical School at an annual cost of about $120,000. In 1916 an epidemic of infantile paralysis in Boston left 2,000 cripples in its wake, it is said, and in 1920, 696.

MICHIGAN

Portrait Presented.—The faculty of the Detroit College of Medicine and Surgery presented the board of education of Detroit with a portrait of Dr. Ernest Keys Cullen, who died in July, 1922. Dr. Cullen formerly was professor of gynecology at the medical school, and attending gynecologist at the Receiving and Harper hospitals, and a brother of Prof. Thomas Cullen of Johns Hopkins University.

Prenatal Work in Detroit.—At the prenatal clinic in Detroit 1,599 women were delivered in 1922 without one death from toxemia. The total mortality rate of these women was 3.1 per thousand. In the entire city of Detroit in 1922, 27,277 women were confined with a mortality rate of 6.8 per thousand. The

incidence of stillbirths was 53 per thousand. This is a saving of 28 lives per thousand in babies under 1 month of age, apparently the result of prenatal care.

MINNESOTA

Society News.—At the annual meeting of the St. Louis County Medical Society, recently, Dr. Thomas R. Martin, Duluth, was elected president, and Dr. Fredolph H. Magney, Duluth, secretary-treasurer. A banquet preceded the meeting. ——A special meeting of the Hennepin County Medical Society was called, December 17, in Minneapolis to discuss the relationship of community health agencies to the medical profession and the advisability of giving a health exposition.

University Notes.—At a meeting of the administrative board of the University of Minnesota Medical School, Minneapolis, November 6, the following nominations were approved and recommended: Dr. Harold J. Goss as instructor in ophthalmology and otolaryngology; Dr. Joseph F. Bicek, assistant in obstetrics and gynecology; Dr. Christian A. Fjelstad, assistant in ophthalmology and otolaryngology; Eula B. Butzerin as instructor and director of public health nursing, and Misses Haupt and Fuller as instructors in preventive medicine and public health.

Hospital News.—The new Ashbury Nurses Home, Minneapolis, was dedicated in November. The institution was built at an outlay of more than $300,000. Part of the building will be used for a hospital with a capacity of 120 beds.——The new St. James' Hospital, St. James, was formerly dedicated, October 9.——The Immanuel Hospital Association plans a hospital building for Mankato which will be erected at a cost of $150,000.——A hospital for epileptics is planned for Cambridge to be erected at a cost of $40,000.——The Children's Hospital, Inc., of St. Paul, will be formally opened, Jan. 1, 1924. The hospital, which will occupy temporary quarters on Smith Avenue, is nonsectarian, and will receive children from birth to adolescence. Dr. Walter R. Ramsey will be chief of staff.

MISSOURI

Banquet for Dr. Wilbur.—Dr. Ray Lyman Wilbur, President of the American Medical Association and president of Stanford University, Palo Alto, Calif., was guest of honor at a banquet given by the Kansas City Academy of Medicine at the Hotel Baltimore, October 13.

Hospital News.—The new surgical unit recently added to the group of buildings comprising State Hospital No. 2, St. Joseph, was formally opened, October 3. It has a capacity of forty beds and was erected at an approximate cost of $125,000. Most of the furnishings were donated by patients and attendants.

MONTANA

Yellowstone Valley Medical Association.—At the annual meeting of the association, in Billings, December 1, Dr. Wilson J. Perry was elected president; Dr. James D. Barrett, vice president; Dr. Walter F. Weedman, secretary, and Dr. John H. Graham, treasurer.

NEBRASKA

Social Service Unit Organized.—A medical social service department has been organized at the University of Nebraska College of Medicine, Omaha, with Dr. J. Jay Keegan in charge of the dispensary.

Hospital News.—It is announced that the possession of the Campbell Hospital, Norfolk, will pass to the Lutheran Hospital board of North Nebraska.——The Carothers Hospital, a fifty-four room, four-story building at Broken Bow, is completed.——The Douglas County commissioners have let the contract for the erection of a $50,000 county hospital building at Omaha.

NEW JERSEY

Inoculation of Dogs Against Rabies.—Health Officer Craster of Newark states that fifty-five dogs have gone mad in Newark and Essex County during the year and that rabies is prevalent in that area. This is twice the number reported for other years. December 4, Dr. Craster and Dr. Richard N. Connolly, city bacteriologist and the health department veterinarian appeared before the board of health to urge the compulsory inoculation of all dogs against rabies.

Hospital News.—A series of clinics was recently held in the Jersey City Hospital to which all physicians in the vicinity were invited. It is the intention to make this hospital a teaching center for physicians and the laity. Dr. Haven Emerson recently addressed a meeting there on "Private Responsibility for Health."——A ten day campaign was recently launched to raise $400,000 for St. Elizabeth's Hospital, Elizabeth. More than $450,000 was subscribed.——St. Paul's Deaconess Home and Hospital was dedicated recently at Pompton Lakes. Drs. William S. Colfax, Clarence L. Vreeland and David N. Shippee comprise the medical staff.

NEW YORK

Scarlet Fever Epidemic.—An epidemic of scarlet fever is reported from Oyster Bay and Bayville, L. I. The health officer claims the disease has spread because of failure to regard quarantine regulations.

New York City

New Medical Club.—The Central Medical Club has been organized in New York City with Dr. Arthur I. Blau as secretary. Meetings will be held the first Friday in the month.

Dr. Emmet Bequeaths Estate.—The will of Dr. John Duncan Emmet of New York and Morristown, N. J., leaves $450,000 to be divided between the Little Sisters of the Poor and the Roman Catholic Society for the Propagation of the Faith. A trust fund of $50,000 will also go to these societies at the death of the beneficiary.

Kings County Drive Against Quacks.—In the drive against fake dental and medical practitioners, Dr. Charles A. Gordon, president of the Medical Society of the County of Kings, announced after a meeting of the executive council of the society, that full endorsement of the district attorney's plans was voiced and that it was resolved to cooperate with him in every way.

Hospital to Sell Building.—St. Christopher's Hospital for Babies, whose work was recently transferred to the Brooklyn Hospital, has obtained permission from the supreme court to sell its property to the Brooklyn Home for Blind, Crippled and Defective Children for $100,000. This sum will be used to pay the St. Christopher Hospital debts; any remainder will go to the Brooklyn Hospital.

Class Reunion.—The class of 1898 of the College of Physicians and Surgeons, of which Dr. Charlton Wallace is president, held its twenty-fifth annual dinner at the Hotel Commodore, December 8, with seventy-nine members attending. Dr. T. S. Arbuthnot of Pittsburgh was toastmaster. The speakers included Dr. John J. Collins, Dr. Franklin A. Dorman, Dr. Malcolm Goodridge, Dr. Charles F. Hunt, Dr. Herman Grazer, Dr. Samuel J. Kopetzky, Dr. D. J. Lee and Dr. Herman Schwarz.

Post-Graduate Medical School and Hospital Lectures.—The course of free lectures for the medical profession at the Post-Graduate Medical School and Hospital is being continued on Friday afternoons at 5 o'clock. The following lectures are scheduled: January 4, "The Clinical Use of Basal Metabolism," Dr. Cameron V. Bailey; January 11, "Radium Therapy," Dr. George S. Willis; January 18, "A Plea for a Broader Conception of Dermatology," Dr. Henry H. Whitehouse; January 25, "Reconstruction Surgery (with lantern slides and moving pictures)," Dr. Fred H. Albee.

NORTH CAROLINA

Aged Physician Fined.—It is reported that Dr. Edward H. Jones, 76 year old physician of Raleigh, charged with violating the Harrison Narcotic Law, was released by United States Judge Connor, November 28, on payment of a fine of $400 and cancellation of his permit to prescribe narcotics.

OHIO

Crile Research Fellowship.—The Medical School of Western Reserve University, Cleveland, announces the availability of a "Crile Research Fellowship" for graduates in medicine, or others qualified, who desire to do research work in the medical school. The salary is $1,500 per annum and the candidate is eligible for reappointment at $2,000 the second year. Inquiries should be addressed to the committee through Prof. Carl J. Wiggers.

Memorial to Dr. Dudley P. Allen.—Mrs. F. F. Prentiss has donated the funds for a new medical library—a memorial to Dr. Dudley P. Allen who died in 1915—which will be erected on a site given by Western Reserve University at Euclid Avenue and Adelbert Road. Dr. Allen was for many years professor of surgery at Western Reserve University School

Medicine, and his library was bequeathed to the Cleveland Medical Library Association. The new library will have no official connection with the university and will be free from any control other than by its own organization.

Public Health Notes.—With the cooperation of the local health department and the Cincinnati Academy of Medicine, the U. S. Public Health Service has undertaken a goiter survey in Cincinnati. Similar surveys have been completed in Cleveland and Akron.——Tuberculosis clinics, the fifty-fifth and fifty-sixth in the eradication program of the state department of health, were held at Jackson and Wellston, November 13 and 14.

Resolutions Regarding E. R. A.—At the recent meeting of the state medical board the following resolutions were introduced:

WHEREAS, Numerous complaints are being received concerning the use of the Abrams' treatment in the diagnosis and treatment of disease, and,

WHEREAS, The investigations of scientific men in the medical and allied professions agree that the diagnosis and treatment of disease by the so-called Abrams' method or electronic medicine is wholly unscientific and without value, therefore, be it

Resolved, That the Ohio State Medical Board is of the opinion that its employment in diagnosis and treatment of disease should be suppressed; and be it further

Resolved, That the secretary of the state medical board is directed to cite all practitioners who continue to employ this method in the diagnosis and treatment of disease to show cause why their certificates to practice in the state of Ohio should not be revoked.

The resolutions will be before the board at its meeting, Jan. 8, 1924.

Personal.—Dr. Leon McCollum, Bettsville, who has retired from practice has been elected mayor of that city.——Drs. Roswell F. Machamer and Edward H. Porter of Tiffin, were elected secretary and treasurer, respectively, of the Seneca County Medical Society at the annual meeting. Dr. Norris W. Gillette, Toledo, spoke on "Goiter, Cures and Preventives."——Dr. Warren C. Breidenbach, Dayton, and Dr. Jackson A. Frank, Columbus, were elected president and secretary, respectively, of the Association of Ohio Tuberculosis Specialists at the recent annual meeting in Dayton. ——Dr. Silas A. McCullough has resigned as commissioner of health of Columbiana County and will reside in Pomeroy. Dr. Thomas T. Church, Salem, will succeed him.——Col. Louis T. Hess, for the last four years superintendent of the Ancon Hospital, Panama, has been detailed surgeon at Fort Hayes, Columbus.——Dr. Arthur J. Willey, Marion, has been elected president of the Marion County Medical Society.

OREGON

Society Election.—At a meeting of the Willamette Valley Medical Association in Albany, December 8, the following officers were elected: Dr. Emil W. Howard, Corvallis, president; Dr. Norman E. Irvine, Lebanon, vice president; Dr. William T. Johnson, Corvallis, secretary-treasurer.

PENNSYLVANIA

Personal.—Dr. Francis M. B. Schramm, Johnstown, was elected a member of the school board of that city, November 6.——Dr. A. Jerome Hermann, coroner of Snyder County, succeeded to the office of sheriff upon the death of the former sheriff.

Clinic for Crippled Children.—The Kiwanis Club's clinic for crippled children, held in Johnstown, November 16, was attended by 200 patients, from five counties. Drs. Charles E. Hannan, Bennet A. Braude, Edward Pardoe and Joseph J. Meyer were in attendance.

Philadelphia

Course in Insulin.—A third course of instruction in the use of insulin was started at the University of Pennsylvania, December 17. On Mondays, Tuesdays, Thursdays and Fridays there are lectures and clinics from 2 to 4, and from 4 to 5 laboratory work.

American Sanatorium Association.—The nineteenth annual midwinter meeting of this association was held at the Home for Consumptives, Chestnut Hill, December 14 and 15. The delegates visited and inspected Phipps Institute the first day, and other institutions in this vicinity, which specialize in the treatment of tuberculosis, the second day.

Personal.—Dr. Lydia Allen De Vilbiss-Bradford, professor of medical health administration at the Women's Medical College of Pennsylvania, delivered an address at a luncheon tendered by the business and professional women's club of Philadelphia, December 15. Dr. Martha Tracy, dean of the Women's Medical College, presided.——Dr. Orlando H. Petty has been appointed professor of diseases of metabolism at the University of Pennsylvania Graduate Medical School. Dr. Petty won the Congressional Medal of Honor while serving with the Fifth Marines at Bois de Belleau in 1918. He is a graduate of Jefferson Medical College and formerly was director of laboratories at the Germantown Hospital and physician in charge of the department of metabolism of the Philadelphia General Hospital.——Dr. W. Cole Davis has been appointed medical director of the Philadelphia Hospital for Mental Diseases at Byberry, to succeed Dr. Everett S. Barr, who resigned.——Dr. Georges Portmann, professor of otology, rhinology and laryngology at the University of Bordeaux, France, was the guest of honor of the section on otology and laryngology of the College of Physicians, December 19, where he gave an address on "Operative Technic."

TENNESSEE

Prison for Dr. McDonald.—Dr. William C. McDonald, Soddy, was found guilty of violating the Harrison Narcotic Law, in the federal court, Chattanooga, November 22, according to reports, and sentenced to two years in the Atlanta penitentiary. A plea for continuance was denied.

Larger Health Fund Endorsed.—The Nashville Academy of Medicine endorsed, November 27, the plan launched by the chamber of commerce to provide a substantial increase in funds for state health work. Tennessee's appropriation for public health is only three cents per capita, the lowest of any Southern state, it was reported.

WISCONSIN

A Warning.—Residents of Milwaukee have been warned by the city health commissioner to beware of book agents selling a library of health, who state that the books are endorsed by the health department. Some of the books sell for as much as $25.

"Health Institute" Closed.—Dr. Nathaniel C. Rogers, formerly of Rockford, Ill., has been arrested in Milwaukee, according to reports, on charges of conspiracy to defraud and obtain money under false pretenses. Dr. Rogers is said to have operated the Milwaukee Health Institute in association with Drs. Wallace A. Reinhardt and M. C. Wolf. Through the efforts of Health Commissioner Ruhland the institute was closed, November 22. Reinhardt was in Florida when the warrant for his arrest was issued and Wolf is said to have left the state.

WYOMING

Northwestern Wyoming Medical Association.—At the annual meeting of the association at Basin, December 6, the following officers were elected for the ensuing year: president, Dr. F. A. Mills, Powell; vice president, Dr. Stanley L. Myre, Greybull, and secretary-treasurer, Dr. Evald Olson, Lovell.

CANAL ZONE

Free Glasses for Children.—The Rotary Club of Panama City has inaugurated a campaign for providing suitable glasses free of charge for children whose parents are unable to pay for them. A physician member of the club, and an optical manufacturer of the city, will make free examinations and the glasses will be furnished at cost to the club.

Research Station on Barro Colorado Island.—The natural park on Barro Colorado Island in Gatun Lake recently set aside by the Governor of the Panama Canal for research work on the flora and fauna has been made use of by eminent scientists. Prof. Warder C. Allee, Ph.D., associate professor of zoology at the University of Chicago, will go there in January under a grant from the National Academy of Sciences and Dr. Thomas Barbour, Ph.D., zoologist of the Museum of Comparative Zoology at Harvard University, Boston, will go to the Isthmus to direct the construction of a number of screened buildings for the island under the auspices of the National Research Council. Dr. Richard P. Strong, dean of the School of Tropical Medicine of Harvard University; Dr. William Morton Wheeler, Ph.D., Harvard University; Professors Hitchcock, Maxon and Cook of the U. S. Department of Agriculture and the U. S. National Museum, and Mr. R. C. Shannon of the U. S. Bureau of Entomology have all recently conducted studies on the island. Prof. Frank E. Lutz, Ph.D., associate curator of the American Museum of Natural History is now there studying stingless bees.

GENERAL

The Honorary President of Gorgas Institute.—President Coolidge has accepted the honorary presidency of the Gorgas Memorial Institute of Tropical and Preventive Medicine for which the cornerstone was recently laid at Panama City. The drive to collect the $5,000,000 needed for this work will start Jan. 1, 1924.

Southern Surgical Election.—At the recent meeting of the Southern Surgical Association, at White Sulphur Springs, W. Va., the following officers were elected: president, Dr. Le Grand Guerry, Columbia, S. C.; vice presidents, Drs. James M. Mason, Birmingham, Ala., and John T. Moore, Houston, Texas; secretary, Dr. Hubert A. Royster, Raleigh, N. C., and treasurer, Dr. Urban Maes, New Orleans. The next meeting will be held at Charleston, S. C., Dec. 9-10-11, 1924.

Unified Reports of Industrial Accidents.—A meeting was held in Washington, D. C., December 3, between the federal commissioner of labor statistics and representatives of labor and industrial accident commissions from twelve states to make plans for unified reports of industrial accidents. Secretary Davis addressed the conference. It was the impression of those in attendance that accidents in industry are showing a tendency to increase. In order to arrive at a national view of the facts, it was said to be necessary to unify accident reporting methods.

National Health Series.—In order to make available to the general public at moderate prices authoritative books on all phases of human health, the National Health Council has arranged with the Funk & Wagnalls Company for the publication of the National Health Series. It will contain twenty books of about 18,000 words each written by the leading health authorities of the country. The series of twenty will be $6, or 30 cents each. They will be issued in sets of five, the first set appearing about the end of this month (The Journal, November 3, p. 1532).

Proposed Amendment to Food Law.—An amendment to the federal Food and Drugs Act, to require printing on the labels of all packages or containers of foods, the name of the manufacturer, canner or packer, is proposed in a bill introduced in the House of Representatives by Congressman Albert Johnson of Washington. The proposed legislation applies only to containers of articles of food and does not apply to drugs. There are many food products, according to Congressman Johnson, sold to the public in containers which do not show the name of the manufacturer or packer, nor his address. The proposed legislation would require such information to be plainly marked on the outside of the package.

Women Admitted to Soldiers' Homes.—As mentioned before in The Journal the Secretary of War has authorized that a separate building be set aside at the National Home for Disabled Volunteer Soldiers, Danville, Ill., for the care of ex-service women who are entitled to admission to the home and in need of general hospital treatment, and that separate facilities be set aside at the Northwestern Branch National Home for Disabled Volunteer Soldiers, Milwaukee, for such ex-service women as are in need of treatment for tuberculosis. The board has visited the homes at Danville and Milwaukee where buildings have been tentatively selected for the housing of the women. This includes women of the Army Nurse corps, the Navy Nurse Corps, yeomanettes and marionettes.

National Immigration Conference.—An immigration conference was held at the Hotel Astor, New York, December 14-15 (the first of its kind ever held in the United States) under the auspices of the National Industrial Conference Board. Representatives of business organizations, departments of the government, public and social service organizations and delegates of several foreign governments attended the sessions. The meetings were open to the public. Some questions discussed were:

"Shall the per centum act which expires by limitation on June 30, 1924, be retained by extending the period of its operation?"

"Shall it be superseded by new legislation, and if so, by what kind?"

"Shall an investigatory commission be appointed by the President under congressional resolution to investigate and report?"

"Shall the act be retained with amendments in respect to percentage restriction?"

Bill to Prevent Oil Pollution.—A bill "To Improve the Navigability of the Waters of the United States by Preventing Oil Pollution Thereof" has been introduced in the House of Representatives by Congressman Isaac Bacharach of Atlantic City, N. J. The bill is similar in its nature to legislation considered at the last session of Congress, and makes it a penal offense to discharge oil or refuse of any kind into the coastal navigable waters of the United States. The pollution of waters along the Atlantic Coast has been a menace to health, recreation, bathing and fishing. The Bureau of Mines made an exhaustive report on this subject, which will, no doubt, be of aid in bringing about favorable action by Congress on this legislation. A bill of similar character, House Bill No. 612, has been introduced by Congressman Walter Lineberger of Long Beach, Calif.

One Year of Common Colds.—In a group of about 6,700 clerical employees at the home office of the Metropolitan Life Insurance Company there were 2,824 cases of "colds" which involved disability for work during the year ending July 28, 1923. These affections occurred therefore at a rate of 420.7 per thousand employees for the year. The average days of disability for this illness per person on the payroll was 0.9, and the average days per case were 2.2. In all there were 6,233 days lost for the year for these conditions which included coryza, acute bronchitis and tracheitis. There appeared to be two periods of maximum incidence for these infections: the first, following the advent of cool weather in the early fall; the second, when the coldest weather of winter prevails the following January or February. These data indicate that there are distinct relationships between the respiratory infections and changes in the weather. For example, a drop of 10 degrees in the weekly mean temperature carries with it an increase of eighteen common colds per week in this group of 6,700 people. On the other hand mean relative humidity and total precipitation showed only slight influence on the incidence of colds.

Mortality from Tuberculosis, 1922.—The Department of Commerce announces that compilations made by the Bureau of the Census show that 90,452 deaths were due to tuberculosis in the registration area of the United States in 1922, with a death rate of 97 per hundred thousand population. This is a drop of 2.4 since 1921, in which year the rate was 99.4. Although twelve states show increases in rates for 1922, in twenty-two states there are decreases. Adjusted rates based on the standard million population have been calculated. The highest adjusted rate from tuberculosis for 1922 is 172.6 per hundred thousand population for Colorado; the lowest, 36.1 for Nebraska. The high rate for Colorado should not be ascribed to unhealthfulness of climate, but to the fact that the climate attracts those afflicted with tuberculosis. For certain states adjusted rates have been calculated separately for the white and colored populations. In this group, Tennessee has the highest adjusted rates for both white and colored (respectively, 121.8 and 299.8 per hundred thousand population). The lowest adjusted rate from tuberculosis for white population is 54.5 for Mississippi and this state and Florida each shows the lowest rate for colored population (171.5 per hundred thousand population).

Senate Investigation of "Diploma Mills."—The Committee on Education and Labor of the United States Senate is authorized, by Senate Resolution No. 61, introduced by Senator R. S. Copeland of New York, to investigate alleged medical "Diploma Mills," following the revelations in Connecticut and elsewhere. The resolution provides:

That the Committee on Education and Labor be, and hereby is, authorized to inquire into and ascertain the following facts:

(a) If the United States mails have been used by self-styled medical institutions and organizations known popularly as "diploma mills" for purposes of fraud in connection with the sale of degrees or diplomas in preparation for medical practice.

(b) If the public health has been injured by the activity of such self-styled medical institutions and "diploma mills."

(c) If graduates of any such low-standard institutions are employed by the United States Public Health Service or any other branch of the Government.

(d) If the standing of American medical institutions and of our medical profession generally has been injured in other countries by the action of such self-styled medical institutions and "diploma mills."

(e) If graduates from any such self-styled medical institutions and "diploma mills" are now offering themselves as practitioners of medicine in the District of Columbia.

(f) If all of the laws and requirements as to registration are being observed by practitioners of medicine in the District of Columbia.

(g) If any institutions giving degrees in medicine in the District of Columbia are issuing diplomas or degrees to persons without sufficient knowledge and training as legitimately to entitle them to such diplomas or degrees.

Mortality from Cancer, 1922.—The Department of Commerce announces that compilations made by the Bureau of the Census show that 80,938 deaths were due to cancer in the death registration area in 1922, which comprised about 85.3 per cent. of the total population of the United States. If the rest of the United States had as many deaths from cancer in proportion to the population the total number of deaths from this cause in the entire United States was 95,000 for 1922, against a corresponding estimate of 93,000 for 1921. The

death rate from cancer in the registration area in 1922 was 86.8 per hundred thousand population as against 86 in 1921. Only five states show lower rates for 1922 than for 1921. In comparing the death rate from cancer in one state with that in another, the bureau uses "adjusted" rates for age and sex. The highest adjusted cancer rate for 1922 is 106.9 per hundred thousand population for Rhode Island; the lowest, 53.1 for Tennessee. For a few states adjusted rates have been calculated separately for the white and colored populations. In this group of states the highest adjusted rate for the white population is 92.5 per hundred thousand for Maryland and the highest for the colored population is 81.7 also for Maryland. The lowest adjusted rate for white population is 52.8 for Tennessee and the lowest rate for the colored population is 40.8 for Florida.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Joseph's Mercy Hospital, Webster City, Iowa, $500,000, by the will of John McCartey of Williams, Pa.

United Israel-Zion Hospital, New York, $65,000, the proceeds of a bazaar.

Paducah, Texas, for the erection of a hospital, $60,000, by the will of Mr. Richards.

Lenox Hill Hospital, New York, $50,000, in memory of his parents, by Rudolph J. Shafer.

Brooklyn Home for Children, the Brooklyn Eye and Ear Hospital, the Brooklyn Orphan Asylum, each $50,000, by the will of Charles Elwell Perkins; the Brooklyn Hospital and the Brooklyn Home for Aged Men will share a bequest of $250,000 on the death of the testator's widow.

Exeter (N. H.) Cottage Hospital, $30,000 in shares of the Great Northern Iron Ore Properties, by Edward Tuck of Paris.

Sturgis, Mich., for the erection of a memorial hospital, $25,000 for construction and $25,000 for an endowment fund, by the will of William C. Grobbisher.

Mount Sinai Hospital, Philadelphia, $20,000, in memory of her husband by Mrs. Isaac Wasserмann.

St. Giles Home for Cripples, $7,500; the Home for Consumptives, Brooklyn, $5,000, and St. Christopher's Hospital for Babies, $2,000.

Episcopal Hospital, Philadelphia, $5,000; the Methodist Hospital and the University Hospital, Philadelphia, each $2,500, by the will of Charles C. Kerchline.

Portsmouth (N. H.) Cottage Hospital, $5,000, by the will of Carrie A. Remick.

Germantown Dispensary, Philadelphia, for the endowment of a free bed, $3,000, by the will of Agnes H. Ulmer.

Society for the Relief of Ruptured and Crippled, New York, the Hebrew Orphan Asylum, the Home for Aged and Infirm Hebrews, the New York Institute for the Blind, the Lebanon Hospital, the New York Nose, Throat and Lung Hospital, the Northern Dispensary, and the New York Orthopedic Dispensary and Hospital, each $2,000; Lenox Hill Hospital, the St. Francis Hospital, Wyckoff Heights Hospital, Brooklyn, and the New York Eye and Ear Infirmary and Flower Hospital, each $1,000, by the will of Louis T. Lehmeyer.

The Brooklyn Hospital, the German Hospital, the Brooklyn Home for Consumptives and the White Plains Hospital, White Plains, N. Y., each $1,000, by the will of Adeline M. Munnich.

Pawtucket-Central Falls, R. I., Chapter of the American Red Cross, $1,000, from Col. Lyman B. Goff, and $500 each, from Charles O. Read and John Johnson of Pawtucket.

Mount Sinai Hospital, Philadelphia, $500, by the will of Joseph J. Cohen.

Chester County Hospital, West Chester, Pa., stocks and investments for the erection of a memorial tablet to her parents, by the will of Isabella R. Patterson.

Children's Hospital, and the Mary J. Drexel Home, Philadelphia, two free beds by Mr. and Mrs. Runtt and Dr. Theodore Spressler.

LATIN AMERICA

Tribute to Professor Couto.—The *Brazil-Medico* of Rio de Janeiro devotes eighteen pages to the account of the three-day tribute paid by the profession and the public to Dr. Miguel Couto on the twenty-fifth anniversary of his entering the medical faculty. Two bronze tablets were unveiled, and receptions were held in the medical faculty, in the Academia Nacional de Medicina, of which he has been president for the last nine years, and in the Sociedade de Medicina e Cirurgia, with addresses. He has been regular professor of clinical medicine since 1911, having had the chair of propedeutic medicine before this, and has long been corresponding member of scientific societies in other countries.

FOREIGN

Prize for Cancer Research.—The Christie Hospital, London, is offering a prize of £300 ($1,500) for cancer research. Candidates must submit evidence of original research work bearing on cancer completed or projected. The competition is open to all nationalities.

London School of Tropical Medicine.—The annual dinner was held November 21, at the Hotel Victoria, with Sir Ian Hamilton Benn in the chair. Sir James Allen, high commissioner of New Zealand, Surgeon Vice Admiral J. Chambers, Sir William Leishman, Sir Walter Fletcher and Lord Devonport were guests of the school. It was stated that the school would retain its name within the Rockefeller Institute in honor of the memory of Sir Patrick Manson.

Venereal Disease Law in Bohemia.—A telegram from Prague to the *Medizinische Klinik* states that the new law which went into effect, October 18, provides for notification, compulsory examination of suspects of either sex and compulsory treatment for those found with venereal disease. Reglementation is abolished. Physicians are required to keep records of those treated for venereal disease, with provisions for maintaining professional secrecy. If treatment is refused or neglected, the health officer may have the individual taken to the hospital. The law forbids treatment by correspondence; exposure of other parties to the disease or infection of other parties is subject to penalty. This includes transmission of syphilis by diseased wetnurses or infants. The public health authorities are to provide expert examination and treatment, including the necessary drugs for the poor. Personal prophylaxis is not mentioned in the law.

Women's Medical Service in India.—The thirty-eighth annual report on the work of the National Association for Supplying Medical Aid to Women in India, issued by the Countess of Dufferin's Fund has been published. It includes a report of the Women's Medical Service for India which at the beginning of 1922 consisted of thirty-eight medical officers with four temporary officers. The number of women medical students was 436, and there were 400 women practitioners of medicine in India and as many as 145 hospitals whose staffs are composed of women. This indicates the advances made in providing medical aid by women since 1885, when the service was formed. Large areas, however, are still unprovided with medical relief and the council of the Dufferin Fund summarizes the chief needs of the country as regards medical aid by women as follows:

1. A far greater number of hospitals whose staffs are made up of women.
2. A far larger supply of Indian women doctors both for hospital and private work.
3. More opportunity for graduate work to keep up the standard of professional knowledge.
4. Training schools for nurses and midwives in connection with all women's hospitals.
5. More funds for the working of the hospitals.
6. A constant supply of women doctors and midwives to take up preventive work in connection with maternity and child welfare in all parts of the country.

Government Services

U. S. Public Health Service Report

The fifty-second annual report of the U. S. Public Health Service for the fiscal year ended June 30, covering its one hundred and twenty-fifth year of its existence, has just been published. To meet the growing demands of American shipping and to reduce serious fire hazards due to antiquated buildings, new marine hospitals are urgently needed, it is said. Twenty-five hospitals are now operated by the U. S. Public Health Service, including the National Leprosarium at Carville, La. A new feature of the present report is a section dealing with the use of the radio for the dissemination of health information which was instituted, July 13, 1921.

Report of Surgeon-General U. S. Army for 1923

In his report for the year ending June 30, 1923, the Surgeon-General of the Army calls attention to increase in personnel as the important need of the department, and for which new legislation is required. The present allowance of personnel is barely sufficient to provide satisfactory medical attendance and hospitalization for the sick and injured. In order to train the reserve personnel satisfactorily, the Surgeon-General believes three medical regiments will be necessary, one in the northern, southern and western parts of the country. The present personnel includes 983 medical, 158 dental, 126 veterinary and fifty medical administrative officials.

Analyzing the diseases affecting the Army during the last year, the Surgeon-General calls special attention to influenza, which has continued to increase, and measles, which has decreased markedly. The rates for venereal diseases, malaria and other infectious diseases have also decreased. There was only one case of typhoid in the Army, and only five cases of smallpox, and there were no deaths from either. On the whole, the report follows the lines laid down in previous years.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Nov. 30, 1923.

Dean Roger's Impressions of South America

Prof. H. Roger, dean of the medical faculty of the University of Paris, gives, in the *Presse médicale,* an account of his visit to South America. It is the general, but erroneous, belief in Europe that South Americans are not familiar with European science. Those who entertain such a belief would be greatly surprised if they could visit the splendid scientific institutions and modern hospitals that are rising throughout South America. No doubt South Americans can still learn from us, but we can learn much from them, and Roger assures Europeans that a visit to South America will well repay them. Whereas our scientists often devote time and energy to abstract research, and take pleasure in formulating hypotheses and theories, the investigators of South America are, for the most part, intensely practical, with little interest in doctrinal discussions. They go straight toward their goal, and make practical and successful applications of science. As an illustration, Roger refers to the work of Oswaldo Cruz, who in three years eradicated yellow fever from Brazil. He praises highly the remarkable organization of charity work and, more particularly, the first-aid or emergency services. In all large cities there are one or more first-aid stations where physicians, surgeons, midwives and pharmacists may be found on duty, day and night. At Santiago de Chile, Roger was afforded a demonstration which convinced him that the system functioned almost perfectly. One evening, about 11 o'clock, as he got up from a banquet that had been given in his honor, by way of demonstration the central first-aid station was called by telephone and asked to send an ambulance for a sick man. Six minutes after the call was turned in, the emergency ambulance was in front of the door. Roger took a seat in the ambulance and, two minutes later, arrived at the first-aid station, where physician, surgeon and assistants were waiting, ready to treat or to perform an emergency operation on the patient who, fortunately, proved to be in the best of health. Referring to the warm welcome accorded in South America to foreign scientists, especially to representatives of the medical profession, Roger points out that social relations with foreigners are facilitated by the fact that almost everybody speaks French fluently.

A Life Annuity for Madame Curie

The minister of public instruction has presented to the chamber of deputies a bill which, if accepted, will confer on Madame Curie, as an evidence of national appreciation, a life annuity of 40,000 francs. It is planned to bestow the gift, Dec. 28, 1923, which will be the twenty-fifth anniversary of the announcement to the Academy of Sciences of the discovery of radium. The way having been prepared by the remarkable work of Henri Becquerel, the collaboration of M. and Mme. Pierre Curie produced at first polonium and then radium.

In the minister's statement setting forth his reasons for recommending the passage of the bill, he referred in these terms to the extremely new character of the discovery of radium:

> Our whole conception of matter, chemistry and the science of the universe has been placed on an entirely new basis; in addition, the emanations emitted in the transmutation of the atoms of radium have been found to exert a powerful action on living matter. Already, effective means have been discovered by which certain evils from which humanity suffers, such as cancer, can be combated. The strange and profoundly new character of these discoveries, the practical developments associated with them, and the hopes that they awaken for the future, create for France the moral obligation of shewing its gratitude to those who made possible this glorious event. Unfortunately, Pierre Curie passed away prematurely. With admirable faith, firm resolve and scientific self-denial, Madame Curie is continuing the work so auspiciously begun. The hour has come for France to show her grateful appreciation.

Indulgence Shown by the Courts Toward "Healers"

In previous letters, I have referred to the indulgent attitude often assumed by our courts toward all kinds of "healers," whose methods they refuse to recognize as constituting illegal practice of medicine. The appellate court of Paris has recently furnished another case in point. A "magnetician," whose circulars indicated that he regarded himself as a disciple of Pascal, Descartes, Mesmer, Curie, Pasteur and Jeanne d'Arc, was sentenced, a few months ago, by the court of correction to one year of imprisonment and a fine of 200 francs, for the illegal practice of medicine. The defendant appealed, and the appellate court acquitted him, holding that the accusation of illegal practice of medicine did not hold as the treatment consisted merely in placing a magnet in a basin of water, pronouncing a few magic words accompanied by cabalistic signs, applying compresses wrung out of this water, and then sending the patients away with the assurance that they would be cured.

Cancer at Bordeaux

M. Albert Lachapèle, an intern of the hospitals of Bordeaux, has published recently in the *Gazette hebdomadaire des sciences médicales de Bordeaux* an interesting contribution to the statistics of cancer in large cities. Table 1 shows the mortality from cancer in Bordeaux during the period from 1914 to 1922.

Table 1.—*Cancer Statistics for Bordeaux, 1914-1922*

	Years								
	1914	1915	1916	1917	1918	1919	1920	1921	1922
Total number of deaths	5,961	5,696	6,194	6,102	8,543	6,317	5,717	5,424	5,186
Deaths from cancer	319	301	388	346	310	364	359	351	379
Percentage	5.3	5.2	6.2	5.6	3.7	5.7	6.2	6.4	7.3

The population of Bordeaux has increased from 261,678 (1914) to 267,409 (1921). With the exception of 1918-1919, under the effects of the influenza epidemic, the number of deaths remained about the same in spite of the increase in the population. The total mortality decreased slightly, while the mortality from cancer increased considerably. The number of women dying of cancer is greater than that of men, as may be seen from Table 2.

Table 2.—*Sex Distribution of Deaths from Cancer*

	Years								
	1914	1915	1916	1917	1918	1919	1920	1921	1922
Women	206	199	250	201	184	216	217	217	210
Men	113	102	138	145	126	148	142	134	169
Total	319	301	388	346	310	364	359	351	379

The digestive tract and appendages are most frequently affected (49 per cent. in 1922). In decreasing order of frequency come the stomach, the liver, the rectum, the small intestine and the colon, the tongue, the esophagus and the pancreas. Next in order of frequency are cancer of the uterus (16 per cent. in 1922) and cancer of the breast (5 per cent. in 1922).

Deaths

The death of Dr. Henri Bouttier, physician to the hospitals of Paris, has been announced. He graduated in 1918 and became a collaborator of Prof. Pierre Marie. During the war, he published a series of articles on traumatism of the brain and meninges; and he has also reported numerous

researches on epilepsy: azotemia and the urea index during epileptic seizures; the epileptic state, and the circulatory and vasomotor disturbances of epilepsy. In collaboration with Pierre Marie, he published recently a series of researches on cerebral sensory disturbances: the great variety of sensory dissociations, and their association with sensory affections of thalamic origin. Bouttier also, in collaboration with Pierre Marie and Crouzon, introduced the treatment of epilepsy with potassium borotartrate.

Dr. Paul Oudin, well known as an electrotherapeutist and roentgenologist, has died at the age of 72. He was born at Epinal, in 1851, and at an early date began to devote himself to electrotherapeutics. He invented a device for increasing the tension of an electric current, which bears the name "Oudin resonator" and which has recently been employed in connection with wireless telegraphy. In 1895, Oudin made the first roentgenograms made in France, which were taken immediately after Roentgen's discovery was announced.

Dr. Paul Michaux, who was honorary surgeon to the hospitals of Paris, has died at the age of 69. After retiring from active duty, he devoted a good share of his time and energy to the Féderation gymnastique et sportive des patronages de France, which he had founded and of which he was the president.

Physical Reeducation in the Army

From the point of view of social justice, it does not seem right to put on the young men of robust appearance the whole weight of military duty and to neglect those who need to be developed; this often cannot be accomplished owing to lack of proper counsel and assistance. The annual examination of those who, on account of certain defects, were placed on the deferred list, has proved that the majority of these men had not overcome their defects after being returned to their home environment. Up to 1901, the military authorities had not given special attention to the weakly or those whose condition was below par. Such men remained in their units where the officers gave them some special consideration, but often really did not know just what treatment was best for them. In 1901, it was decided to try the plan of grouping them together in a special platoon, one for each regiment. But the creation of these platoons of underfit men had not been generally applied. The war of 1914-1918, with the enormous losses that it entailed, caused the plan to be revived. In 1917, whole companies of the underfit were organized, with a view to bring as many men as possible up to standard fitness after a short time spent in a special training camp. It proved possible to bring, within a year, 100,000 such underfit men up to the required standard of efficiency. These special training centers have continued to function since the war closed. In 1919, they were reserved for a time for the war wounded and convalescents, but since 1920 they have again been used for the special training of young men with defective constitutions. They are now combined with centers of physical instruction, and a regional organization has been perfected. Their inspection, from time to time, by the exemption and classifying boards makes it possible to place the men in the special groups indicated by their degree of physical development. Many men (especially at the beginning of their training) are given individual attention and receive special prescriptions as to exercise, diet, etc. A great deal of attention is given to breathing exercises, for the vast number have never learned to breathe properly. Every month, a reexamination and a reclassification allows the medical director of the center either to return a man to his unit as completely fit or to place him in a higher class among those whose retraining is not yet completed. This monthly reclassification is based on: (1) a clinical examination, together with any special examinations (roentgenologic, laryngologic, etc.) that may be needed; (2) a physical examination comprising various tests in walking, jumping, running, climbing, lifting and throwing, and (3) a physiologic examination (heart, lungs), bringing out the reaction of the subjects to various exercises.

With the results of these careful examinations as a basis, the physician can make the new classification of the subjects, with a full knowledge of the existing conditions. He can at any time intervene and make any changes he may desire in the method of training; while the instructors only need to follow the prescriptions in order to regulate the progress of the training. The military instruction, in a general way, runs parallel with the physical reeducation, the military exercises taken up increasing gradually in duration and intensity, as the men become more fit through training.

Furthermore, these centers of reeducation make it possible to eliminate, after a trial, a considerable number of young men who present affections incompatible with military service. These subjects classed as unfit for service, either at a medical examination or during the first few months of training, are returned to their unit and are later reexamined by the exemption board.

LONDON

(From Our Regular Correspondent)

Nov. 26, 1923.

Casualties in London Streets

A return just issued states that 158 persons were killed in street accidents which were recorded by the Metropolitan Police during July, August and September. Of this total, 140 deaths resulted from accidents in connection with mechanically propelled vehicles, and the remaining eighteen from accidents in which horse-drawn and other nonmechanically propelled vehicles were concerned. Nine of the deaths in the latter class were due to accidents to pedal bicycles. Mechanically propelled trade and commercial vehicles were responsible for forty-five deaths, private motorcars for thirty-seven, motor omnibuses for thirty-one, motorcycles for seventeen, streetcars for eight, and cabs for two. In the same period the total number of accidents to persons or property, including those in which deaths occurred, was 19,263, of which 13,798 occurred to mechanically propelled vehicles and 5,465 to horse-drawn or nonmechanically propelled vehicles.

Breakdown of the Unit System at the London Hospital

What is known as the "unit system" was introduced into this country in 1920 with the idea of improving the teaching of medicine and advancing research. The principle was that already followed in other countries: to provide certain teachers with a sufficient salary to make them independent of private practice and able to devote all or the greater part of their time to the objects mentioned above. Previously, teachers lived on private practice, and the only benefit they derived from teaching was the enhanced reputation. The new plan seems so far to have been successful, though it must be remembered that it forms only a small part of hospital teaching. Side by side with the "unit" teaching the old system continues, and it is in the latter that the most eminent men in the profession take part, for the emoluments of the unit would be no attraction to them. But suddenly the failure of the system on the surgical side has been announced from the London Hospital. Mr. Souttar, director of the surgical unit, states in a letter to the *British Medical Journal* that he finds that withdrawal from private practice has a narrowing effect on his mental outlook. It confines him to the wards and laboratories of the hospital, and the difficulties and requirements of work in the outside world are forgotten. The more complete the organization of his work, the more perfect the assistance he receives, the more will he tend to rely on

the mass of information placed before him and the less on his observation and interrogation of the patient. The diagnosis of fractures tends to become a matter of the roentgen rays, and a gastric case appeals to him only as source of test meals and opacities. Dealing with patients of low mental power, he is apt to feel that their interrogation will only mislead him. Yet he is teaching men who, when they go into practice, will have to cope with the very difficulties which his own surroundings tend to obliterate. Again, it is no small part of the business of the medical student to learn those from whom he may best obtain assistance when he is out in the world. It is an impossible handicap to forbid his teacher to consult with his old pupils. Even in research, Mr. Souttar finds disadvantage. His time is absorbed in a routine of responsibilities, and the very material for clinical study he finds eluding him. The clinical researcher depends for his material not on the casual entries of the hospital, but on cases sent by outside physicians who know his special interests. But private practice seems too complex a thing for a physician to send his private patients to one consultant and his hospital cases to another. Mr. Souttar found his cases for admission dwindling and his beds empty. A return to private work immediately brought back the old conditions of a good supply of hospital cases, and the special cases so essential to teaching began to appear. Mr. Souttar draws attention to the difference between the director of the unit system in this country and the professor of surgery on the European continent, from which the system has been borrowed. The professor is the absolute head of the whole clinic, including its laboratories. Not only does he engage in private practice but he is the acknowledged leader of his profession, and all the most important and exceptional surgery of the district passes through his hands. Through his assistants he can organize surgical demonstrations on a grand scale, and the teaching can be placed on a systematic basis which we have never achieved. But in most cases the teaching of the continent is limited to the lecture theater. The personal touch of ward teaching, which is such a feature of Britain and so valuable, is lost, and the product is more likely to be a brilliant student than a useful physician. In Mr. Souttar's opinion, our teaching is a cause for pride rather than dissatisfaction, and no great revolution in its methods is required. He recommends the scheme adopted at the London Hospital, where each of the five surgical "firms" has a paid assistant. Each firm consists of a senior and junior. The assistant is a young surgeon who is paid $2,000 a year. His duties are to assist in the organization of teaching and research, and only in exceptional circumstances is he called on to undertake the ordinary routine of hospital work.

In the correspondence evoked by this letter, Mr. Sampson Handley states that, after full consideration, his hospital (the Middlesex) declined to adopt the professorial unit system, fearing the very disadvantages found by Mr. Souttar. They decided that all the advantages of the system could be obtained by a similar method to that now adopted at the London Hospital—the appointment of whole-time registrars at a salary of $1,500 a year, tenable for three years. These appointments appeal to men who have completed resident ones and are working for higher qualifications. The result has been increased efficiency. Another correspondent criticizes Mr. Souttar, expressing surprise at his complaint that he requires special cases for teaching and research. This correspondent (an anonymous London teacher) would have thought that the function of the surgical unit was to investigate common, every-day cases, of which our ignorance is profound. For instance, if rheumatoid arthritis had been chosen for research, the investigator would have been overwhelmed with cases. The same situation would hold for the biochemical relationships of cancer.

VIENNA

(From Our Regular Correspondent)

Nov. 24, 1923.

Scarcity of Cadavers for the Teaching of Anatomy

The anatomic institute of our university is face to face with a serious condition that may even bring about the closing of this important part of the medical school. During the last few years, the number of cadavers delivered to the institute has been constantly declining. While formerly each group of six students engaged in dissection could be supplied with from three to five cadavers each term, last year only two bodies were available; even these for the most part had been preserved for months by means of phenol (carbolic acid) injected into the veins. In "better times" a stock of cadavers was always supplied to the cellars; but in the last few months this stock has been nearly exhausted, and it has been necessary to limit the number of new students below a certain "numerous clausus." According to the data given by the board of the institute, in 1921-1922, there were delivered for dissecting purposes the bodies of seventy-eight adults and seventy-nine children; in 1922-1923, the numbers were twenty-two and nine, the latter already partly dissected. This term, only one body has been received. The reason for this unfortunate situation is to be found only partly in the diminished number of patients dying in hospitals or in the action of religious societies that undertake to bury the poor. The chief fault lies in the organization for supply; this has been handed over by officials to incompetent agents with a view to saving the cost of transporting the cadavers to the institute and from there to the burial grounds. Naturally, this has caused widespread indignation in medical circles. But so powerful is the organization of officialdom in this republic that all efforts of the medical faculty, as well as public protests, have proved useless. Now that the facts are widely known, it is probable that the new national assembly will pass a law providing for the adequate supply of teaching material by requiring the delivery of a certain percentage of the bodies dealt with in each hospital.

Public Health Budget for 1923-1924

In the budget for 1923-1924, the following sums have been provided for expenditure on public health: treatment, control and after-care of war invalids, including pensions and hospital accommodation, $5,500,000; control of the health of juveniles (school physicians, inspection of board schools, upkeep of baths, playgrounds), $300,000; government institutes for examination of foodstuffs and for the manufacture of serums and vaccines, $200,000; special institutes for physical therapy (radioactive waters), $500,000; state hospitals, control of epidemics and the fight against alcohol and tuberculosis (chiefly lectures and public instruction), $1,500,000; midwifery service in the country, police medical service and sanitation of rural districts, $700,000. All these figures must be considered from the standpoint of the fact that our country has only 6,500,000 inhabitants.

Alcohol as a Cause of Accidents

In an interesting paper on "Alcoholic Etiology of Injuries," recently discussed in the report of the Austrian ministry of health, Dr. Schumacher, who has examined the records for the last three years of the first accident department of the General Hospital in Vienna, deals with accidents caused directly or indirectly by indulgence in alcoholic beverages. The figures are not absolutely correct, as the department is closed every September for four weeks, and its work is transferred to another clinic for that time; some alcohol cases also are taken to other hospitals. But still the statistical material thus obtained is ample to allow certain definite conclusions. It appears that the total of "alcohol accidents" is

smaller than might be expected. The monthly average for 1920 was 2.3 out of 388 accident cases; for the year 1921, it was 3 out of 425; and for 1922, it rose to 10 out of 403 each month. Comparing this with the probable total of cases of drunkenness in a large capital city of 2,000,000 inhabitants, one is struck with the small proportion of intoxicated persons who are injured. The accidents happen mostly in the course of fights, from being run over by vehicles, by falls, or by attempts at suicide. The largest number of cases brought to the accident department is uniformly encountered in the months of February and March; doubtless, this is due to the carnival, which, in this country, is celebrated in these months. As regards days, Saturday night and Sunday are the most fruitful; the weekly salary is soon spent in drinking; these two days alone have as many cases as all other days together. Accidents caused indirectly by alcohol are most often due to fights, ninety-one out of a total of 197; younger persons are mostly concerned, more than 60 per cent. being below 30, and only 15 per cent. over 40. The latter group are more easily the victims of falls, and the injuries are mostly on the occiput, forehead or face. The injuries caused by vehicles concern chiefly older persons; only 12 per cent. of patients below 30 were brought in for this reason, against 40 per cent. of persons over 50. These injuries are often serious; fractures of the extremities, of the cranium, and comotio cerebri are rather frequent. Of late, serious injuries have increased in frequency, no doubt, as a result of the increase of traffic as regards both intensity and speed. A peculiar feature of the cases brought in with injuries caused by suicidal attempts is that out of the thirteen cases recorded no less than eleven were inflicted with a knife or dagger. Stabs in the abdomen or heart region were the rule, the use of firearms being apparently abhorred by the drunkard. It must, however, be stated that the instances in which the attempt at suicide was successful are not considered in this report. Here again, the majority of the cases happened on Sunday or Monday. The overwhelming majority of all patients suffering from alcohol accidents were men, only 3 per cent. being women; none were under 18 years of age, two were above 76, while more than 30 per cent. were younger than 30. Ninety-five per cent. were manual workers. Dr. Schumacher, in summing up his observations, points out a peculiar fact. The intoxicated person in falling is less prone to sustain severe injury, unless he is knocked down by great force. The sober person, in falling, tries to regain his equilibrium and may overstrain different muscle groups, with the result that joints or bones may give way. The drunken person falls like a sack, without resistance on the part of his muscles; he simply cracks the skin over the head or some long bone which happens to strike against the ground. To illustrate the extent of alcoholic excess in this city, it may be added that, in the first half of 1923, the police arrested 8,753 persons for being drunk and disorderly on the streets; of these, 79 per cent. were men. Saturdays accounted for 2,163 cases, Sundays for 1,444. Of each 20,000 inhabitants of the city, forty-nine were charged with being drunk. No wonder that the antialcohol movement has received such attention lately from the police and the eugenists.

Census Sex Distribution and Birth Rate

The preliminary result of the Austrian census, taken March 7, 1923, has been published, and the following figures are of interest. The entire population amounts to 6,526,661, of whom 3,382,568 are women, and only 3,144,093 men. The women have now reached the same number as in 1910, the men show as yet a deficit of more than 141,000. The excess of women over men is now 76 per thousand, which is 53 more than in 1910, but already less than in 1920, when the last preliminary census was taken; it then stood at 83 per thousand. In the mountainous regions of Tyrol, Salzburg and upper Austria, both sexes have passed the figures of the year 1910 as regards the number of births, while in Vienna and the industrial centers neither sex has yet reached the 1910 mark. In three rural districts only the women are more numerous than in 1910. In the cities and towns—except Vienna—the general increase of the population that obtained until 1914 has again started, but admittedly the female component is larger than the male. Only in two purely industrial factory towns—Steyr and St. Polten—does the number of men exceed that of women. The ratio of women to each thousand men in the different districts is: Vienna, 1,169; Tyrol, 1,037; upper Austria, 1,054; lower Austria, 1,039; Styria, 1,026; Graz, 1,139; Innsbruck, 1,093; St. Polten, 973; Steyr, 952; Baden, 1,268; Linz, 1,086. The birth rate of the last three years are given. In 1919 it was 17.96 per cent.; in 1920, 22.40; in 1921, 25.10; the death rate was 20.33, 18.97 and 17.06, respectively. A marked decrease in infant mortality and in the age group up to 5 years is noted.

Dental Surgeons and Dental Mechanics in Austria

Altogether, there are 470 qualified physicians in Vienna who practice dentistry exclusively out of 3,267 practitioners, while 788 licensed mechanics compete with them in caring for the teeth of the public. The whole republic, with 6,689 physicians, has just 700 dental surgeons, or a little more than 10 per cent., while the number of mechanics is 1,112. The latter will gradually decrease in time because under the new dental act no new licenses will be issued; the existing mechanics are allowed to do a certain amount of surgical work that is directly connected with mechanical dentistry.

BERLIN

(From Our Regular Correspondent)

Nov. 24, 1923.

Researches of Nobel Prize Winners on Physiology of Muscle

In the researches of Meyerhof of Kiel and Hill of London, between whom the Nobel prize for medicine was divided, the old problem of muscular activity, which Helmholtz and du Bois-Raymond sought to solve, has again come to the front. When a muscle contracts, it not only performs mechanical work but also produces heat. Both are derived from the usual sources of energy, that is, by combustion; in muscle, sugar is burned with production of carbon dioxid, and the energy thus eliminated is transformed according to the general law of the conservation of energy, which holds good for animal organisms as for machinery. The question arises as to the relationship between the chemical, mechanical and thermic processes. Possibly muscle works like a steam engine, in which heat is formed first by oxidation and then a portion of the energy is converted into motion. Against this old view, however, many objections have been raised. It is possible that muscle does not need to produce heat and then convert it into motion. For purposes of experimentation, physiologists have from time immemorial used dissected frog muscle, because it continues to live for many hours after removal from the body and offers simpler conditions for research. The frog's gastrocnemius weighs about a gram, is 3 cm. in length, and a single contraction extends over a tenth of a second. Nevertheless, Hill was able, with an exceedingly delicate apparatus, to measure with mathematical precision the quantity of heat that the muscle develops at one contraction. Hill was surprised to discover that only part of the heat (scarcely half) is produced during the contraction, and that the remainder is not formed until the muscle has again relaxed, and, furthermore, that the time required extends over many seconds. Similarly, the Hungarian investigator Verzar found that the oxygen consumption of the muscle takes place, for the most part, after the

contraction. These two stages of muscular activity can be distinctly separated from each other if the muscle is allowed to work without oxygen, being hung up in an atmosphere of nitrogen as did Weiszäcker, and, by the addition of hydrocyanic acid, is deprived of the capacity of utilizing oxygen. The muscle contracts even without oxygen, anaerobically, as it were; its efficiency—the relation of the work performed to the quantity of heat produced—is then even greater (from 70 to 100 per cent. instead of from 30 to 40 per cent.), which would be impossible for a heat-generating machine. The muscle, however, becomes quickly fatigued, and of the heat that would ordinarily be generated only the first half is actually produced, the remainder being suppressed. There is then plainly a first "initial" stage and a second "oxidative" stage of heat generation.

Meyerhof attacked the problem more from the chemical side. He studied more particularly the lactic acid, which, as recent investigations had shown, is formed normally in resting muscle, but still more rapidly in working muscle. Lactic acid, as the name indicates (Latin *lacteus,* milky), is produced at the souring of milk by bacterial decomposition of milk sugar, and Meyerhof had previously discovered a peculiar connection between fermentation and respiration. From yeast, substances may be extracted which, in animal cells, facilitate respiration and sugar combustion; and, vice versa, an extract of muscle furthers yeast fermentation. So, as the first stage of respiration in the muscle, a fermentation-like process is observed, which splits the muscle sugar (glycogen) into lactic acid. Again, by withdrawing the oxygen this stage can be separated, which causes the acid to accumulate in the muscle, and this stage continues as long as the contraction. The significance of the process is intelligible; for, as other investigations had shown, it is the acid that produces the shortening of the muscle. Following the contraction there is a considerable period in which the lactic acid completely disappears under the influence of the oxygen intake. Is the lactic acid simply burned, with the production of water and carbon dioxid, as is the most natural assumption? Meyerhof, from careful determination of the sugar content, the amount of lactic acid, the oxygen consumption and the formation of carbon dioxid during the various stages of muscle activity, found that only one third of the lactic acid is burned and eliminated; two thirds are changed back, in the economy of the organism, into the original substance (muscle sugar), under the influence of the heat produced by the combustion; the decomposition of one portion is utilized for the resynthesis of the other portion. Between formation and elimination of the acid there is an intermediary stage. In oxygen-free surroundings when no acid is eliminated, the muscle still becomes fatigued, and the acid is transferred from its place of origin to parts distant from the contracted portions, where it remains inactive; only when it accumulates in considerable amounts does it cause fatigue and a flaccid and nonexitable state of the muscle.

Thus, chemical research has shown, corresponding to the initial and oxidative stages established by Hill, that there is a first phase during contraction, when lactic acid is formed, which takes place just as well when oxygen is excluded; and a second phase in which lactic acid is eliminated, burned or metamorphosed, which is possible only in the presence of oxygen. As muscle sugar is a prerequisite for the genesis of lactic acid, so the second stage is a prerequisite and preparation for the first. In the second stage, the trigger is set, as it were, and is released by the contraction of the muscle; in other words, the accumulator is charged and its energy is set free by the contraction. If we regard the muscle as a machine, then we must consider it as essentially a chemical and not a heat-producing machine. Only when we combine the findings of Meyerhof and Hill, which confirm and supplement one another, do we get a complete picture of what takes place.

Nutrition Among German Children

Recent reports of school physicians and physicians in infant welfare stations, in large cities and especially in Berlin state that there has been marked impairment in nutrition among children during the last few weeks as the result of the sudden and unprecedented increase in the cost of food, together with the dearth of indispensable articles of diet. There is great distress also among the sick of all age groups; most needed remedies are out of the reach of most patients, and even institutions that are fairly well supplied with funds furnished by foreign countries are frequently unable to secure the simplest medicines. Supplementary feeding in the form of a breakfast containing 500 calories is to be provided, at government expense, for 500,000 children, for the most part in the schools.

Color Perception and Acuity of Vision in Sailors

According to a recent report (No. 44) of the federal public health bureau, in the year covered by the reports, 8,854 sailors were examined for acuity of vision. Of this number, 8,568, or 96.77 per cent., possessed satisfactory vision, while the vision of the remaining 286 was inadequate. Examination for color perception was carried out on 8,779 sailors. Of this number, 8,599, or 97.95 per cent., were not color-blind; nineteen, or 0.22 per cent., were unable to perceive green; seventy-one, or 0.81 per cent., could not perceive red, and ninety, or 1.02 per cent., had little or no color perception.

Poisoning by Oil of Chenopodium and by Mercuric Chlorid Tablets

According to a report of the federal public health bureau (No. 44), several deaths among children have been occasioned recently by adult doses of oil of chenopodium. This vermifuge is rightly regarded as effective, but it is dangerous unless proper care is taken. Oil of chenopodium should never be administered except on a physician's prescription and under medical supervision, lest children, through misunderstanding, be given doses intended for adults. It is planned to add this remedy to the list of drugs that may not be dispensed without a physician's prescription.

There have been several cases in which mercuric chlorid tablets have been introduced into the vagina to prevent conception by persons ignorant of their highly poisonous nature. Several women have succumbed to acute mercurial poisoning. Attention is called to these cases, and a note of warning is sounded.

Marriages

ROY M. COX, San Luis Obispo, Calif., to Miss Olive Burnett Hall of Neligh, Neb., November 21.

ARTHUR JOHNSON GREENLEAF, Mountville, Pa., to Miss Kathryn Seitz of Quarryville, recently.

ERNEST MILLS KINGSBURY to Miss Hannah Jane Nelson, both of Clearwater, Minn., October 8.

EDWARD HENRY KUPKE, Kenney, Ill., to Miss Anna Marcue of Lemar, Iowa, November 25.

HENRY WISE LYON to Miss Fannie Darden Gotlin, both of Windsor, N. C., November 17.

JOHN H. BUTTS to Miss Margaret Isabelle Black, both of Waterloo, Iowa, November 28.

J. RUSSELL VAN SICKLE, Holly, Mich., to Miss Ruby Oliver of Detroit, November 19.

WILLIAM H. SCOTT to Miss Verna Quivey, both of Dallas City, Ill., November 6.

FELIX H. RENBERG to Miss Hattie Arnstein, both of Chicago, November 27.

Deaths

Harold Nicholas Moyer ⊕ Chicago; Rush Medical College, Chicago, 1879; died, December 14, of heart disease. Dr. Moyer was born in Canajoharie, N. Y., in 1858; from 1886 to 1903, he served on the faculty of Rush Medical College as an assistant in diseases of the nervous system, lecturer in physiology and histology, adjunct professor of medicine, assistant to the neurologic clinic and assistant professor of medicine. He was a member of the House of Delegates of the American Medical Association, from 1902 to 1904, and a member of the Reference Committee on Credentials of the House of Delegates in 1904. He was formerly president of the Illinois State Medical Society and the Chicago Medical Society, was a member of the Chicago Neurological Society, the Chicago Pathological and the American Neurological Association. He was at different times on the staff of the Cook County, the Columbus, St. Luke's, and the Mercy hospitals of Chicago, and the Eastern Hospital for the Insane, Kankakee, Ill. Dr. Moyer was widely known as a medicolegal adviser. He was a man of genial character with numerous friends.

Everett E. Hodgin, Indianapolis; Physio-Medical College of Indiana, Indianapolis, 1896; Medical College of Indiana, Indianapolis, 1901; member of the Indiana State Medical Association; president of the city board of health; on the staff of the Indianapolis City Hospital; aged 52; died, December 4, of mitral regurgitation, following erysipelas and pneumonia.

Vivian Pendleton Gaines, Mobile, Ala.; University of Alabama School of Medicine, Tuscaloosa, 1872; Medical Department of Columbia College, New York, 1873; member of the Medical Association of the State of Alabama; formerly lecturer in obstetrics at the University of Alabama School of Medicine; aged 72; died, November 27, of mitral regurgitation.

William Edward Bloyer, Buckland, Ohio; Eclectic Medical Institute, Cincinnati, 1879; member of the Ohio State Medical Association, and president of the American Association of Orificial Surgeons; formerly professor of materia medica at his alma mater; aged 70; died, November 24, of carcinoma of the stomach and diabetes mellitus.

Sylvester Joseph Byrne, Brooklyn; Long Island College Hospital, Brooklyn, 1890; for twenty-seven years assistant registrar of records in the Brooklyn Department of Health; chairman of the Committee on Vital Statistics of the American Public Health Association; aged 63; died, December 5.

Lawrence Pierre Desmond, Cheyenne, Wyo.; Bellevue Hospital Medical College, New York, 1898; member of the Wyoming State Medical Society; served in the M. C., U. S. Army, with the rank of captain, during the World War; aged 50; was found dead, November 25, of heart disease.

David Cassat Barber ⊕ Los Angeles; Miami Medical College, Cincinnati, 1886; formerly assistant professor of clinical surgery at the University of California Medical School, San Francisco; at one time superintendent of the Los Angeles County Hospital; aged 61; died, December 2.

Paul Carson, Boston; Dartmouth Medical School, Hanover, N. H., 1894; served as port physician for fifteen years; formerly chief of the division of child hygiene of the city board of health, and medical inspector of the Boston Health Department; aged 53; died, November 27.

William George Hawkey, Belvidere, Ill.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1898; member of the Illinois State Medical Society; county coroner for twelve years; formerly member of the board of health; aged 59; died, December 2, of embolism.

Albert Theodore Swan, New York; Bellevue Hospital Medical College, New York, 1879; member of the Medical Society of the State of New York; on the staffs of the Willard Parker and Riverside hospitals; aged 66; died, December 6, of heart disease.

Henry Albert Suitor ⊕ South Deerfield, Mass.; Tufts College Medical School, Boston, 1906; president of the Franklin County Medical Society; on the staff of the Farren Memorial Hospital, Montague City; for several years member of the school board; aged 44; died, December 2, of cerebral embolism.

William Hitchcock Tukey, Major, U. S. Army, retired, Machias, Me.; University of Vermont College of Medicine, Burlington, 1891; served in the Spanish-American War and in the Philippine Insurrection; aged 56; died, November 19.

David Maxwell Graham, Duluth, Minn.; Jefferson Medical College of Philadelphia, 1870; Hahnemann Medical College of Philadelphia, 1877; Hahnemann Medical College and Hospital, Chicago, 1883; aged 80; died, November 29, of senility.

Cornelius Joseph McCormick ⊕ Waltham, Mass.; Medical School of Harvard University, Boston, 1876; formerly member of the school board; one of the founders of the Waltham Hospital; aged 70; died, December 4, of heart disease.

Page Alexander Gibbons ⊕ Morgantown, W. Va.; University of Maryland School of Medicine, Baltimore, 1897; formerly on the staff of the Sheltering Arms Hospital, Hansford; aged 49; died, December 2, of cerebral hemorrhage.

Oscar W. Doyle, Louisville, Ky.; University of Louisville (Ky.) Medical Department, 1901; member of the Kentucky State Medical Association; adjunct professor of therapeutics at his alma mater; aged 44; died, November 29.

Charles Hitchcock, New York; Medical Department of Columbia College, New York, 1872; member of the Medical Society of the State of New York; formerly on the staff of St. Luke's Hospital; aged 75; died, December 5.

Charles Adelbert Ballard, Harlowton, Mont.; University of Minnesota College of Homeopathic Medicine and Surgery, Minneapolis, 1897; proprietor of the Ballard Hospital; aged 48; died of septicemia, November 26.

H. Everett Russell, Otisville, N. Y.; New York Homeopathic Medical College, New York, 1886; for six years on the staff of the Municipal Sanatorium; aged 60; died, November 22, following an appendectomy.

Elijah Brodie Meadows, Oxford, N. C.; University College of Medicine, Richmond, Va., 1901; member of the Medical Society of the State of North Carolina; aged 48; died, December 2, following a long illness.

Frank Austin Palmer ⊕ Morris, Ill.; Northwestern University Medical School, Chicago, 1897; served in the M. C., U. S. Army, with the rank of captain, during the World War; aged 50; died, December 2.

Sargent Francis Snow ⊕ Syracuse, N. Y.; Medical Department of the University of the City of New York, 1887; member of the American Otological Society; aged 62; died suddenly, December 9.

Vene P. Armstrong, Dallas, Texas; University of Louisville (Ky.) Medical Department, 1877; formerly city health officer; superintendent of the Westmoreland Sanatorium; aged 68; died, November 30.

Bernhard Segal, Philadelphia; Jefferson Medical College of Philadelphia, 1893; member of the Medical Society of the State of Pennsylvania; aged 55; died, November 26, following a long illness.

Newel R. Bradley, Saginaw, Mich.; Saginaw Valley (Mich.) Medical College, 1900; member of the Michigan State Medical Society; aged 65; died suddenly, November 27, of heart disease.

James Cary Stinson, Reagan, Tenn.; Vanderbilt University Medical Department, Nashville, 1882; member of the Tennessee State Medical Association; aged 70; died, November 30.

John M. Lenoir, Paris, Texas; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1891; aged 56; was shot and killed, November 30.

William Lloyd Friedman ⊕ Oakland, Calif.; Baltimore (Md.) Medical College, 1897; member of the Pacific Coast Oto-Ophthalmological Society; aged 51; died, December 1.

Ira Wellington Chapman ⊕ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1904; formerly professor of physiology at his alma mater; aged 47; died, November 23.

Edmund H. Madden, Absecon, N. J.; Jefferson Medical College of Philadelphia, 1866; member of the Medical Society of New Jersey; aged 81; died, November 27, of senility.

Samuel Jessup White, Jr., Unadilla, N. Y.; Medical Department of the University of the City of New York, 1888; village president; aged 61; died, November 23, of pneumonia.

Jay D. Nusbaum, Fort Wayne, Ind.; Medical College of Indiana, Indianapolis, 1905; aged 40; died, December 2, at St. Vincent's Hospital, Indianapolis, of heart disease.

C. Clayton Koons, Larned, Kan.; Kansas City (Mo.) Medical College, 1901; member of the Kansas Medical Society; aged 51; died in November, of cerebral hemorrhage.

William Henry Boodro, Boston; Medical School of Harvard University, Boston, 1899; also a pharmacist; aged 48; died, November 18, at the Carney Hospital, of pneumonia.

Walter M. Hunter, Petersburg, Ind.; Medical College of Indiana, Indianapolis, 1891; member of the Indiana State Medical Association; aged 72; died, December 1.

George William Kirmse ⊕ Minneapolis; St. Louis (Mo.) University School of Medicine, 1907; aged 40; was drowned, November 25, in Lake Amelia, while hunting.

Joseph Kentling ⊕ Bloomington, Ind.; University of Louisville (Ky.) Medical Department, 1900; aged 46; died, December 4, following an operation for gallstones.

Greenberry B. Brown, Georgetown, Ky.; Medical Department University of Louisville, Ky., 1873; Civil War veteran; aged 80; died, November 29, of senility.

John Jacob Schoofs ⊕ Fond du Lac, Wis.; State University of Iowa College of Medicine, Iowa City, 1893; aged 57; died suddenly, December 3, of heart disease.

Fred Warner Stevens ⊕ La Grange, Ill.; College of Physicians and Surgeons, Chicago, 1906; aged 50; died, December 14, of lethargic (epidemic) encephalitis.

Joseph A. Groves, Selma, Ala.; Medical College of the State of South Carolina, Charleston, 1854; Confederate veteran; aged 93; died, November 26, of senility.

Harry Marion Lucas Sims, Poughkeepsie, N. Y.; Medical Department of Columbia College, New York, 1873; aged 72; died, November 21, of arteriosclerosis.

John Clancy Parish ⊕ Smithfield, Va.; Medical College of Virginia, Richmond, 1914; also a pharmacist; aged 34; died, November 30, following a long illness.

Michael Ambrose Carroll ⊕ Scranton, Pa.; College of Physicians and Surgeons, Baltimore, 1889; aged 57; died, November 30, following a long illness.

Samuel S. Smythe, Denver; Hahnemann Medical College and Hospital, Chicago, 1867; Civil War veteran; aged 84; died, November 16, of pneumonia.

Guy Virgil Baxley, Grovetown, Ga.; University of Georgia Medical Department, Augusta, 1900; aged 48; died, November 13, following a long illness.

Frank Sylvanus Knipe, Brooklyn; Long Island College Hospital, Brooklyn, 1900; aged 47; died, December 3, of pulmonary tuberculosis.

Walter Eugene Bongartz ⊕ Westpoint, Me.; Boston (Mass.) University School of Medicine, 1883; aged 61; died, November 17, of carcinoma.

J. C. Sellers, Spring, Texas; University of Louisville (Ky.) Medical Department, 1889; aged 58; died, November 12, following a long illness.

Joseph Aloysius Gallagher, Pittsburgh; University of Pennsylvania School of Medicine, Philadelphia, 1901; aged 49; died, November 29.

John M. Sease, Little Mountain, S. C.; University of Maryland School of Medicine, Baltimore, 1886; aged 62; died, November 28.

Charles Henry Tripp ⊕ Clinton Corners, N. Y.; Bellevue Hospital Medical College, New York, 1881; aged 67; died, November 21.

Webster Coleman Smith, Franklin Grove, Ill.; Rush Medical College, Chicago, 1885; aged 82; died, December 6, of senility.

Fred Yonkers, Zeeland, Mich.; Saginaw Valley (Mich.) Medical College, 1902; aged 64; died, November 30, of heart disease.

John M. Egan ⊕ Minneapolis; University of Minnesota Medical School, Minneapolis, 1907; aged 40; died, November 30.

William A. Charter, Marion, Ohio; Washington University School of Medicine, Baltimore, 1874; aged 71; died, December 4.

John Bunyan Spratt, Mount Sterling, Ky.; Jefferson College of Philadelphia, 1857; aged 96; died recently, of senility.

Hardin Wilcoxson, Loami, Ill.; American Medical College, St. Louis, 1880; aged 72; died, December 4, of pneumonia.

Andrew Konzelman, St. Louis; Barnes Medical College, St. Louis, 1899; aged 70; died, November 23, of pneumonia.

Alvin Ethelbert Cowan ⊕ Ensley, Ala.; Birmingham (Ala.) Medical College, 1912; aged 43; died, November 27.

Edward Lee Johnson, Cooperstown, N. Y.; Albany (N. Y.) Medical College, 1891; aged 54; died in November.

William B. Kuehne ⊕ Cleveland; Jenner Medical College, Chicago, 1900; aged 64; died in November.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

GLY-SO-IODONATE

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of this report.

W. A. PUCKNER, Secretary.

In July, 1921, Charles E. Huchings requested consideration of Gly-So-Iodonate. He claimed to be a graduate of King's College of Medicine, London, but the registrar of that institution has written that his name does not appear on the college's medical register. The product, said to be a "chemical germicide-antiseptic," was "owned and controlled exclusively by the Wisconsin Medical Laboratory" which is at the present time claimed to be affiliated with the National Medical Research Laboratories, Milwaukee, Wis.

The composition of Gly-So-Iodonate was originally stated to be:

	Per Cent.
"Double distilled water	81
Alcohol	10
Glycerin	2
Solids	7
Percentage of solids as follows:	
Sodium Carbonate	2.50
Sodium Chlorid	1.60
Sodium Sulphate	0.65
Sodium Bicarbonate	0.40
Potassium Carbonate	0 15
Alumina Oxid	0.05
Calcium Sulphate	0.10
Magnesium	0.05
Boracic Acid	0.30
Potassium Iodid	0.30
Iodin	0.40
Corrosive Sublimate	0.50"

The method of preparation was given as follows:

"Composition and chemicals used in the preparation of Gly-so-iodonate; First Part:

Sodium Carbonate	36.00
Sodium Chlorid	23.00
Sodium Sulphate	10.06
Sodium Bicarbonate	6.02
Potassium Carbonate	2.18
Alumina Oxid	1.50
Calcium Sulphate	2.72
Magnesium Sulphate	1.52
Boracic Acid	5.00
Potassium Iodid	5.00
Iodin	7.00

"The method of completing the solution is as follows, Second Part: 3,219 c.c. of double distilled water is brought to a boiling point of 225 degrees (F). After boiling for a period, 20 grains of corrosive sublimate is added—solution is again held at boiling point, then the fused chemicals (part one) is added—boiling is again held for a period, after which the whole is submitted to a special process of distillation. After cooling to a certain degree determined by years of trials, 450 c.c. of 190° alcohol is added—again distilled, and the 115 c.c. of C. P. glycerin is added—final process is another special distillation for bottling."

"The above quantities are used for making one gallon."

The Council considered the information, and the following points were presented to the Wisconsin Medical Laboratory:

I. *Composition Not Correctly Declared.*—Obviously the formula presented was an impossible one: (1) any free iodin added in accordance with the formula would react with the alkali carbonate to yield alkali iodid and alkali iodate, and (2) mercuric chlorid would react with alkali iodids to give an alkali mercuric iodid. Gly-So-Iodonate, moreover, was referred to as a distillate, for in the process of manufacture, as submitted, the solids of the formula were dissolved in water, the solution distilled and the glycerin and alcohol added to the distillate. It was safe to predict that, no matter what the interactions of the ingredients may have been, the salts of sodium, potassium, magnesium, calcium, etc., would not be sufficiently volatile to permit their distillation with the water vapors.

II. *Formula Needlessly Complex and Irrational.*—The finished Gly-So-Iodonate, a "non-poisonous" "distillate," according to the submission of the manufacturer, was a product "presenting and maintaining a dual duty of germicide and healer." It was said not to be deteriorated by "light waves, sun rays, heat and cold" and it was claimed, furthermore,

that "the various chemicals are so arranged to either [sic] take up all tissue fluids and hold them in suspension, against growth, or dry up unessential exudates," "each [chemical] fulfilling a specific action within the exudates and sebums common with most wounds." In the end no evidence was submitted to demonstrate the superiority of the mixture over that of a solution of the well-known potassium mercuric iodid of equivalent concentration.

III. *Label Not Acceptable and Name Not Descriptive.*—The amount of poisonous material, mercury compound (potassium mercuric iodid?) in a given quantity was not declared on the label and the name Gly-So-Iodonate is not descriptive of the potent ingredient of the mixture.

The manufacturing company made a reply to this report, but the reply contained no statement of facts which altered the conflicts of Gly-So-Iodonate with the rules which govern the acceptance of products for inclusion in New and Nonofficial Remedies.

RECENT DEVELOPMENTS

From recent developments, it is evident that an active selling campaign for Gly-So-Iodonate is being directed toward factories and large commercial concerns by the National Medical Research Laboratories. The original Gly-So-Iodonate, with its statement of composition but slightly changed, is now claimed to be the base of three additional products supplied by the same firm—"Iomer-Mensal for nose and throat work, Saline-Merammo for genito-urinary work, and Gly-So-Dental for dentistry and mouth wash."

In reference to the last mentioned products, a notice appears on the present-day label of Gly-So-Iodonate, which reads, "CAUTION-G. S. I. is especially prepared for surgical work and for all infections other than found in Ear, Nose and Throat or Genito-Urinary tract. Our various fluids are not interchangeable."

Specimens of Gly-So-Iodonate and the allied products were recently obtained in the open market, and the statements of composition of these are herewith reprinted from the labels. A glance suffices to show the incomplete and meaningless statements of composition. A comparison of the claimed composition of the products shows them to be complex mixtures varying slightly in the amount of this or that and with new ingredients added at will. The three new products have the potassium salts,

IOMER-MENSAL	
Volume	Per Cent.
Distilled Water	74.50
Alcohol	11.50
Glycerin	4.50
Minerals, Alkaloids, etc.	9.50
Per Cent. of Minerals, Alkaloids, etc.	
Corrosive Sublimate	0.30
Iodin	1.05
Vegetable Alkaloids	2.15
Platinum	0.10
Chlorids	3.70
Sodium	1.25
Magnesium	0.75

SALINE-MERAMMO	
Volume	Per Cent.
Distilled Water	73
Alcohol	11
Glycerin	4
Minerals, Alkaloids, etc.	12
Per Cent. of Minerals, Alkaloids, etc.	
Corrosive Sublimate	0.81
Iodin	3.10
Sodium	0.74
Ammonia	0.30
Vegetable Alkaloids	2.15
Chlorids	4.50
Platinum	0.40

GLY-SO-DENTAL	
Volume	Per Cent.
Distilled Water	76
Alcohol	9.50
Glycerin	5.50
Minerals, Alkaloids, etc.	9
Per Cent. of Minerals, Alkaloids, etc.	
Corrosive Sublimate	0.60
Iodin	0.75
Chlorids	4.80
Vegetable Alkaloids	1.50
Platinum	0.25
Sulphids	1.10

GLY-SO-IODONATE	
Volume	Per Cent.
Distilled Water	79
Alcohol	10
Glycerin	4
Minerals, Alkaloids, etc.	7
Per Cent. of Minerals, Alkaloids, Etc.	
Corrosive Sublimate	0.75
Iodin	0.55
Chlorids	2.10
Vegetable Alkaloids	2.05
Platinum	0.45
Potassium Salts	1.10

stated to be in Gly-So-Iodonate, omitted; all show an increase over Gly-So-Iodonate in chlorid content and iodin (a claimed iodin increase of 2.55 per cent. in the case of Saline-Merammo). A few new ingredients are declared, such as small amounts of sodium and ammonia in Saline-Merammo, sodium and magnesium in Iomer-Mensal, and sulphids in Gly-So-Dental. All four products have one property in common: On opening a bottle, there is a distinct odor of iodoform, evidently due to the interaction of iodin and alcohol in alkaline solution.

Gly-So-Iodonate, the so-called base of the other preparations as now marketed, is claimed to differ from that formerly sold in that (1) in the new product there is an alleged increase of both mercuric chlorid and iodin; (2) unnamed chlorids and unnamed potassium salts are now claimed instead of the defined sodium and potassium salts, alumina oxid, etc.; (3) platinum is claimed as a new ingredient of the product, and (4) contrary to known principles of compatibility, vegetable alkaloids are claimed as new ingredients.

No statement is made as to why platinum, which has found no use in medicine, is desirable, or as to why it is claimed to be present in a quantity of nearly one half of one per cent. Obviously, there could hardly be present the alleged 0.45 per cent. either of platinum or of a salt of platinum, for this amount in one quart alone would be worth at the present market price over fifteen dollars, a sum between three and four times as great as that asked for Gly-So-Iodonate itself.

In view of the improbability of these claims, the Chemical Laboratory of the American Medical Association made the following determinations on Gly-So-Iodonate:

	Per Cent. By Weight
Vegetable alkaloids	0.001
Mercury	0.026
Mercury (0.026%) Calculated as Mercuric Chlorid (Corrosive Sublimate)	0.036
Platinum ..... less than	0.01

The above analysis confirmed the suspicion that there were no alkaloids present; mercury was present in less than one-twentieth of the claimed amount, and platinum was present in less than one forty-fifth of the asserted amount!

The original objection that the name of the product is not suggestive of the most potent ingredient still holds. The analysis made in the laboratory showed that there was no free iodin, but combined iodin; in the form of iodid and iodate. A commonly used method for the extemporaneous preparation of potassium mercuric iodid is to mix mercuric chlorid with potassium iodid. In view of this, and in consideration both of the statements made on the new and the old labels, and the findings of the association's laboratory, it is evident that the mercury contained in Gly-So-Iodonate is present in form of a complex salt such as potassium mercuric iodid and not as "corrosive sublimate" as declared. No complex compound of mercury is mentioned in the statement of composition; instead the asserted presence of free iodin is stressed, and the name itself is suggestive of iodin rather than mercury.

In the advertising that is being sent to commercial concerns, the National Medical Research Laboratories make many claims for the superiority of Gly-So-Iodonate and its allied products:

> G-S-I is, we feel, the BACTERICIDE the medical world has searched for since the days of LISTER.
>
> Indicated in every case which formerly called for Iodine, Phenol, Silver Nitrate, or Caustics.
>
> G-S-I is a bactericide of enormous potency. Its effect upon tissues is salubrious. Its application is simple, clean, non-irritating and not involved in the tedious, expensive and complicated technique of other antiseptics. Its recent discovery makes its far reaching possibilities as yet unknown, and much of its amazing promise is still in the hands of the pioneers in its use.

It is claimed that many Milwaukee firms are users of the product. There are also reprinted letters of recommendation from general managers, safety engineers, and even from a nurse and a physician of these commercial plants. These recommendations are of the unscientific and uncritical type common to such testimonials.

To summarize; Gly-So-Iodonate is not the scientific masterpiece it is claimed to be; the statement of composition is obviously incorrect; the product is essentially semi-secret; its actions are virtually those of a solution of potassium mercuric iodid to which has been added a chemical hodge-podge; it is marketed under a nondescriptive and misleading name. In view of these facts, the Council has authorized publication of this report declaring Gly-So-Iodonate inadmissible to New and Nonofficial Remedies.

Correspondence

JOURNAL EDITORIALS—A PRACTICAL SUGGESTION

To the Editor:—It may possibly interest you to learn of an unsuspected but extremely valuable use to which certain editorials of The Journal have been put. For the last seven years I have cut out, mounted, filed and catalogued editorials on current physiologic subjects. From time to time during the course in physiology at Western Reserve University Medical School, sets of editorials which bear on topics under consideration are placed in the student laboratory. Students are encouraged to read these whenever a few unoccupied minutes become available. Their value as an adjunct to teaching is at least fourfold:

1. Each editorial furnishes a short, complete discussion on a single or relatively few points, susceptible of being read, digested and assimilated in five minutes or less. This is a great aid in fixing ideas.

2. They present physiologic subjects clearly and from interesting medical standpoints which are often quite different from textbook discussion.

3. They present digests or reviews of recent work which does not find its way into textbooks until several years later.

4. They convert the five to fifteen minute intervals that so often occur while waiting for lectures or during laboratory work from intervals of idleness to intervals of useful study and thereby impress the fact so difficult to learn, viz., that in a busy life a great deal of study may be accomplished by making appropriate use of idle moments.

The eagerness with which new sets of editorials are awaited by students, and the avidity with which they are made use of, make me feel that they are an adjunct in physiologic teaching that I should not wish to sacrifice.

I am wondering whether a similar system of systematic filing, indexing and *reading* Journal editorials relating to various phases of the medical sciences might not prove a practical method by which the busy practitioner, no matter where located, would be able not only to review the medical sciences from time to time, but to keep abreast of the time as well.

Carl J. Wiggers, M.D., Cleveland.
Professor of Physiology, Western Reserve
University School of Medicine

"CATARACT EXTRACTIONS PERFORMED BY PROF. JOSEF MELLER OF VIENNA 1919-1921"

To the Editor:—I have just received the presession book of the Section on Ophthalmology containing the paper on cataract read by Dr. Hans Barkan at the recent annual session of the American Medical Association [The Journal, this issue, p. 2086]. I have not personally had the pleasure of meeting either Dr. Barkan or Dr. Meller.

The facts are not Dr. Barkan's but are those of Dr. Meller, and they seem to me to deserve some comment. The paper deals with 249 extractions; of these, 174 are treated in a separate group as uncomplicated. The remainder, amounting to no less than 30 per cent., are treated as complicated. Why reject to a category on which no reputation is to be based as many as 30 per cent.? It is more than three times as many as we encounter in practice, unless we are scouring up the cases rejected by every one else. This was not the case at Vienna. In the next place, I wish to draw attention to the table showing the details of this 30 per cent. It is clear that the diagnosis of complicated was made some time after operation, as the facts could not be diagnosed before operation in many instances, and would be very difficult to diagnose when the patient was leaving the hospital in some cases.

War and postwar conditions do not explain the reason why so huge a percentage as 30 has been relegated to this category.

Any one can make out nice statistics if he waits till the patients are leaving the hospital. He can then reject 30 per cent. of the cases, putting them into the category of complicated, implying that they were complicated before operation. Why include black cataract as complicated?

The writer refers to a paper by Dr. Hardy, which I have not seen, and to another by Dr. Fisher of Chicago on operations I did at two clinics. I know the facts of Dr. Fisher's papers. I wonder that Dr. Barkan has not more sense of the ridiculous, as Dr. Fisher's is (though not directly) a reply to Dr. Hardy and to other such papers; and, if I may say so, it wipes the sink with them.

Dr. Barkan makes allowances for my psychology, etc., as regards operating in the United States in unfamiliar surroundings. I do not require such consideration, as I have no "nerves" and have equal confidence in myself in any surroundings. But I do appeal for fair play, and I feel that, taken all round, the American people will give it to me or any one else.

Dr. Barkan and some others expect me to see the patients just before operation; to operate; all records and after-treatment to be done by whom I do not know, the patients being not even seen by me after operation. Then he puts forward such statistics as any one thinks fit. On the other side, he puts facts given by Dr. Meller, who has made out all the facts himself. Have such conditions ever been asked of any man in any department of surgery? Yet they are asked of me, and I am asked to treat them as fair. We do not say much, but we all know there is much more in medicine than science and art. There is, for instance, the demon rivalry.

Dr. Barkan allows Meller to throw out 30 per cent. as complicated. He does not allow me to throw out any, though if Dr. Meller had been operating in the cases reported by Dr. Hardy on the Vienna showing he would have thrown out 50 per cent. as complicated and 20 per cent. as inoperable.

Statistics made out as in the paper under consideration and as Dr. Barkan wants lead nowhere and convince no experienced surgeon. To convince any one, the work has to be seen first hand and seen throughout, good and bad, as used to be the case at my Indian clinic. One might as well think to stop the tide with a broom as to stem the progress of intracapsular extraction by such methods as Dr. Barkan and Dr. Hardy adopt.

Henry Smith, M.D., C.I.E., Sidcup, Kent, England.
Lieutenant Colonel, Indian Medical Service.

"PROBLEMS OF LIFE IN THE TROPICS"

To the Editor:—I have been much interested in the editorials on the effects of high temperatures and humidities. I have been in accord with all but the last, on "Problems of Life in the Tropics" (The Journal, December 1, p. 1880). This speaks of the "needs today" but apparently overlooks recent investigations in the field, which were made in our own country.

I note that a work published in 1905 stating that the rise in body temperature is virtually independent of the dry bulb temperature has been accepted by the writer in view of the advancement of our knowledge both in England and in America since that date.

The work of the U. S. Public Health Service and U. S. Bureau of Mines, cooperating with the American Society of Heating and Ventilating Engineers, I believe, sufficiently

demonstrates that the dry bulb temperature is as important as the wet bulb, and the study includes "more fundamental investigations," which the writer informs us are needed.

W. J. McCONNELL, M.D., Pittsburgh.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

"DOES HEAT INJURE VACCINES?"

To the Editor:—Please put me right on the following claim made by the G. H. Sherman Company:

"Does heat injure vaccines? The recommendation of most Biologic Manufacturers is that their products be kept on ice. If room temperatures are deleterious to these vaccines, what happens to them when they are heat sterilized? Sherman's vaccines are sterilized without heat."

It has been my impression that vaccines lose their therapeutic value from standing at ordinary temperature for long periods of time, rather than from exposure to high temperature for a period of time sufficient to kill the organism.

H. J. DENMAN, M.D., Bessemer, Ala.

ANSWER.—The idea that vaccines lose in potency on standing at room temperature is generally accepted. Heating to kill the bacteria may affect the antigenic value, but so far as known not any more than other methods of sterilization, e. g., chemicals. In all probability, deterioration in antigenic value proceeds at about the same rate in vaccines standing at room temperature, whatever the method of killing the bacteria may have been. The advertisement obviously intends to convey the idea that the killing of bacteria in vaccines by heat injures the vaccine, and that the method used by Sherman does not. This statement, or inference, that the Sherman method is superior to heat sterilization is unwarranted; so far as we know, it is not based on scientific evidence. The astounding deduction that heat sterilization, at a definite temperature for a given time—usually not more than thirty minutes or thereabouts—must be highly injurious, because vaccines may lose in potency on standing for weeks and months at variable room temperatures, is simply a pseudo-scientific statement intended presumably to bolster up the merits of the advertised wares in the eyes of more or less thoughtless purchasers.

TINNITUS AURIUM

To the Editor:—For many years, I have been troubled with head noise, and I am desirous of knowing whether there is a remedy for this malady. Do you have anything to suggest?

M.D., District of Columbia.

ANSWER.—Head noises, more often called tinnitus aurium, have a great variety of causes. It is necessary to know something about the etiology in order to decide the therapy. Tinnitus may be due to a disturbance of the conduction apparatus of the ears, such as impacted cerumen in the external auditory canal with or without pressure against the drum membrane; to serous or purulent secretion in the middle ear, adhesions, etc., in the tympanic cavity, or to changes about the stapedial footplate at the oval window. It is often caused by abnormalities in the internal carotid artery or the internal jugular vein, both of which run through the temporal bone in close proximity to the middle ear. Various conditions in the eustachian tube itself produce tinnitus. Sometimes, in cardiac lesions, a murmur is transmitted through the blood vessels and perceived in the ear. At times, in cases of marked anemia, there is a bruit like the one often heard at the base of the heart. Various conditions of the inner ear or labyrinth or auditory nerve account for tinnitus, and there is often involvement due to the use of drugs, such as quinin or the salicylates. Sometimes it is suppuration in the inner ear or actual degeneration of the auditory nerve which produces the noises.

When the diagnosis once is made, attention is directed to the removal of the causative factors, if that is possible. Cases of obstruction of the external auditory canal due to cerumen are relieved by syringing with warm water or with sodium bicarbonate solution. The application of a 1 or 2 per cent. silver nitrate solution to the pharyngeal orifice of the eustachian tube is often efficacious. If there is obstruction to the tube or serous or mucoid secretion in the middle ear, inflation with the Politzer bag or by means of catheters, or the passing of bougies through the eustachian tube, often give benefit. Pneumomassage, applied either by way of the eustachian tube or by way of the external auditory meatus, helps in some cases. When there is an anatomic abnormality of the artery or vein, no direct therapy can be applied except in cases of very distressing and long continued tinnitus, when compression of the vessel, especially the artery, will diminish the noises. In cases of anemic murmurs, treatment of the general condition with arsenic, etc., is indicated. In a labyrinthine or auditory nerve involvement caused by the ingestion of certain drugs, these must be stopped and then free elimination promoted by the drinking of plenty of water, in connection with pilocarpin, etc., to induce sweating. When the tinnitus is accompanied by a degeneration of the auditory nerve itself, very little can be done for the relief of the patient by a direct method, such as manipulation. However, both in this condition, as well as in the tinnitus sometimes due to middle ear disturbances, large doses of bromid often diminish the tinnitus, at least temporarily. In those cases of so-called neurotic sounds due to a hypersensitive condition of the auditory nerve, the use of bromids will also sometimes be of avail. Tinnitus is often a most intractable and distressing symptom, and one which may drive the patient almost to desperation; therefore, all possible means for diagnosis should be employed and the logical therapy instituted in the hope of effecting some relief.

TREATMENT OF CARBUNCLES

To the Editor:—What is considered the best and latest treatment for carbuncles, more especially, for those confined to the face?

A. S. WARDER, JR., M.D., Grafton, W. Va.

ANSWER.—The treatment for carbuncles should vary somewhat, depending on the location of the infection. On the back of the neck, where the subcutaneous fat lies in columns perpendicular to the surface and surrounded by rather firm connective tissue septums, the infection tends to spread along these columns. The tension becomes so great that the circulation is interfered with and, as a result, extensive sloughing takes place. These cases are best treated by a crucial incision extending to the full limits of the area involved. Each quadrant of skin is raised from the underlying tissues to the periphery of the infected area, taking the lid off, as it were, from the numerous columnar fatty compartments, thus relieving tension and providing free drainage. Hot, moist, antiseptic dressings are then applied. When the infection is over, the skin flaps should be replaced and the wound dressed as usual until healing takes place. If sloughing of the tissues has already taken place, the entire mass may be removed with knife or scissors after the skin flaps have been turned back, and then moist antiseptic dressings applied.

In a general way, the same procedure may be carried out in other regions of the body; but it is somewhat simplified, owing to the absence of the peculiar formation of the subcutaneous fat found in the back of the neck.

In carbuncles of the face, particularly of the lips, a very different condition exists. The almost entire absence of subcutaneous fat, the muscles being attached directly to the skin, the great vascularity with numerous freely anastomosing venous channels with direct communication with the sinuses of the brain through the angular and ophthalmic veins, make the danger of carbuncles in this region very great and the mortality high.

These cases should be treated with the utmost gentleness. They should never be pressed on or squeezed with the idea of pressing out the pus or the "core," on account of the great danger of spreading the infection along the veins or of dislodging septic thrombi. Experience shows that it is safer to apply hot, moist, antiseptic dressings and to allow the "center" to evacuate itself spontaneously.

LOCALIZED ARGYRIA

To the Editor:—Is there any treatment or process known to medical science whereby one can remove argyrol that has escaped under the skin and into the tissues beneath the eye, leaving a dark discoloration? The patient is 72 years old, and prominent. The accident occurred Saturday, December 1, while argyrol was being instilled, following the passage of a No. 5 probe through the tear duct. Please withhold name, and send any information at earlist possible date.

W. C. I.

ANSWER.—In a case so recent as this, there may be some absorption so that discoloration will be reduced somewhat; but argyrol injected into the lacrimal duct and sac may by extravasation produce permanent discoloration of the tissues. It is essentially localized argyria; the silver is changed either by light or by the tissue fluids into a nonsoluble silver salt or metallic silver. There is no practical way by which it can be removed.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

Alabama: Montgomery, January 8. Chairman, Dr. Samuel W. Welch, Montgomery.

Colorado: Denver, January 8. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

Indiana: Indianapolis, January 8. Sec., Dr. W. T. Gott, State House, Indianapolis.

National Board of Medical Examiners: Written Examinations in Class A Medical Schools. Part I, February 13-15, 1924. Secretary, J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia. Application for this examination must be made on or before January 15, 1924.

New York: Albany, Buffalo, New York and Syracuse, January 28-31. Ass't, Mr. Herbert J. Hamilton, State Education Bldg., Albany.

North Dakota: Grand Forks, January 1-4. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

Oregon: Portland, January 2-4. Sec., Dr. Urling C. Coe, Stevens Bldg., Portland.

Pennsylvania: Philadelphia, January 29–February 2. Sec., J. George Becht, M.D., State Capitol, Harrisburg.

South Dakota: Pierre, January 15. Dir., Dr. H. R. Kenaston, Boncstecl.

Washington: Olympia, January 8. Sec., Mr. William Melville, Olympia.

Wisconsin: Madison, January 8-10. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

INVESTIGATION OF LICENSES IN CONNECTICUT

The Journal has previously published the records of Frank Edward Gavlas, Donald W. Stewart and George E. Sutcliffe. This week, the report concerns the record of Isidor Yochelman, involved in the investigation.

Isidor Yochelman

In the Federation Bulletin of January, 1918, appeared an account of certain attempts to secure medical registration in Massachusetts by fraudulent methods. The first mentioned was one Isidor Yochelman. It appears that Yochelman applied for admission to medical licensure in Massachusetts in September, 1915, at which time he submitted the statement that he was a graduate of a school in Russia. At that time, Massachusetts did not require graduation in medicine as a prerequisite for examination, so an admission card to the examination was issued to him. It developed later that Yochelman had been admitted to the Tufts College Medical School of Boston in the autumn of 1914 on the strength of a certified statement of preliminary education issued by the Westerleigh Collegiate Institute of 386 Richmond Terrace, New Brighton, Staten Island, New York, later shown to be worthless. Yochelman had paid the Tufts school six months' tuition in advance, but did not appear for instruction. On the morning of the Massachusetts examination, Sept. 15, 1915, the examination card that was issued to Yochelman was presented by a man who was suspected of impersonating him. This man gave his name as Dr. Robert Malcolm, claiming residence in New Jersey. He attempted to explain how he had received the card issued to Yochelman. Later, Yochelman is said to have appeared at the Tufts Medical College to take the course in medicine for which he had paid. He was arrested on a charge of perjury, tried, convicted and sentenced to fifteen months in jail.

According to reports, Yochelman entered the Middlesex College of Medicine and Surgery, Sept. 20, 1917. He failed to supply credentials showing that he had satisfactorily completed the years of medical education which he claimed, but agreed to supply them later. While in this school his career was checkered with highly colored incidents and he failed to secure a diploma.

Yochelman is next discovered with a diploma from the St. Louis College of Physicians and Surgeons dated 1920, and claiming attendance in that school during the year 1919-1920. He was licensed by the eclectic board of Connecticut in July, 1920, notwithstanding his failure to produce credentials showing that he had actually passed the first three years of college work at any institution. In 1920, he practiced in New Haven; for a part of 1920, he was in Boston, and later he began to practice in Bridgeport. He received a license in pharmacy, June 29, 1921, in Connecticut by reciprocity with Massachusetts, in which he also held a pharmacy license. This license was revoked by the board one month after it was issued, following inspection by an investigator of the pharmacy board. Yochelman made no protest to the revocation of this license.

As has previously been mentioned, in July, 1923, the legislators of Connecticut passed a bill to validate the licenses of eighteen physicians who were under suspicion. This bill was vetoed by the governor, after which the eclectic examining board gave the candidates a second opportunity to pass, and Yochelman was among those passed. It was deemed necessary by the attorney general of the state that a new examination be passed, because the St. Louis College was not on the approved list for Connecticut for 1920, when Yochelman first passed. Then came the present exposure, which has resulted in the revocation of Yochelman's license along with those of seventeen other physicians. Yochelman's attitude has been remarkable. He said: "The eighteen will fight this thing to a finish. We have not had our licenses revoked, and they will not be revoked. Nobody has the power to revoke them." But the reports state that they have been revoked.

In his application for admission to the Middlesex College, Yochelman stated that he was born at Vilna, Russia, Jan. 28, 1891, and that his preliminary education consisted of eight years at the Hebrew Russian Vilna School. He, however, had no certificate in support of this statement.

To summarize: The educational record of Isidor Yochelman is so bestrewn with doubt and with evident falsification that to grant him a license to practice any kind or form of medicine is beyond comprehension; but the Connecticut eclectic board not only passed him once, but passed him again when state action made this necessary.

CLASSIFICATION OF THE DENTAL SCHOOLS

Following is a list of the dental schools in the United States as classified by the Dental Educational Council of America.

Sept. 15, 1923

Schools are listed in alphabetical sequence by states for convenience only, the order of presentation within each class having no significance.

CLASS A

University of California Dental Department...San Francisco
University of Southern California College of Dentistry .....Los Angeles
Chicago College of Dental Surgery.....Chicago
Northwestern University Dental School.....Chicago
University of Illinois College of Dentistry.....Chicago
State University of Iowa College of Dentistry.....Iowa City
University of Louisville College of Dentistry..Louisville, Ky.
Harvard University Dental School.....Boston
Tufts College Dental School.....Boston
University of Michigan College of Dental Surgery .....Ann Arbor, Mich.
University of Minnesota College of Dentistry....Minneapolis
St. Louis University School of Dentistry.....St. Louis
Washington University School of Dentistry.....St. Louis
Creighton University College of Dentistry.....Omaha
University of Buffalo College of Dentistry.....Buffalo
Western Reserve University Dental School.....Cleveland
Thomas W. Evans Museum and Dental Institute, School of Dentistry, University of Pennsylvania....Philadelphia
University of Pittsburgh School of Dentistry.....Pittsburgh
Vanderbilt University School of Dentistry..Nashville, Tenn.
Baylor University College of Dentistry.....Dallas, Texas
Marquette University College of Dentistry.....Milwaukee

CLASS B

College of Physicians and Surgeons of San Francisco .....San Francisco
University of Denver School of Dentistry.....Denver
(Formerly Colorado College of Dental Surgery)
Georgetown University Dental Department. Washington, D. C.
Howard University Dental College.....Washington, D. C.
Atlanta-Southern Dental College.....Atlanta, Ga.
Loyola University School of Dentistry.....New Orleans
Tulane University of Louisiana School of Dentistry .....New Orleans
University of Maryland School of Dentistry.....Baltimore
(Baltimore College of Dental Surgery was merged with it, June 15, 1923)

Kansas City-Western Dental College.....Kansas City, Mo.
University of Nebraska College of Dentistry.....Lincoln
Ohio State University College of Dentistry..Columbus, Ohio
North Pacific College of Dentistry.....Portland, Ore.
Temple University Dental School.....Philadelphia
(Formerly Philadelphia Dental College)
Meharry Dental College.....Nashville, Tenn.
University of Tennessee College of Dentistry.Memphis, Tenn.
Medical College of Virginia School of Dentistry
.....Richmond, Va.

CLASS C

Cincinnati College of Dental Surgery.....Cincinnati
Texas Dental College.....Houston, Texas

UNCLASSIFIED

Indiana Dental College*.....Indianapolis
Columbia University School of Dentistry†.....New York
(Incorporated with the College of Dental and Oral Surgery of New York)
New York College of Dentistry*.....New York
Ohio College of Dental Surgery*.....Cincinnati
(Affiliated with the University of Cincinnati, July 1, 1923; early complete merger in prospect)

MERGED RECENTLY WITH UNIVERSITIES

Colorado College of Dental Surgery.....Denver
(Merged with Denver University, June 15, 1922)
Baltimore College of Dental Surgery.....Baltimore
(Merged with the Dental Department of the University of Maryland, June 15, 1923)
College of Dental and Oral Surgery of New York.New York
(United with the School of Dentistry of Columbia University on July 1, 1923)

DISCONTINUED SINCE THE PUBLICATION OF THE CLASSIFICATION IN 1920

(1921) George Washington University Dental School
.....Washington, D. C.
(1923) University of West Tennessee Dental Department
.....Memphis, Tenn.

* Classification postponed until the next meeting of the council.
† Classification postponed until reorganization has been completed.

Montana April Examination

Dr. S. A. Cooney, secretary, Montana Board of Medical Examiners, reports the written examination held at Helena, April 3-5, 1923. The examination covered 10 subjects and included 50 questions. An average of 75 per cent. was required to pass. Of the 9 candidates examined, 8 passed and 1 failed. Two candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED		Year Grad.	Per Cent.
Rush Medical College	(1901)	81.1,	(1921)	91.5
State University of Iowa College of Medicine			(1919)	84.1
University of Louisville Medical Department			(1908)	82.1
University of Michigan			(1920)	85.7
University of Minnesota			(1913)	86.5
John A. Creighton Medical College			(1900)	85.8
University of Toronto Faculty of Medicine			(1922)	80.1

College	FAILED	Year Grad.	Per Cent.
Ensworth Medical College		(1909)	42.3

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Loyola University School of Medicine		(1917)	Idaho
Barnes Medical College		(1903)	Idaho

Utah April Examination

Mr. J. T. Hammond, director, Utah Department of Registration, reports the written examination held at Salt Lake City in April, 1923. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 4 candidates examined, 3 passed and 1 failed. Six candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED		Year Grad.	Per Cent.
Rush Medical College			(1922)	76.1
University of Pennsylvania	(1921)	79.9,	(1922)	86.8

College	FAILED	Year Grad.	Per Cent.
National University, Athens, Greece		(1916)*	35.9

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
George Washington University Medical School		(1922)	Dist. Colum.
Rush Medical College		(1919) (1920, 3)	Illinois
St. Louis University School of Medicine		(1920)	Missouri

* Graduation not verified.

Book Notices

USEFUL DRUGS. Prepared Under the Direction and Supervision of the Council on Pharmacy and Chemistry of the American Medical Association. Sixth Edition. Cloth. Price, 60 cents. Pp. 180. Chicago: American Medical Association, 1923.

As the known drug and biologic remedies increased to a formidable number, it became generally acknowledged that a critically restricted list would prove invaluable, and that a thorough knowledge of a few drugs would prove more advantageous than a smattering knowledge of many. In 1913, the Council on Pharmacy and Chemistry first compiled a list of medicaments that might be used as the basis of instruction in materia medica and related subjects, and as a basis for examination in these subjects by state medical examining and licensing boards. Many schools have adopted the book as a textbook, and many state examining and licensing boards confine their questions to the drugs listed. Since the first issue, an effort has been made to keep the book abreast of therapeutic progress, and it has gone through various editions. Largely because of this frequent editing, which has made each edition a reliable index to the new advances in materia medica, the general practitioner has come to look on "Useful Drugs" as a convenient and concise guide.

The sixth edition is now off the press. There have been omissions for various reasons. In the main, products were omitted because an accumulation of evidence has shown the relative unimportance of some formerly accepted preparations, or because some medicaments could be replaced to advantage by better or simpler ones still retained. On the other hand, there have been important admissions: anhydrous *d*-glucose for use in hemorrhage, shock, fevers, etc.; chaulmoogra oil and chaulmestrol for use in leprosy; insulin for use in diabetes; luminal, found to be advantageous in the treatment of epilepsy; neocinchophen, which has some advantages over cinchophen; quinidin sulphate, which, in clinical use, has given evidence sufficient to warrant its inclusion; diphtheria toxin-antitoxin mixture and standardized rabies virus. All of these new substances are described critically and briefly, and a statement of their actions, uses and dosage is given. The actions, usage and dosage statements of the articles already in the book are revised so as to bring them up to date.

In addition to these changes, the discussion of pharmaceutic preparations, such as confections, honeys, fatty oils and volatile oils, has been transferred to the appendix. The therapeutic index has been revised; a series of tables of metric and apothecary equivalents has been added. These changes, it is believed, have materially increased the value of the book. "Useful Drugs," Sixth Edition, should be a most valuable and usable book for the physician and the medical student.

THE MEDICAL DEPARTMENT OF THE UNITED STATES ARMY IN THE WORLD WAR. Volume V: Military Hospitals in the United States. By Lieut. Col. Frank W. Weed, M.C., U. S. Army. Prepared under the direction of Major-Gen. M. W. Ireland, M.D., Surgeon General of the Army. Cloth. Price, $2.25. Pp. 857, with 204 illustrations. Washington: Government Printing Office, 1923.

This volume has been prepared largely by Lieut. Col. Frank W. Weed, although various chapters represent work of specialists in certain branches. The book begins with a history of military hospitals, and describes their growth up to the time of the World War. It then outlines the method of providing hospitals and supplies. The section on construction and improvement of hospitals is especially well illustrated. Eight chapters are devoted to the organization, administration and control of military hospitals, taking up such matters as water supply, sewage disposal, transportation and demobilization. Part four deals with the types of hospitals from the camp base hospital through the various general hospitals, aviation hospital, aeroplane, ambulance and embarkation and debarkation hospitals. The final section includes a description and discussion of each of the institutions established during the World War for which records are available. These

include maps of the institutions, photographs when available, and statistics as complete as possible. The volume is well printed, the photographs carefully selected, and the book, as a whole, is a credit to the medical department of the army.

Anatomical and Physiological Studies on the Growth of the Inner Ear of the Albino Rat. By Tokujiro Wada. Memoirs of the Wistar Institute of Anatomy and Biology, No. 10. Paper. Price, $4. Pp. 174, with illustrations. Philadelphia: The Wistar Institute of Anatomy and Biology, 1923.

In the minuteness and care with which each anatomic structure in the cochlea has been studied, this memoir is typical of the work published from the Wistar Institute. There appears to be no cell in the acoustic apparatus of the albino rat that has escaped measurement, not once but in each cochlear turn and at varying ages. How painstaking and thorough it is may be partly realized when one states that there are 113 tables of microscopic measurements of the anatomic cells which make up the cochlea, mostly made by the author. Two examples may be given. In fourteen rats varying in age from 1 day to 546 days there are radial measurements of the membrana tectoria in the four turns of the cochlea; and there are given the computed diameters of the cell bodies and their nuclei in the spiral ganglion according to the turns of the cochlea in the same number of rats. Many of these tables are charted so that the results can be graphically shown, enabling the reader more easily to grasp the differences at various ages. In addition there are figures showing the morphologic changes in each part of the tympanic wall of the cochlear duct during growth. The final chapter is devoted to a study of the growth of the largest nerve cells in the vestibular ganglion.

The albino rat has no hearing at birth, and first shows reaction to sounds between the ninth and the twelfth day. Dr. Wada investigated the cochlear changes in rats at various ages (from 1 day to 546 days), including two rats 9 days old, one of which reacted to sound and the other did not. Therefore, in this study we have a presentation of developmental changes that should help to make clear the anatomic structure necessary for hearing in the white rat.

The technic employed in fixing was that which Yoshii had found so advantageous in his cochlear investigations and which is recognized as one of the most suitable to study the structure of so delicate an organ. It leaves, however, something still to be desired, especially when one studies such a soft structure as the tectorial membrane and tries to fix its exact position relative to the spiral organ. This membrane is always more or less altered by all fixing agents now in use, and must be so if, as Hardesty says, it consists of fine fibrils embedded in a gelatinous matrix. To get its real structure, one would have to fall back on some such method of examination as Hardesty employed.

The author clearly shows that the inception of hearing coincides with the development not of one but of each constituent of the spiral organ of Corti, and this development occurs rapidly at the age at which the animal hears. The papilla in the lower turn is the first part to reach a high degree of differentiation. This differentiation passes rapidly from the basal coil and travels to the apex. A rat which reacts to only a note of high pitch will one or two days later react to a note of low pitch, a result which accords with the well known fact that the papilla in the lower turn responds to sounds of high pitch, while in the upper turn it responds to sounds of low pitch.

That the papilla is more differentiated in the hearing rat is well exemplified by a comparison of the histologic structure of the cochlea in two rats 9 days old, one of which could hear and the other could not. This consists not in the detachment of the tectorial membrane from the papilla spiralis, but in the degree of differentiation of the constituents of the papilla, the differentiation of the hair cells and the pillars of Corti, and the opening up of the tunnel of Corti and the appearance of Nuel's space. In the hearing rat the tectorial membrane has reached the outermost row of the hair cells, while in the nonhearing rat it has not yet reached the second row of the cells. It is not the freeing of the tectorial membrane from the papilla spiralis that is necessary to the appearance of the hearing reflex, but the differentiation of the papilla, and its changes in form and position under the membrana tectoria. The author's tables confirm the accepted view that the cells composing the organ of Corti, the total breadth of the basilar membrane, the breadth of the zona arcuata, the height of the tunnel of Corti, increase from base to apex. It is to be regretted that some details have not been given on the ligamentum spiralis externa, which increases in size as one passes from apex to base—a fact which may have a bearing on the tension of the basilar membrane and on its function.

The relation of the membrana tectoria to the papilla spiralis was carefully studied. In the nonhearing rat it is slightly shorter, and fine fibers connect it to the papilla and to Hensen's prominence. In the hearing rat these fibers are absent and the membrane does not reach Hensen's prominence, as it appears to do in the pig. In the hearing rat in the earliest ages there is still a connection of the membrane with the terminal frame of the lamina reticularis. What happens as development progresses to this connection is a point on which opinions differ. Some hold that this connection remains through life; others assert that the membrane projects free in the endolymph. In the adult cochlea, Dr. Wada has never seen this connection, nor did he observe a connection of the membrane with the hairs of the hair cells. In the young rats, at 15 days, one very often may see on the terminal frame the broken remainder of the connecting threads. Whether this break arises through natural development or is the result of artificial manipulation, he is unable to say. His results in the rat agree in the main with those of Hardesty in the pig, who, however, obtained a tectorial membrane floating free in the endolymph at its outer zone. The assertion that, in an animal capable of hearing, the membrana tectoria is never connected with the papilla spiralis, is not supported by his observation. He points out that the freeing of the outer zone of the membrane is not absolutely necessary for the mediation of auditory impulses, for in the cochlea of birds the membrane remains through life attached to the epithelial ridge.

We know of no work on the anatomy of the cochlea in which so many details have been so carefully studied. While the value of this monograph may not be easily grasped by the ordinary reader, the future investigator of the auditory organ will find this wealth of detailed information most useful and stimulating. It is an investigation well worthy of a place in that series of monographs which has given the "American Anatomical Memoirs" a distinguished place in anatomic literature.

Nouveau traité de médecine. Publié sous la direction G. H. Roger, Fernand Widal, P. J. Telssier. Secrétaire de la rédaction: M. Garnier. Fascicule XII: Pathologie de l'appareil respiratoire (suite). Cloth. Price 45 francs. Pp. 596, with 66 illustrations. Fascicule XV: Affections des glandes salivaires, du pancréas et du péritoine. Cloth. Price, 40 francs. Pp. 568, with 135 illustrations. Paris: Masson et Cie, 1923.

This volume of the system of medicine edited by Roger, Widal and others would be a credit to any similar work. It is most complete, encyclopedic in nature, and at the same time is not verbose. It does not restrict itself to presenting only the point of view of modern French medicine, but embraces all points of view available at the time of its publication. It is, indeed, commendable to find a French work that gives English, German, Italian and other foreign references as well as those written in the French language. The work is practical, and contains no fantastic and unproved theories, which are commonly presented as proved and accepted facts in so many modern French medical works. The book is well written. The illustrations are numerous and are well done, especially the plates of the pathologic specimens presented under pulmonary tuberculosis. Throughout the work the pathologic-anatomic side is presented in a most thorough and satisfactory fashion. Letulle and Halbron, in their treatise on pulmonary tuberculosis and nontuberculous pulmonary infections, have in no way neglected the development of their subject. A concise and accurate history of the white plague is given. The authors have inserted such topics as traumatism and tuberculosis, gas intoxication (war gassing) and its relation to tuberculosis, and wounds of the chest and tuberculosis.

This material is drawn from the French war experiences. The symptomatology, physical signs, physical examination, roentgen ray and spirometry are given completely. A thorough review of the therapeutic measures in vogue is given, and the worth of such methods closely scrutinized.

Volume XII is devoted to the salivary glands, pancreas and peritoneum. The bibliography is international, and the book is well illustrated. The section on the salivary glands, by Parmentier and Chabrol, makes very interesting reading. The anatomy, physiology, chemistry of the salivary secretions, and pathologic physiology are covered in detail. Such conditions as Mikulicz' syndrome, actinomycosis and syphilis of the salivary glands are in no way neglected because of their rarity. The authors accept the cause of Mikulicz' syndrome to be either tuberculosis or syphilis. In the section devoted to the pancreas, a complete and comprehensive review of the pancreatic functional tests is given, followed by a critical discussion of their relative merits. When diabetes mellitus is discussed, one finds a review of the literature prior to the advent of insulin. Unfortunately, this work was written before insulin, and this important chapter in the history of diabetes is missing. It is indeed striking that in the consideration of the treatment of diabetes only the general rules of procedure are given; no details regarding the dietary regimen or the combating of the accompaning acidosis are to be found. Such details in the treatment of diabetes certainly should have a place in a system of medicine.

PRACTICAL LOCAL ANESTHESIA AND ITS SURGICAL TECHNIC. By Robert Emmett Farr, M.D., F.A.C.S. Cloth. Price, $8. Pp. 529, with 219 illustrations. Philadelphia: Lea & Febiger, 1923.

This book is divided into three parts. In Part 1 is discussed the general subject of anesthetics, and the equipment which the author uses in local anesthesia, with the general technic and the anatomy of the sensory nervous system. Part 2 deals with local anesthesia in surgery of all regions of the body except the abdomen, while Part 3 takes up local anesthesia of the abdominal wall and cavity. The statement that ether itself is not an anesthetic agent and that its anesthetizing properties are due to so-called impurities is incorrect, and as ethanesal, a supposed improved ether, is not a substance of definite composition, it should not be substituted for pure ether as a general anesthetic. As a rule, the author uses the infiltration method of producing local anesthesia in preference to so-called nerve blocking, on account of its greater simplicity and ease of application. In addition to the method of producing local anesthesia for a particular operation, the author frequently enters into a discussion of the technic of the operation itself, and numerous case records are cited illustrating the points brought out. In his descriptions, the author has given the most careful attention to the minutest detail in the hope that thereby he may bring about a more extended use of a method which possesses many advantages over general anesthesia in such a large part of the surgeon's work.

THE NORMAL CHILD. Its Care and Feeding. By Alan Brown, M.B., Physician in Chief to the Hospital for Sick Children, Toronto. Cloth. Price, $1.25. Pp. 254, with 11 illustrations. New York: The Century Company, 1923.

The list of books to advise mothers in the care of their children continues to increase rapidly; indeed, there has come to be such a similarity in standards that one wonders when the production of such volumes will end. In the preparation of the present book, Dr. Brown has availed himself of many previously published books of this character: for instance, he includes much material taken from government pamphlets; the entire chapter on growth of infant and child is taken from the book by Crozer-Griffith, and other sections are taken from books by Read, Bancroft, Smith and Pattie. The present volume would therefore appear to be an attempt to arrive at a standard outline. This it does in a fairly comprehensive way. It is unfortunate, however, that the author should say in the introductory chapter that the growing infant requires more attention than can be given by one person, and that mothers must have helpers. The mother with trained helpers is not so dependent on book advice as she who has none.

Miscellany

HOW THE DOCTOR LOOKS TO THE LAYMAN

WILLIAM BYRON FORBUSH, PH.D.
NEW YORK

Whenever the average American thinks about a doctor he counts him among the things he cannot afford. The wholesome citizen discounts sickness, and is certain that any malady that attacks himself must be a minor ailment. "I haven't time to be sick, and I cannot afford a doctor" are the two thoughts that rush to his mind whenever he feels a pain or suspects a fever. Diagnosing his case as worth about half a dollar to cure, he goes to the drug store, and says, "Doc, what you got that's good for a touch of malaria?" instead of calling the family physician. The average man does not think the doctor is too avaricious. He does not sympathize with the current bit of humor to the effect that surgeons administer ether so as to get a chance to examine their patients' pocket-books. It is were his wife, or child, he would be giving hurry-calls by telephone; but since it is himself, he carries home a bottle of bitters and warms up his stomach and forgets it.

Most of us are afraid of doctors. Four things the layman dreads are: appendicitis, cancer, all sorts of surgery, and being under an anesthetic. We regard these with equal seriousness. If I had a pain below the belt on either side I should be certain it was appendicitis, and if above the belt, I would suspect cancer. My mother died, unnecessarily, because she was "afraid of the knife," and I should be likely to imitate her. I suppose I must be shy of anesthesia because I fear that I may talk in my sleep. I wouldn't object to being unconscious if there weren't always so many people around.

The physician does not realize the ignorance of the average layman on medical matters. Although he may be interested in other sciences, even the intelligent reader seldom reads anything medical. The illustrations in physiologies and manuals of surgery are too intimate and unappetizing. Most homes contain no books on disease except "Holt" and a "patent medicine" almanac. As the result, we cherish certain superstitions, fixed ideas, and prejudices, that are medieval.

I was a pastor for nearly a quarter of a century. I made more calls than most physicians; I knew intimately thousands of families of the middle class, and since many of my visits were necessarily of a perfunctory character, I used to amuse and instruct myself by listening to the medical theories of the average American mother. I found that the home remedies were cherished, because they seem to be Nature's gifts. Hen oil, goose grease, pussy willow, garden herbs, and what was supposed to "draw," externally like mustard, or internally like yeast, were highly esteemed. I noticed that advertised remedies that seemed natural and simple were especially trusted: certain medicated muds, some to be rubbed on and others to be bathed in, Father John's medicine, because the reverend quack certainly would never deceive, and Mrs. Winslow's syrup, because she must have had the heart of a mother. I was myself brought up on two remedies, rhubarb and jamaica ginger, for the two opposites.

The common people like remedies that are active and tangible. When they take a laxative, they want to feel it work. They have more confidence in a tonic if it is bitter. They trusted "Oxydonor," because they could see it and take hold of it—some even said it was "heating," although I believe the nickel cylinder was filled with cold charcoal. They favor osteopathy and chiropractic because, when a strong man plays knuckle-bones on one's vertebrae, it seems as if something must be happening. The phrenologist still attracts, for a similar reason

Average people are mystics as to disease. The physician too often forgets that the ancient medicine-man, of whom he is the lineal descendant, was also a priest. He is too matter-of-fact in his diagnosis and too dependent on mere materia medica for his cures. In our hectic America, a physical malady, at least among busy adults, is often the only occasion when the patient has time to yield to his deeper mental and spiritual illnesses. Clairvoyance had its turn because it claimed to lay hold on the immaterial. Christian scientists, the Lydia Pinkhams of the soul, have capitalized the fact that most people who are ill need a mother, a chance to relax, and the upward look. The reason so many people try it but do not join it is that as soon as it ceases to be interesting it becomes slightly amusing.

When we average people do go to a physician, usually we trust him implicitly, partly because we do not send for him until we are desperate, partly because we are certain that our own ailments are significant, and are bound to become a part of medical history; usually because he deserves by his train-in, his ability and his character all the confidence we place in him. As I trailed around after many physicians in my pastoral course, I knew that they and not I were the family counselors, the father confessors, and sometimes the spiritual advisers, of my people. They were the only professional men who always honored the truth. I found them dealing wisely with the follies and sins and hypochondrias of their patients. I was called only after they had left the cradle of the new-born baby, the couch of the chronic sufferer, the bedside of the dying.

Still I think that the modern physician ought to realize more deeply and minister more wisely to the ignorance, rather than to the sickness of the average person.

His greatest duty today is to educate us. I rejoice as I have not for many a day in the appearance of *Hygeia.* Nothing is more needed. There is a pseudo-scientific periodical, devoted to "drugless healing" and alluring sex-stories, that has three times the circulation of the leading medical journal in America. There are still misleading popular handbooks whose advice as to medical care is antiquated and perilous, but which are distributed by thousands. Into almost every community come lecturers every year who proclaim the most foolish ideas about the cure of disease and the care of the health.

I believe that the intelligent layman is ready for a national campaign of health education. He would be interested in the history of medicine, for nothing is more convincing as a defense against the quick, easy, short-cut theories of the outlaw schools than an account of the patience, the perils, the infinite cost with which what we know of asepsis, immunization and the few specifics was won. He would be thrilled by the heroology of medicine. He would be interested to learn the difference between a lesion and a lotion, and to be informed that vomica is not necessarily a vomiter. He needs more comprehensive sex education and an austere course of instruction as to the supposed necessity of self-expression through immorality. He would welcome community courses in hygiene, real quarantine, and the after-cure of the sick.

With such a popularizing of medicine through the friendly cooperation of local medical societies, we shall learn to call the doctor more often when we are well, so that we shall less often be sick. We shall engage him to teach us the regimen of living, and how to prolong life joyously instead of to eke it out. We shall then understand the peril of substituting the soda fountain clerk for the physician, in dealing with human lives. And we shall learn the difference between St. Luke the good physician and St. Vitus the backbone manipulator.

115 Broadway.

REPORT OF THE CHILDREN'S BUREAU

The first official report of activities under the Sheppard-Towner maternity and infancy act has been made public. Forty states are now cooperating with the federal government, for which Congress is permitted to appropriate $1,240,000 annually. The only states that have not accepted the provisions of this law are Vermont; Massachusetts; Rhode Island; Maine, where the legislature passed an acceptance act which the governor vetoed; Louisiana and Illinois, where the act received a majority in the senate but failed to pass the house; Kansas, where the act passed the senate, but did not come to a vote in the house; and Connecticut, where the last legislature instructed the health department not to accept the funds available under the act.

The national administration of the maternity and infancy act is lodged with the Children's Bureau, of which Miss Grace Abbott is chief. The report recommends the extension of the act to Alaska, Hawaii, Porto Rico and the Philippine Islands.

The Children's Bureau cooperated with the Community Health Service of Boston during the year in the demonstration of a habit-clinic for preschool children. An analysis of the results will be published later. A survey of nutrition work being done for children of preschool age in nine Eastern and Midwestern cities, and three rural communities was made, and a report is being prepared. A study of the growth of young children with special reference to rickets, the influence of children's diets, of the diets of nursing mothers, and of housing and sunlight, has been made in the District of Columbia in cooperation with the Child Welfare Society of the district. A study to determine methods to prevent rickets to be undertaken in cooperation with the Yale University Medical School at New Haven, Conn., is under consideration. Rural child labor and its relation to attendance at school has been investigated by the bureau in Colorado, Connecticut, Illinois, Kentucky, Maryland, Massachusetts, Michigan, New Jersey, North Dakota, South Carolina, Texas and Virginia. Detailed information concerning 11,000 rural child laborers has thus been obtained. Surveys of children in street trades in Wilkes-Barre, Pa., Columbus, Ohio, Atlanta, Ga., and Omaha have also been made. The Children's Bureau distributed 821,735 bureau publications in the last year, and received 98,533 letters, mostly from parents seeking information on some phase of child care.

A SACRIFICE TO INCOMPETENCE

The liability of a cultist for the consequences of his neglect, ignorance or unskilfulness was recently established by the supreme court of the state of Washington. Carroll, a "limited sanipractor," licensed to treat the sick by hydrotherapy, was called to attend the 8 year old son of the plaintiff, Mrs. Wilcox. The mother told the defendant when she summoned him that she feared her son had appendicitis. He assured her that that could not be the case, because the appendix did not form until a child was at least 10 years of age. The patient was suffering, he said, from either spinal meningitis or from infantile paralysis, and if a regular physician were called in, he would inject serum into the spine of the child, making him a cripple for life. The patient was carried to the defendant's office daily, from Dec. 30, 1921, until Jan. 6, 1922. Then the mother became alarmed and summoned the sanipractor to her home. He responded and wrapped the child in a wet sheet, but the patient becoming rapidly worse, the mother telephoned to the sanipractor. Then he admitted that there was something about the case he did not understand, and advised that a regular physician be called, requesting, however, that the physician be not informed that the sanipractor defendant had been in attendance. The physician found the patient suffering from acute appendicitis. An immediate operation was done, releasing more than a pint of pus and disclosing the appendix ruptured and gangrenous. The child died the following morning. The court found that the mother, having summoned Carroll knowing that he was an adherent to a school of healing that would not operate, could not complain because an operation was not performed. But, judged even by the tenets of the school of limited sani-

practors, to which the defendant belonged, he was found to have failed in his duty toward the patient, and a judgment of $2,500 rendered against him in the lower court was allowed to stand.

Medicolegal

Admissibility of Evidence of Insanity of Relatives

(State v. Fenik (R. I.), 121 Atl. R. 218)

The Supreme Court of Rhode Island says that in this homicide case, in which the defense was insanity, the trial justice ruled that testimony of insanity of either the father or the mother would be allowed, but as to relatives beyond that it was too remote. Counsel for the defense stated that he desired to offer proof of insanity of the defendant's grandfather. That was not allowed, and the offer was then made of proof of insanity in the family of the defendant on both sides, which also was ruled out, as was likewise an offer of proof of insanity of a sister of the defendant's mother. The rulings rejecting the testimony mentioned were based on the ground that it was too remote. But the exclusion of this testimony was an error. From the evidence already in the case at the time, it was apparent that there was some basis for the contention that the defendant was suffering from mental disease or insanity, not merely of a temporary and transient nature, but which might be found to be hereditary. Proof of the possibility of such an inheritance from the parents would be strengthened by proof of insanity in one or both of the grandparents. Such evidence is admissible, both on principle and on authority. To exclude testimony of insanity in the direct lineal line of the ancestors of the accused in the present case might result in depriving both the jury and the medical witnesses of valuable evidence, and might result in grave injustice to the accused. With regard to the admissibility of evidence of insanity in collateral kinsmen, a more difficult question is presented, and within reasonable limits much must be left to the reasonable discretion of the trial justice, in view of the circumstances of each particular case. In the case at bar, this court thinks that the proof of insanity of the defendant's aunt was improperly excluded; and the exceptions on this point are sustained.

Automobilist's Promise and Liability to Physician

(Douglas v. Brandt (Conn.), 121 Atl. R. 179)

The Supreme Court of Errors of Connecticut finds no error in a judgment rendered in favor of the plaintiff physician for services in the treatment of a child that was seriously injured by the defendant in the operation of his automobile. The court says that the plaintiff maintained that he had proved that when the child was brought to his office by the defendant and the latter was asked who would be financially responsible for the treatment, the defendant answered: "I am responsible, Doctor, I will pay all bills"; that when the child was then taken to a hospital the defendant told the matron, "I will pay all bills," and on two subsequent occasions said to the plaintiff that he expected to pay all the bills. On the other hand, the defendant offered evidence to prove that he did not promise to pay or be responsible for the services rendered either at the time the child was in the plaintiff's office or at any subsequent time.

The defendant presented four questions on his appeal. The first one was: Were the circumstances such that a contract on the part of the defendant could be inferred to pay the plaintiff for the services for the value of which this action was begun? The finding recited as the foundation of this action an express promise on the part of the defendant to pay for all services required in the treatment of the injured child, coupled with his explicit assertion of responsibility for the services so rendered. That was an original promise made orally, on the faith of which the plaintiff performed services. If the contract was not barred by the statute of frauds requiring certain contracts to be in writing, it had all the elements necessary to a legal contract.

Was there a consideration for the contract? The answer to that question was that the plaintiff in reliance on the defendant's promise performed these services, which he was not legally bound to do, and this constituted in law a valid consideration.

Was the oral contract within the statute of frauds? The defendant contended that, generally speaking, an oral undertaking by a person not previously liable for the purpose of securing the debt or performing the same duty for which the person for whom the undertaking is made remains liable, is within the statute and must be in writing. But the court holds that the answer to this third question must be, "No," since the undertaking of the defendant was an original promise, and not a collateral one. The principle stated by him was true, but the situation as found by the trial court made that principle wholly inapplicable, and the court's refusal to instruct the jury on the statute of frauds was properly based on the fact that the evidence did not authorize a finding of a collateral undertaking, and it was as to such only that the statute of fraud applied. The issue submitted to the jury was one of fact as to whether there was an original contract on the part of the defendant, as the plaintiff claimed, or that there was no such promise, as the defendant contended, and that was the only issue properly before the jury.

The defendant's fourth question was, Could an action of this character be brought under what are termed the common counts? The bill of particulars in effect struck out all the paragraphs of the common counts not applicable, and left the case as one for work performed and professional services rendered under an express employment to pay a compensation not determined of a named value, which the defendant had never paid. For such a case the common counts is an appropriate remedy.

Compensation from Employer Bars Recovery from Physician for Malpractice

(Pitkin v. Chapman (N. Y.), 200 N. Y. Supp. 235)

The Supreme Court of New York, Special Term, Warren County, in granting a motion made by the defendant, a physician, for a judgment on the pleadings, says that he was charged with malpractice in treating injuries sustained by the plaintiff in a fall from a piazza roof. The defendant's answer alleged that the plaintiff had been awarded $1,374.26, under the workmen's compensation law, for all his injuries, based on his condition at the time of the award, which sum he received before the commencement of this action. It also appeared that the alleged malpractice occurred before the final award.

There can be but one recovery for the same wrong. Satisfaction by one joint tort-feasor or wrongdoer has always been considered a bar to an action against another. Though an original injury is added to by a second fracture, resulting while the injured employee is acting in a prudent manner, the insurer, liable under the workmen's compensation law for the first injury, is also liable for the additional one. If a person injured employs in good faith a physician reputed competent, the original wrongdoer cannot escape entire liability, though the injuries are aggravated—or even death results—because of mistakes in medical treatment. A wrongdoer cannot take advantage of the mistakes of a physician or surgeon in treating the injury. The mistake of the physician could not have occurred but for the original wrong. Therefore the physician is not an intervening person responsible to the injured, if the injured seeks to hold only the original wrongdoer. This has been held so often in actions at common law that in such cases it is not an open question. The workmen's compensation law of New York State does not alter this just and salutary principle. There can still be but one compensation for one wrong. That act provided a sure and certain compensation for a workman injured in the course of his employment. It did not provide or attempt to provide, in contravention of the common law, that there could be two recoveries for what the common law had theretofore held to be one wrong—one injury.

The compensation law requires the injured employee to elect whether he will take compensation thereunder or pro-

ceed under his common-law rights. Having once elected, he is bound thereby. The remedy is exclusive. Since there can be but one recovery for an injury, the statute provides that, when another is partly or wholly responsible therefor, the one paying shall be subrogated to the remedy of the employee against such other. And this must be true, whether the wrongs of two tort-feasors were simultaneous, or whether one wrong, as was alleged in this case, was subsequently committed. Here the employer responded in full for the injury, including the malpractice alleged. If any action lay against the physician, it was one in favor of the employer, who was subrogated to such right.

"Unusual Cases" for Medical and Hospital Services

(Rys' Case; White's Case; Willis' Case (Mass.), 139 N. E. R. 505)

The Supreme Judicial Court of Massachusetts says that two of these cases were for medical services, and the third was for hospital treatment furnished to an injured employee. The industrial accident board found that each of them was an "unusual case," within the meaning of the workmen's compensation act of Massachusetts, and that the insurer was liable for a longer period than the first two weeks of incapacity. The statute provides that during the first two weeks after the injury, and in unusual cases, in the discretion of the department, for a longer period, the insurer shall furnish adequate and reasonable medical and hospital services, and medicines if needed.

The difficulty of defining in advance what constitutes an unusual as distinguished from the usual or ordinary case, is inherent in the word itself, when used in connection with a subject so comprehensive and varied as human injuries. The unusualness has reference primarily to the nature of the injury itself. Among the "unusual" cases would ordinarily be included, for example, those requiring major operations, spinal injuries calling for expensive special apparatus, and serious injuries to the eye or brain demanding the services of specialists. It is equally clear that the statute is not applicable to the common minor injury, calling for ordinary medical treatment, even though treatment for more than two weeks is necessary. Cases close to the line on either side must be determined by their particular facts.

Rys received treatment on the first two days at a relief station, after which he was treated for a little more than four months at a physician's office, except on two days when one finger and a portion of another were amputated. The industrial accident board made a finding that the injury in this case was a very serious one, complicated by unusual conditions, including degeneration of the skin, laceration of the tissues, necrosis of the bone and tissues, and hemorrhage; that the injury necessitated the amputation of the first and two thirds of the second phalange of the middle finger and the first, second, and two thirds of the phalange of the fourth finger of the right hand; and that the employee as a result of the injury had lost the ability to grip with his right hand; had no movement in the first phalange of the little finger, and no movement in the first and second phalanges of the index finger. The insurer contended that this was not an "unusual case" under the statute, and that the board was not warranted in holding it liable for the medical services rendered more than two weeks after the injury; but the court holds that the nature of the injury, complicated as it was by the serious condition of the skin, tissues, and bone, was such that this court cannot say the finding of the board was unwarranted; in consequence of which the court affirms a decree for compensation for the services of the physician who treated the case.

In White's case the palm of his left hand was cut and lacerated, and dirt was ground into it; but he was able to return to work after treatment for five weeks by a physician. The wound was infected, and blood poisoning set in; but the treatment after the first two weeks was that of dressing the wound, which was sometimes done by the physician's assistant. The case did not require the services of a specialist. There were thirty-one visits—all but two at the physician's office. The court is of the opinion that the board was not warranted in finding that this was an "unusual case," within the meaning of the statute; wherefore the court holds that the decree in this case must be reversed, and one entered ordering the insurer to pay the medical expenses for the first two weeks after the injury.

Willis broke his right leg, and nine months thereafter, while still incapacitated and receiving compensation, "on account of his knee being weak, he fell down and fractured the old fracture." The board ruled that this was an "unusual case," and that the insurer should pay the hospital bill necessitated by the second fracture. But because the record failed to disclose how the accident happened, or to show any causal connection between the original injury and the second fracture, the court reverses the decree for the payment of the hospital bill, and recommits the case to the board for a further hearing on the question of the seriousness of the injury and its relation to the original accident. The mere recurrence of the fracture was not enough to show that this arose out of Willis' employment, as did the first fracture.

Injury to Patient in Pay Wing of City Hospital

(Wallwork v. City of Nashville et al. (Tenn.), 251 S. W. R. 775)

The Supreme Court of Tennessee, in affirming a judgment in favor of the defendants, says that they were the city, the hospital commissioners of the city, and two nurses in charge of the ward in which the plaintiff was a patient when, as it was alleged, she was negligently burned with a hot water bottle after she had undergone an appendectomy. It was conceded that a hospital created and existing for purely governmental purposes, and under the exclusive ownership and control of the city, is not liable for injuries to a patient caused by the negligence or misconduct of its employees. But counsel for the plaintiff contended that, since this hospital maintained a wing for those who were enabled to pay in part, the city thereby became liable for any injuries resulting to a patient in that wing, their insistence being that the fact that the plaintiff paid for a part of the services rendered to her took the case out of the general rule. This question has not been heretofore passed on by this court in any reported case. It may be said, however, that by the great weight of authority it is now held, on grounds of public policy, that a private charitable hospital which has exercised ordinary care in the selection of its employees is not liable for injuries resulting from their negligence. It is also held that the rule applies to a pay patient as well as to one who does not pay. The principle of law as to private charitable hospitals on reason would apply to a municipal charitable hospital, for courts would not extend a greater latitude of exemption to a privately conducted charity than to a public one; for in the former the service rendered might be restricted to certain classes, while in the latter the service is extended to all citizens. There was no allegation or claim that the city or the commissioners did not exercise ordinary care in the selection of its employees, and, on both reason and authority, this court is of the opinion that no error was committed in sustaining a directed verdict in favor of the city and the hospital commissioners. Nor does this court think that a case was made against the nurses in this instance.

Society Proceedings

COMING MEETINGS

American Pathological Society, St. Louis, Dec. 27-29. Dr. Wade H. Brown, Rockefeller Institute for Medical Research, New York, Sec'y.

American Physiological Society, St. Louis, Dec. 27-29. Dr. Charles W. Greene, University of Missouri, Columbia, Mo., Secretary.

American Society of Biological Chemistry, St. Louis, Dec. 27-29. Dr. Victor C. Myers, New York Post-Graduate Medical School, New York, Secretary.

Association for Research in Nervous and Mental Diseases, New York, Dec. 27-28. Dr. Sanger Brown, 2d, 173 E. 70th St., New York, Sec'y.

District of Columbia, Medical Society of, Washington, Jan. 2. Dr. C. B. Conklin, Medical Science Bldg., Washington, Secretary.

Sioux Valley Medical Association, Sioux City, Iowa, Jan. 22-24. Dr. Ralph M. Waters, 107 Gilman Terrace, Sioux City, Iowa, Secretary.

Society of American Bacteriologists, New Haven, Conn., Dec. 27-29. Dr. J. M. Sherman, Box 184, Washington, D. C., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Gynecology, St. Louis

6: 389-516 (Oct.) 1923

Cystocele and High Rectocele. T. J. Watkins, Chicago.—p. 389.
*Relaton Between Placenta and Secretion of Milk. O. Frankl, Vienna.—p. 399.
*Follow-Up Results of 908 Cases of Uterine Cancer Treated by Radium. H. Bailey and W. P. Healy, New York.—p. 402.
Pathology of Vulvar Diseases. F. T. Taussig, St. Louis.—p. 407.
*Prevention of Fetal Asphyxia. R. A. Bartholomew, Atlanta, Ga.—p. 418.
*Calcium and Magnesium Content of Blood Serum During Pregnancy, Labor and Puerperium. E. D. Plass and L. J. Bogert, Detroit.—p. 427.
Outline of Postpartum Care. H. Thoms, New Haven, Conn.—p. 444.
*Feeding of Placental Extract to Mothers; Its Effect on Breast-Fed Infants. S. F. Abrams, St. Louis.—p. 450.
Painless Childbirth by Synergistic Methods. J. T. Gwathemey, E. P. Donovan, J. O'Reagan and L. R. Cowan. New York.—p. 456.
Germicides for Use on Skin. E. McDonald, Philadelphia.—p. 467.
Dystocia in an Eclamptic Due to Cystic Hygroma of Pectoral Region of Fetus. F. T. Iiams, Houston, Tex.—p. 475.
Tuberculous Ovarian Cysts. G. L. Moench, New York.—p. 478.

Relation Between Placenta and Secretion of Milk.—Frankl refers to experiments which prove that in animals known to have ample milk the effective grafting of placenta temporarily hinders milk secretion, evidently under the influence of an active hormone supplied by the living placenta.

Radium Therapy of Uterine Cancer.—Bailey and Healy believe that their results are encouraging and that they could not have been obtained without the use of massive doses of radium and without thoroughly radiating the parametrium.

Prevention of Fetal Asphyxia.—A fetal heart rate that becomes persistently slowed to not less than 100 during pains, but increases to normal rate between pains, Bartholomew says is a sufficient indication to follow the heart rate more frequently, discover the cause if possible, and make preparation for interference, if required. A fetal heart rate persistently below 100 both during and between pains, demands prompt delivery of the baby if this can be done without great risk to the mother. A rapid heart rate does not indicate either a threatened, or an advanced state of asphyxia.

Calcium and Magnesium Content of Blood Serum During Pregnancy.—Analyses made by Plass and Bogert on 105 normal pregnant women showed a definite and consistent tendency toward a lowering of serum calcium during pregnancy. This tendency was more marked toward the end of the period of gestation. The average values for serum calcium in normal pregnant women were distinctly lower than the average for normal nonpregnant women (917 mg. per cent.). The values for serum calcium obtained in cases of the toxemias of pregnancy are quite comparable to those found in normal women at the same period of gestation. There is no evidence that low serum calcium bears a causal relation to the convulsive manifestations of eclampsia. The serum magnesium in normal nonpregnant women was remarkably constant. The magnesium content of the serum showed a tendency to be lower toward the end of pregnancy, and especially at the time of labor. A few determinations of serum magnesium in cases of toxemia gave values within the upper limits of the normal range. Both the calcium and magnesium content of the serum return to normal shortly after delivery. The serum of lactating women showed no significant variations in calcium and magnesium content from that of normal nonpregnant women.

Effect of Placental Feeding on Milk Secretion.—Although placental medication does influence either milk secretion or the immediate growth of the infant, Abrams feels that neither a real galactogogue, nor the main stimulus of milk secretion has been discovered in dried placental tissue. His results in seventy-six cases have not been sufficiently clear. He believes that if the parental secretion really stimulates the secretion of milk, the feeding of large amounts should produce effects which could be seen grossly and without question in most cases, especially in those who already have a large amount and large breasts. By far the best stimulus to milk secretion is a large hungry baby and a cooperating mother.

American Journal of Ophthalmology, Chicago

6: 881-954 (Nov.) 1923

Extensive Unilateral Chorioretinal Atrophy with Recurring Deep Scleritis. B. W. Key, New York.—p. 881.
Bitemporal Contraction of Fields of Vision in Pregnancy. M. Carvill, Boston.—p. 885.
Tuberculosis of Eye: Its Diagnosis and Treatment by Tuberculin. W. E. Gamble, Chicago.—p. 892.
Plastic Operation for Palpebrofacial Deformity. L. Lehrfeld, Philadelphia.—p. 895.
Hemangioma Cavernosum of Orbit. H. L. Begle, Detroit.—p. 899.
Facoerisis. L. Mills, Los Angeles.—p. 901.
Cateract Extraction After Barraquer's Method of Phakoerisis. A. R. Ubaldo, Manila, P. I.—p. 906.
"V" Test for Astigmatism, and Astigmatic Chart in General. F. H. Verhoeff.—p. 910.
Muscle "Folder" for Strabismus. J. W. Calkins, Oakland, Calif.—p. 910.
Chronic Mild Iridocyclitis. E. E. Blaauw, Buffalo.—p. 915.

American Journal of Physiology, Baltimore

66: 215-444 (Oct. 1) 1923

*Protein and Vitamin A Content of English Walnut. H. L. Mignon, Berkeley, Calif.—p. 215.
Sources of Heat in Muscle Contraction. C. D. Snyder, Baltimore.—p. 232.
Average Epinephrin Output in Cats and Dogs. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 235.
*Function of Cerebral Ventricles. K. J. Austmann and H. K. Moorhouse, Winnipeg.—p. 267.
*Rôle of Anoxemia in Causation of Tetany During Hyperpnea. S. B. Grant, Boston.—p. 274.
Relations Between Lesions of Brain Stem, Water Elimination and Body Temperature. F. T. Rogers, Dallas, Texas.
Gill Movements in a Perennibranchiate Urodela (Necturus Maculatus). Relation to Central Nervous System. G. N. Stewart, Cleveland.—p. 288.
*Quantitative Determination of Trypsin and Lipase in Gastric Contents. C. W. Lueders and O. Bergeim, Philadelphia.—p. 297.
*Effect of Asphyxia on Suprarenal Output as Demonstrated by Variations in Temperature of Brain. G. W. Crile, A. F. Rowland and S. W. Wallace, Cleveland.—p. 304.
Physiology of Reproduction in Birds. O. Riddle, Cold Spring Harbor, N. Y.
*Mineral Metabolism of Lactating and Dry Goat. C. H. Hunt, A. R. Winter, J. A. Schultz and R. C. Miller, Wooster, Ohio.
*Effect of Diuresis on Excretion of Uric Acid. J. L. Morris and H. M. Recs, Cleveland.—p. 363.
*Production of Hypoglycemia in Experimental Derangements of Liver. M. Bodansky, Galveston, Texas.—p. 375.
*Studies in Peristaltic Fatigue. V. E. Henderson, Toronto.—p. 380.
Reflex Contractions of All-or-None Character in Spinal Cat. E. L. Porter and V. W. Hart, Cleveland.—p. 391.
Antigenic Effects of Semen. J. L. McCartney, Chicago.—p. 404.
Suprarenal Discharge in Dog. J. Searles, Columbus, Ohio.—p. 408.
Reaction of Small Intestine to Sodium Bicarbonate. C. E. King and J. G. Church, Nashville.—p. 414.
Motor Reaction of Muscularis Mucosæ to Some Drugs. C. E. King and J. G. Church, Nashville.—p. 428.
Effect of Insulin on Central Nervous System. Relation to Pituitary Body. J. M. D. Olmsted and H. D. Logan, Toronto.—p. 437.

Vitamin A Content of English Walnut.—The vitamin A content of the English walnut has been investigated by Mignon in a series of feeding experiments on rats. It was found that the whole walnut contains vitamin A in such small amounts that not enough can be consumed by rats in addition to the other necessary nutrients to furnish normal growth.

Function of Cerebral Ventricles.—According to Austmann and Moorhouse the normal ventricles in the dog are largely potential cavities, the walls being mostly in apposition, except in the case of the lateral ventricles in which they are usually separated by a layer of from 2 to 4 mm. of cerebrospinal fluid between the roof and floor of the main ventricles. Demonstrable dilatation of the ventricles occurs from twenty-eight to sixty hours after obstruction of the aqueduct of Sylvius. Demonstrable dilatation of the ventricles occurs half an hour after the intravenous injection of hypertonic salt solutions. The ventricles are capable of change in size as a result of change in the volume of the brain substance.

Anoxemia Causes Tetany.—It is shown by Grant that during the alkalosis and tetany of hyperpnea there is a greater oxygen consumption of the body, as determined by the study of the respiratory exchange, than in a similar hyperpnea unaccompanied by alkalosis or tetany. The oxygen unsaturation of venous blood from the arm was greater during hyperpnea

with tetany then in hyperpnea alone in three or four experiments. Hyperpnea with alkalosis and tetany was accompanied by an increase in the oxygen saturation of the arterial blood. Inhalation of pure oxygen had no effect on the development of symptoms of tetany during hyperpnea, and hyperpnea with a mixture of equal parts of oxygen and air resulted in tetany in the same manner as though air alone had been used. It is concluded by Grant that anoxemia plays no part in the causation of tetany during hyperpnea, and that the lowering of the carbon dioxid tension of the blood under these conditions is not sufficient to cause tissue asphyxia.

Determination of Trypsin and Lipase in Gastric Contents.—Simple methods are described by Lueders and Bergeim for the determination of trypsin and lipase in gastric contents. These are capable of throwing considerable light on the phenomenon of pancreatic regurgitation, which is probably of greater importance than is generally realized.

Effect of Asphyxia on Epinephrin Output.—Crile and his associates found that asphyxia produces an increased output of epinephrin which is manifested by an increase in the temperature of the brain.

Mineral Metabolism of Dry and Lactating Goat.—The calcium and chlorin content of goat's milk is higher according to Hunt and his associates than that of cow's milk. In the early period of lactation there is a loss of calcium and phosphorus from the body of lactating goats irrespective of the nature of the feed. As the period advances these losses are decreased until a certain time, when the balances becomes positive. A goat in the early period of lactation gave the largest percentage of sodium in the milk and this decreased as the period advanced. A high fecal sodium was associated with low fecal potassium, and vice versa. In the case of dry goats, the magnesium seems to have been deflected from the milk to the urine, while the calcium and phosphorus were deflected to the feces. The sulphur, chlorin and nitrogen of the milk are deflected to the urine when the animal becomes dry.

Effect of Diuresis on Uric Acid Excretion.—Morris and Rees state that uric acid excretion is increased to a similar degree by chlorid and sulphate diuresis. There is no evidence that uric acid arises directly from increased kidney activity. The increased output is proportional to the volume of urine excreted. The variations in amount of uric acid excreted after isotonic and hypertonic salt injections indicate that its usual behavior is that of a nonthreshold substance.

Hypoglycemia in Liver Derangements.—It has been found by Bodansky that hypoglycemia occurs in severe chloroform poisoning as well as in hydraxine and phosphorus intoxications. This is especially marked in poorly nourished animals. The initial effect of severe liver damage produced by these agents is hyperglycemia. Subsequently, this effect disappears, and the blood sugar level falls to subnormal values. Death resulting from acute chloroform and phosphorus poisoning is not entirely due to functional damage of the liver as these substances are general protoplasmic poisons. On the other hand, in chronic conditions of liver injury or in conditions of acute chloroform and phosphorus intoxication in animals with damaged livers, hepatic insufficiency may be the primary cause of death. In such cases Bodansky has observed symptoms similar to those described by Mann and Magath in the case of completely hepatectomized dogs.

Peristaltic Fatigue.—Peristaltic failure is not due to a failure of the activity of the muscular coats alone. Evidence is presented by Henderson which suggests that it is due, in part at least, to fatigue of the nerve-net. Activity may be restored in most cases by barium chlorid or pilocarpin, and under certain conditions, possibly by strychnin.

American Journal of Roentgenology and Radium Therapy, New York

10: 767-852 (Oct.) 1923

Radium Treatment of Toxic Goiter with Metabolic Deduction. R. E. Loucks, Detroit.—p. 767.
Certain Biologic Principles of Radiation Therapy. S. Withers, Denver.—p. 776.
Action of Measured Radiation Doses on Carcinoma of Uterine Cervix. H. Schmitz, Chicago.—p. 781.
Results of Deep Roentgen-Ray Treatment of Gastro-Intestinal Malignancies. Detroit.—p. 793.
*Treatment of Primary Mediastinal Tumor of Lung by Roentgen Rays After Medical Resources were Exhausted. F. S. Eveleth, Concord, N. H.—p. 802.
Results with Modern Radiotherapy in Bladder Tumors. C. Coosmann, Cincinnati.—p. 804.
*Case of Tuberculosis of Symphysis Pubis. J. B. Jackson, Kalamazoo, Mich.—p. 806.
Roentgen-Ray Therapy of Chronic Prostatic Hypertrophy. J. T. Stevens, Montclair, N. J.—p. 810.
Roentgen-Ray Treatment of Thyroid. E. L. Jenkinson, Chicago.—p. 814.
Clinical Problems in Roentgen-Ray Therapy of Deep-Seated Malignancy. C. L. Martin and J. M. Martin, Dallas, Tex.—p. 818.
Biologic Reaction of Roentgen-Rays: Influence of Roentgen-Ray Treatment on Complement Content of Blood of Cancer Patients. C. F. Cori, Buffalo.—p. 830.
Tumors of Pituitary. J. T. McKinney, Roanoke, Va.—p. 835.
Importance of Roentgen-Ray Examination in Determination of Proper Method of Treatment of Pulmonary Abscess. W. H. Stewart, New York.—p. 841.
Relatively Large Foreign Body (Glass) in Orbit. P. Brown.—p. 842.
Fibrinous Bronchitis. Three Cases. F. H. Rodenbaugh, San Francisco.—p. 843.

Roentgenotherapy for Mediastinal Tumor.—Eveleth does not say what sort of tumor this was, except, that it was not caused by tuberculosis or syphilis, nor was it an aneurysm. The patient was 52 years of age. His first symptom was cough, beginning twelve years before. When Eveleth saw him, he had a markedly cachectic appearance with a history of progressive increasing weakness and loss of weight. He was very nervous from constant coughing, shortness of breath and pressure effects. Roentgen-ray treatments were begun in May, 1920, and continued for six months. Lost weight was regained, the cough ceased to annoy and in September, 1923, there was no evidence of recurrence.

Tuberculosis of Symphysis Pubis.—Jackson's patient was only 11 years of age. She had never been robust. She had had measles, chickenpox and a severe attack of whooping cough. Two years previously she had had influenza followed by pneumonia. About a year later she had a severe colitis which lasted about ten days. There was no family history of tuberculosis. The first symptom noticed was something unusual about the gait. There was difficulty about fast walking or running. Soon after this a swelling was noticed on the anterior surface of the right thigh immediately below Poupart's ligament. Roentgen-ray examination disclosed a destructive lesion of the pubic bones at the symphysis pubis. The cold abscess was aspirated. The general treatment consisted of nutrition, fresh air and sunshine. The patient recovered.

American Review of Tuberculosis, Baltimore

8: 93-194 (Oct.) 1923

Infection and Immunity in Tuberculosis. G. B. Webb, Colorado Springs.—p. 93.
*Tuberculosis Mortality in Relation to Altitude, Humidity and Density of Population. C. F. Gardiner, G. B. Webb and C. T. Ryder, Colorado Springs.—p. 112.
Alterations in Endothelial Permeability and Their Relation to Tuberculous Focus. W. F. Petersen and S. A. Levinson, Chicago.—p. 122.
*Hematologic Studies on Experimental Tuberculosis of Guinea-Pig. L. Bender and L. M. DeWitt, Chicago.—p. 138.
*Leukocyte Picture After Diagnostic Doses of Old Tuberculin. R. McBrayer, Shelby, N. C.—p. 163.
*Isolation and Cultivation of Tubercle Bacilli Protected from Light. J. Simmons, Denver.—p. 165.
*Thoracic Restriction a Most Important Adjuvant in Rest Treatment of Pulmonary Tuberculosis. S. Golden, Anglum, Mo.—p. 170.
Teaching of Tuberculosis in Medical Schools. W. C. White, Pittsburgh.—p. 178.
Teaching Normal Chest Findings to Medical Students. J. A. Myers, Minneapolis.—p. 184.
Tuberculosis Library and Its Classification. A. M. Macrum, Pittsburgh.—p. 189.

Tuberculosis Mortality in Relation to Altitude.—The high inland plateau region of the United States has a remarkably low death rate from tuberculosis, both pulmonary and nonpulmonary, as compared with lower and damper regions; and this appears to be due not only to favorable hygienic, economic and social conditions, but also, in considerable part, to climatic factors, notably altitude and dryness.

Blood Changes in Experimental Tuberculosis.—An acute infection with tuberculosis, Bender and DeWitt found, produces a characteristic blood picture in guinea-pigs in which there is a rapid loss in erythrocytes with a relatively greater

decrease in hemoglobin, a terminal leukocytosis or leukopenia, a progressive decrease in lymphocytes, a marked preterminal increase in endothelial cells and an absence of eosinophils. Chronic tuberculosis produces a blood picture, quite different from that of acute tuberculosis. It is characterized by a marked fluctuation in all elements, a relatively low hemoglobulin content of the erythrocytes, which is not progressive but shows the normal seasonal variations, and absence of any reaction in the lymphocytes, and an eosinophilia which cannot, however, be distinguished from that associated with Kurloff bodies. The coagulability of the blood in chronic tuberculosis shows slight changes from the normal, but in acute tuberculosis it is markedly retarded. The Arneth counts show a decrease in nuclear parts per hundred cells in tuberculosis, which, on the average, is greater in acute than in chronic cases, but there are individual exceptions.

Leukocyte Picture After Use of Tuberculin.—In cases positively reacting to diagnostic doses of old tuberculin, McBrayer says, there is, as a rule, an appreciable drop in the leukocyte count. Otherwise, there is no certain or consistent leukocytic change. This laboratory procedure is therefore of no appreciable value to the clinician in the interpretation of his reactions.

Cultivation of Tubercle Bacilli Protected from Light.—It seems desirable to Simmons, in experimental work with tubercle bacilli, to eliminate the possibility of accidental attenuation of the bacilli by exposure to light. Tubercle bacilli may be protected from injurious light rays if grown in red coated tubes, a precaution which is especially to be recommended in higher altitudes. By the use of red glassware for the collection of infected materials, during the treatment of the materials and the cultivation of the bacilli, strains of tubercle bacilli may be isolated and preserved without suffering any appreciable change due to the photochemical action of light.

Thoracic Restriction in Tuberculosis.—Bed-rest, coupled with thoracic restriction, or pulmonary rest, brought about by external pressure through whatever means, Golden asserts, gives the best results with the least risk or discomfort to the patient, and is unsurpassed in the treatment of pulmonary tuberculosis. External thoracic compression immobilizes lung extensibility, and thereby hastens healing. By this method toxemia is diminished. By the proper application of external thoracic compression pulmonary hemorrhage may be checked. Pain, especially of pulmonary or pleural origin, is instantly relieved by the proper use of the method. The ease of application and freedom from risks and complication make the method especially serviceable and most profitable, both to physician and patient.

Archives of Dermatology and Syphilology, Chicago

8: 597-748 (Nov.) 1923

Education of Specialist. H. Morrow, San Francisco.—p. 597.
*Dermatoscopy. J. C. Michael, Houston, Tex.—p. 603.
Fermentation Reactions of Ringworm Fungi. J. G. Hopkins and K. Iwamoto, New York.—p. 619.
Xanthoma Diabeticorum Treated with Insulin. M. F. Engman and R. S. Weiss, St. Louis.—p. 625.
Treatment of Pemphigus. R. H. Davis and W. D. Davis, St. Louis.—p. 627.
*Relation Between Serum Cholesterin and Wassermann Reaction. R. S. Weiss and A. L. Essermann, St. Louis.—p. 639.
Lymphangiectatic Hypertrophy of Vulva Occurring in Nevus Unius Lateris. N. Tobias, St. Louis.—p. 647.
*Monilethrix. Five Cases of Familial and Hereditary Type. N. Tobias, St. Louis.—p. 655.
Hyperglycemia as Etiologic Factor in Certain Dermatoses. I. L. McGlasson, San Antonio, Tex.—p. 665.
Keratoderma Punctatum. S. E. Sweitzer, Minneapolis.—p. 687.
Xanthoma Tuberosum. Report of Case. B. B. Beeson and P. G. Albrecht, Chicago.—p. 695.

Dermatoscopy.—Michael's studies in dermatoscopy were made on the capillaries in various skin diseases. His findings show that changes in the superficial skin capillaries occur in four ways: (1) dilatation without other change; (2) dilatation with special changes in the individual capillary form (aneurysmal dilatations, glomerular expansions); (3) new blood vessels formation (twiglike ramifications, intercommunicating vessels), and (4) large vascular trunks (telangiectasis).

Relation Between Serum Cholesterin and Wassermann Reaction.—A study of serial Wassermann tests with parallel cholesterin determinations on the blood serum is presented by Weiss and Essermann. In some cases, the cholesterin values roughly paralleled the degree of fixation in the Wassermann test, while in others no such correlation could be found The degree of fixation in the Wassermann test seems to be independent of the cholesterin content of the serum.

Monilethrix.—Five cases of monilethrix occurring in three generations of a family are reported by Tobias. The pathologic findings were hyperkeratosis of the follicles with intrafollicular, horny plugs, tortuous follicles and attenuated sebaceous glands. The theory that the disease is an ectodermal defect of the skin is suggested.

Boston Medical and Surgical Journal

189: 671-732 (Nov. 8) 1923

*Cause of Recurrence of Symptoms After Removal of Appendix. C. H. Lawrence, Boston.—p. 671.
Problem of Chronic Appendix. E. L. Young, Boston.—p. 673.
Recurrent Symptoms of Appendicitis. L. T. Swaim, Boston.—p. 676.

Cause of Recurrence of Symptoms After Appendectomy.—This paper is based on ninety-seven cases showing the symptoms of intermittent pain in the right lower quadrant, vomiting, nausea and disturbance of the function of the bowels over a period of a year or more. Of these, fifty patients have had either operation or roentgen-ray gastro-intestinal study, so that the intra-abdominal condition is definitely known in each of them. Of these fifty patients, twenty-one, or 42 per cent., have been operated on because of the diagnosis of chronic appendicitis. Of the twenty-one operated on, none was completely relieved by the operation. Seven of those who had the appendix removed have obtained a partial or temporary relief. Lawrence is convinced that the so-called "chronic appendix" is but a small factor in the production of the symptoms from which the patient usually seeks relief, and that appendectomy alone is but inadequate treatment of the condition. It is necessary to improve the function of the gastro-intestinal tract, so that absorption of nourishment and elimination of waste may be more efficiently performed. The first step is the regulation of the bowels. Roughage in the diet should be kept at a minimum. General exercise is of value in building up the tone, not only of the skeletal but also of the intestinal muscle. Support by brace or corset may be necessary in certain cases, but should be avoided if possible.

189: 733-796 (Nov. 15) 1923

Trustee's Remarks on Opening of Thorndike Memorial Laboratory. H. S. Brown, Boston.—p. 733.
Thorndike Memorial. J. M. Curley, Boston.—p. 734.
Problems Underlying Public Hospital Administration. W. J. Mayo, Rochester, Minn.—p. 736.
Anatomic and Roentgen-Ray Study of Optic Canal in Cases of Optic Nerve Involvement. L. E. White, Boston.—p. 741.
Medical Education Fifty Years Ago. E. H. Bradford, Boston.—p. 748.
*Requirements for an Ideal Cardiac Clinic and System of Nomenclature. Report of Committee on Cardiac Clinics.—p. 762.

Ideal Cardiac Clinic.—This report is divided into seven parts: medical organization; social service; space, equipment and facilities; record; admission and distribution of patients, standards for physical examination, and standards for treatment. Each division is further subdivided. A definite nomenclature and basis for classification is also given with the end in view of establishing uniformity of procedure in all cardiac clinics so as to facilitate study of these cases.

Illinois Medical Journal, Oak Park

44: 305-380 (Nov.) 1923

Doctor and Press Face to Face. R. J. Finnegan, Chicago.—p. 324.
Recent Developments in Radium Therapy. F. E. Simpson, Chicago.—p. 327.
Indications and Technic for Major Chest Surgery. D. W. Deal, G. T. Palmer and H. H. Cole, Springfield.—p. 329.
Congenital Pyloric Stenosis. Surgical Treatment. M. Thorek, Chicago.—p. 334.
Carcinoma of Larynx. F. J. Novak, Chicago.—p. 338.
Surgical Treatment of Chronic Intestinal Stasis. J. G. Young, Pontiac.—p. 341.
Cults. A Suggestion. E. H. Ochsner, Chicago.—p. 343.
Cholecystitis and Cholelithiasis During Pregnancy and Puerperium. H. J. Isaacs, Chicago.—p. 347.
Present Status of Deep Roentgen-Ray Therapy. B. C. Cushway, Chicago.—p. 350.

Intratracheal Injection of Oils. J. E. Lebensohn, Chicago.—p. 354 .
New Technic for Removal of Tonsils with Complete and Definite Hemostasis Following Principles of General Surgery. O. M. Steffenson, Chicago.—p. 358.
Intravenous Method for Early Diagnosis of Tuberculosis in Guinea-Pig. S. A. Levinson, Chicago.—p. 360.
Problem of Nervous Patient. M. Solomon, Chicago.—p. 362.
Value of Standards of Infectivity of Venereal Diseases. F. M. Phifer and N. K. Forster, Chicago.—p. 366.
Surgical Treatment of Lung Abscess. B. D. Baird, Galesburg.—p. 370.
Mastoid Operations Under Local Anesthesia. G. W. Boot, Chicago.—p. 373.

Journal of Comparative Psychology, Baltimore

3: 327-411 (Oct.) 1923

Elimination of Short and Long Blind Alleys. A. E. White and E. C. Tolman, San Francisco.—p. 327.
Influence of Mental Activities on Vascular Processes. M. E. Day, Baltimore.—p. 333.
Simple and Accurate Method of Recording Speech. K. Dunlap, Baltimore.—p. 379.
Central Inhibition in Albino Rat. L. T. Spencer, New Haven, Conn. —p. 389.

Journal of Experimental Medicine, Baltimore

38: 327-485 (Oct.) 1923

Botulism. Manner in Which Toxin of Clostridium Botulinum Acts on the Body. II. Effect on Voluntary Nervous System. E. C. Dickson and E. Shevky, San Francisco.—p. 327.
Studies Based on Malignant Tumor of Rabbit: V. Metastases. L. Pearce and W. H. Brown, New York.—p. 347.
*Id. V. Metastases. Part 2. Description of Lesions. L. Pearce and W. H. Brown, New York.—p. 367.
Id. V. Metastases. Part 3. Factors That Influence Occurrence and Distribution. W. H. Brown and L. Pearce, New York.—p. 385.
*Method for Physiologic Study of Tissues in Vitro. A. Carrel, New York.—p. 407.
Antagonistic Growth Principles of Serum and Their Relation to Old Age. A. Carrel and A. H. Ebeling, New York.—p. 419.
*Studies on Nasopharyngeal Secretions from Patients with Common Colds. P. K. Olitsky and J. E. McCartney, New York.—p. 427.
*Method for Determination of Specific Gravity of Red Blood Cells. P. Reznikoff, Boston.—p. 441.
*Lung Volume in Heart Disease. C. A. L. Binger, New York.—p. 445.
*Chemical Changes in Blood of Dog After Obstruction of Esophagus and Cardiac End of Stomach. R. L. Haden and T. G. Orr, Kansas City, Kan.—p. 477.

Malignant Tumor Metastases.—As part of a general investigation of a malignant tumor of the rabbit, the phenomena of metastasis were studied by Pearce and Brown in a group of 191 animals. It was found that while the picture presented by different animals varied greatly, there was a remarkable degree of uniformity in the character of the lesions in a given organ or tissue and in the circumstances under which metastases occurred in a given location. It was thus possible to establish a relationship between the distribution of metastases and the function of animal resistance. The conclusion was reached that the peculiarities of metastatic involvement displayed by individual animals were not entirely attributable to chance distribution of tumor cells but that they were founded very largely on constitutional differences and that the picture presented in any given instance represented an expression of the interaction between tumor and host, the character and force of which were indicated by the nature and distribution of the lesions or by the organs and tissues affected.

Study of Tissues in Vitro.—A method has been developed by Carrel which allows the continuous growth of pure strains of fibroblasts, epithelium and leukocytes in a medium which undergoes but slight spontaneous deterioration. The principle of the method is to leave the tissues undisturbed while the medium is changed. This was realized by special containers allowing the change of the medium without bacterial contamination and by the simultaneous use of a solid and a fluid medium. The method is used for the study of the morphologic and dynamic changes occurring in tissues under the influence of chemical and physical factors.

Nasopharyngeal Secretions in Common Colds.—The transmission of a clinical condition similar to typical, infectious common cold from man to man with the filtered nasopharyngeal washings of early cases of the disease, Olitzky and McCartney state, indicate that the incitant is filterable, thus confirming the earlier observations of Kruse and Foster.

Determination of Specific Gravity of Red Cells.—The method employed by Reznikoff depends on the use of two miscible liquids of different specific gravities, into which the sedimented corpuscles can be dropped. By varying the proportions of the liquids, a medium can be obtained in which the cells neither sink nor rise but remain suspended. The specific gravity of the red blood cells is the same as that of the mixture. Reznikoff uses a mixture of benzyl benzoate and cotton seed oil.

Lung Volume in Heart Disease.—The lung volumes in a group of individuals suffering from chronic cardiac disease have been studied by Binger by a method which is applicable to patients suffering from dyspnea. In a number of instances the same patients were investigated during various stages of decompensation and compensation. The values found have been compared with those determined in a group of normal subjects. The significance of these changes is discussed and an explanation offered for the occurrence of a residual air of normal volume in patients with heart disease. It results from a combination of two tendencies working in opposite directions: one to increase the residual air—stiffness of the lungs (Lungenstarre); the other to decrease it—distended capillaries (Lungenschwellung), edema, round cell infiltration.

Blood Changes After Obstruction of Esophagus and Cardia.—Ligation of the cardiac end of the stomach or of the esophagus in ten dogs produced a severe toxemia, and rapid death. In seven of the animals there occurred a marked rise in the total nonprotein nitrogen and urea nitrogen of the blood. The dogs living longest with cardiac obstruction showed a fall in blood chlorids and a rise in the carbon dioxid combining power of the plasma. All the dogs with an obstruction of the esophagus showed a fall in blood chlorids. Control animals subjected to other types of abdominal operations showed no significant changes in the blood.

Journal of Infectious Diseases, Chicago

33: 369-476 (Nov.) 1923

*Intestinal Spirochetes. L. W. Parr, Chicago.—p. 369.
Germination of Spores of B. Botulinus in Collodion Sacs in Abdomen of Guinea-Pigs and Rabbits. G. E. Coleman, Santa Barbara, Calif. —p. 384.
Bacillus Pestis. R. D'Aunoy, New Orleans.—p. 391.
*The Common Cold. E. O. Jordan, J. F. Norton and W. B. Sharp.—p. 416.
*Effect of Kaolin on Intestinal Flora in Normal and Pathologic Conditions. L. H. Braafladt, Chicago.—p. 434.
*II. Chemotherapy of Experimental Typhoid Carrier Condition. T. D. Beckwith, Berkeley, Calif.—p. 457.
Modification of Klein Medium for Isolation of Diphtheria Bacillus. E. Megrail, Cleveland.—p. 466.
Hydrogen-ion Studies. IX. Preparation of Specific Precipitin as Dry Powder. E. F. Hirsch, Chicago.—p. 470.

Intestinal Spirochetes.—Intestinal spirochetes were found by Parr in approximately a third of all residents examined. They seem to enter into severe intestinal disorders in a secondary rôle in occasional cases. While the degree of infestation of healthy persons is slight, amounting usually to less than a twentieth of the entire microbial flora, there appear to be those who always excrete some spirochetes in every stool. On the other hand, there appear to be those who never harbor the intestinal spirochete. A carbohydrate diet appears to discourage the presence of intestinal spirochetes and may even cause them to disappear temporarily. The ingestion of acidophilus milk has the same effect. Protein feeding may favor the presence of spirochetes if it does not produce a condition of such metabolic unbalance as to suppress them. Fasting tends to diminish the number of intestinal spirochetes found in the stools. The administration of calomel failed to drive out the spirochetes or in any significant way to affect their abundance. All animal inoculation work has been uniformly negative.

The Common Cold.—Sixteen hundred students from Chicago, California, Pasadena and Galveston, Texas, furnished the data reported on by Jordan, Norton and Sharp. The results of their laboratory investigations correspond, in the main, with those obtained by other investigators. No one organism or group of organisms has been shown to predominate during colds. The question of a specific infectious virus is, therefore, still open. The common cold generally starts in the nose. About one third of these colds extend to the chest. The sequence of the local symptoms in colds is not uniform. There is no definite correlation between type,

duration, severity and frequency of colds, except that infrequent colds tend to run a milder course. In the California and Galveston groups, colds, while of about the same yearly frequency as in the Chicago group, tended to be concentrated into a shorter period, were of somewhat less severity and of somewhat shorter duration. In general, however, the differences in the three groups were less than might be expected on the basis of climatic conditions alone. Of the persons from whom data were gathered, 64 per cent. believed that their colds were induced by some strain on the heat regulating mechanism of the body. Possible contact with others having colds was stated by 22 per cent. of persons questioned to have perceded their own colds. "Resistance building" practices apparently had little effect on the frequency of colds. The data do not show that nose or throat operations result in a marked reduction of the frequency of colds. Whether or not a cold is the result of a specific infectious process is unknown. It is clear, however, that outside influences, particularly those involving chilling of the body, may serve to induce a cold, even if these influences cannot be regarded as the most important etiologic factors.

Effect of Kaolin on Intestinal Flora.—A study of 100 consecutive cases of Asiatic cholera was made by Braafladt during an epidemic which swept China in 1919. Kaolin was used with success. Kaolin does not act as an antiseptic, but it "carries down with it" large numbers of bacteria in fluid mediums when mixed with them and kept in motion for two or three hours. Whether this is a purely mechanical action, or whether koalin has some specific attraction for bacteria, is not clear. When not kept in motion it does not reduce the number of bacteria to any extent. It combines with toxins and toxic products of *Vib. cholerae, B. dysenteriae* (Shiga), *B. diphtheriae, B. botulinus, B. typhosus, B. paratyphosus* B, and, perhaps, of putrefactive and proteolytic bacteria, rendering them harmless. When taken by mouth over a period of from ten to thirty days, in sufficient quantities (1 or 2 ounces [30 to 60 gm.] per day for a man), it changes the intestinal flora of rats, dogs and men from a predominantly proteolytic type to an aciduric one. It practically eliminates *B. welchii* from the stool; it does not upset digestion. It has been used with success in Asiatic cholera, bacillary dysentery, chronic ulcerative colitis and acute enteritis.

Chemotherapy of Experimental Typhoid Carrier Condition.—A series of experiments was carried out by Beckwith for the purpose of determining the possible effectiveness of certain compounds for clearing up experimentally produced rabbit carriers of *B. typhosus*. In these were included: (1) arsphenamin and neo-arsphenamin, (2) iodin, (3) acid dyestuffs. None of these was effective for the purpose sought. Certain temporary changes in the growth habit of *B. typhosus* may be encountered as a result of intravenous injection of particular dyestuffs.

Journal of Radiology, Omaha

4: 343-380 (Oct.) 1923

Radiation Dosage. F. C. Wood, New York.—p. 343.
Bone Tumors, Benign Bone Cysts Due to Central Osteitis Fibrosa of Unhealed Latent Type. J. C. Bloodgood, Baltimore.—p. 345.
Pericarditis with Effusion. F. M. Hodges, Richmond, Va.—p. 351.
Hoelfelder Technic in Deep Therapy. L. S. Goin, Peoria, Ill.—p. 354.
System of Roentgen-Ray Anthropometry (The Skull). A. J. Pacini, Chicago.—p. 358.
Objections to Use of "One Lethal Dose" Method in Malignancy. C. H. Nims, Hot Springs, Ark.—p. 364.

Kansas Medical Society Journal, Topeka

23: 235-268 (Sept.) 1923

Treatment of Eclampsia. H. M. Glover, Newton.—p. 235.
Unilateral Destruction of Kidney. A. D. Gray, Topeka.—p. 238.
Arterial Hypertension. R. H. Major, Atchison.—p. 241.
Cerebrospinal Fluid in Acute Anterior Poliomyelitis. W. C. Menninger, Topeka.—p. 248.
Medical Ethics and Etiquette. F. M. Wiley, Fredonia.—p. 251.

23: 303-334 (Nov.) 1923

Experience with One Hundred Consecutive Fractures. D. E. Broderick, Wichita.—p. 303.
Treatment of Acne. H. G. Collins, Topeka.—p. 307.
Hospital Ethics. E. S. Edgerton, Wichita.—p. 309.
Poliomyelitis Epidemic in Topeka. E. G. Brown, Topeka.—p. 310.
Laboratory Methods. L. G. Heins, Abilene.—p. 312.
Cause or Causes of Hypertension. A. C. Frack, Fredonia.—p. 315.

Laryngoscope, St. Louis

33: 731-810 (Oct.) 1923

Pathology of Deafmutism. J. S. Fraser, Glasgow, Scotland.—p. 731.
Plastic Labyrinthitis, Probably of Congenital Syphilitic Origin. W. G. Shemeley, Jr., Philadelphia.—p. 781.
Surgical Emphysema Following Tonsillectomy. S. Stein, New York.—p. 785.
Case of Laryngeal Stenosis. E. M. Josephson, New York.—p. 790.
Roentgen-Ray Therapy in Chronic Tonsillitis. J. W. Babcock, New York.—p. 796.
Deductions from Examination of One Thousand Adult Throats. S. R. Skillern, Jr., Philadelphia.—p. 800.
Treatment of Acute and Chronic Dacryocystitis with Silver Cannulas. J. F. Callahan, Brockton, Mass.—p. 805.

Maine Medical Association Journal, Portland

14: 49-70 (Oct.) 1923

Cervical Lacerations and Leukorrhea. A. P. Leighton, Portland.—p. 49.
Septic Ear. W. D. Rankin, Woodstock, N. B.—p. 58.
Health Examination. H. Emerson.—p. 62.

Mental Hygiene, Albany

7: 673-896 (Oct.) 1923

Relation of School to Mental Health of Average Child. J. Taft.—p. 673.
Cadet Problems. H. N. Kerns, West Point.—p. 688.
Psycho-Sexuality of College Graduate Men. M. W. Peck and F. L. Wells, Boston.—p. 697.
Case Studies in Mental Problems of Later Adolescence. Mental Hygiene of College Student. D. A. Laird, New Haven.—p. 715.
Sex Education in Light of Analytic Experience. C. P. Oberndorf, New York.—p. 734.
Methods of Recreational Adjustment as Form of Social Case Treatment. C. Wannamaker, Chicago.—p. 744.
Psychiatric Point of View in Social Work. G. Marcus, New York.—p. 755.
Mentally Retarded Child in Public Schools. C. S. Berry, Detroit.—p. 762.
Mental Health of 581 Offspring of Nonpsychotic Parents.—p. 770.
Outlook for Vocational Guidance in Great Britain. D. Fryer.—p. 779.
Histories of 79 Feebleminded Girls Under Supervision. E. Greene, New York.—p. 785.
Year's Progress in New York State in Care of Mental Defectives. S. Brown, New York.—p. 796.
Social Service in Relation to Patients in Boston State Hospital Not Over Twenty-Five Years of Age at First Admission. K. E. Howland, Traverse City, Mich.—p. 804.

Military Surgeon, Washington, D. C.

53: 313-410 (Oct.) 1923

What United States Public Health Service is Doing to Prevent Spread of Leprosy in Continental United States. E. R. Marshall.—p. 313.
Uniform Nomenclature for Blood Counting. R. E. Scott and R. W. French.—p. 321.
Immunity Following Smallpox Vaccination. S. J. P. Leake.—p. 328.
Tuberculous Exservice Man and Medical Reserve Corps Officer. M. R. McBrayer.—p. 337.
Report of Observation Trip in Germany, Denmark and England. M. A. Reasoner.—p. 344.
Is Chemical Warfare More Inhuman Than Gunfire. A. P. Francine.—p. 365.
Influence of Endocrines on Growth and Development. W. C. Porter. p. 371.

New York State Journal of Medicine

23: 435-474 (Nov.) 1923

Inflammatory Pseudotumor of Orbit. W. L. Benedict and M. S. Knight, Rochester, Minn.—p. 435.
Results of Three Hundred and Nine Goiter Operations. G. E. Beilby, Albany.—p. 440.
*Diagnosis of Carcinoma of Rectum. F. C. Yeomans, New York.—p. 443.
Limitations in Radiotherapy of Cancer. F. C. Wood, New York.—p. 446.
Neurology in Greater New York. C. L. Dana and T. K. Davis, New York.—p. 449.
*Analysis of Five Hundred Deaths from Diphtheria Occurring in New York State (Exclusive of New York City) in 1922. B. E. Roberts, Albany.—p. 452.

Diagnosis of Carcinoma of Rectum.—Yeomans reports on 108 cases of carcinoma of the rectum or rectosigmoid. The tumor was palpable in ninety-seven cases so that in only eleven was the protoscope essential to determine the presence of a growth at a higher level. The tumor involved the anterior rectal wall in thirty-nine cases; the posterial wall in thirty-two cases; was lateral in seven and annular in thirty cases. The growth felt movable in sixty cases and fixed in forty-eight. In the majority of cases the neoplasm was ulcerated, and in ten cases it had infiltrated adjacent organs. Biopsy was performed in thirty-two cases. The diagnosis

was: adenocarcinoma in twenty-four cases, epithelioma in four, colloid carcinoma in two cases, and malignant adenomatous polyp and angiosarcoma, each one case.

How to Reduce Diphtheria Mortality.—The analysis made by Roberts tends to confirm the conclusion of previous observers that the death rate is practically nil when adequate treatment is given on the first day of the disease, with proper surgical measures, when indicated, and with good care during the course of the illness and convalescence. Roberts urges that the intravenous method of administration of antitoxin should be more widely used, especially in severe cases or in moderate cases seen later than the second day of the disease. In the 500 deaths considered in this analysis, the intravenous method was not known to have been used on the first day of the disease in a single instance. When the intravenous method is not used, antitoxin should be given intramuscularly. The subcutaneous method should be used only for prophylactic doses given to exposed persons. Antitoxin should immediately be given in adequate dosage in all cases in which there is any clinical evidence of diphtheria. In the present series, delay in administering antitoxin was definitely a factor in the cause of death in at least eighty-five cases. In fifty cases in which no antitoxin was given, failure to make a diagnosis was a factor in at least nineteen instances. The analysis shows that antitoxin was given on more than one day in 33 per cent. of the cases in which it was known on how many days antitoxin was given. Proper surgical treatment in laryngeal cases is extremely important. Of the 110 deaths from respiratory obstruction in these cases, fifty-eight had no surgical treatment of any sort. Roberts urges that greater attention be paid to the care of patients during convalescence. This need is borne out by the fact that cardiac involvement was stated to have played a part in nearly one half of all the deaths, and that in twenty-four of these cardiac cases failure to keep the patient at rest was definitely mentioned as the immediate factor in the fatal outcome.

Southwestern Medicine, Phoenix, Ariz.

7: 401-452 (Nov.) 1923

*Granuloma Inguineale: Report of Case. R. T. Frank, Denver.—p. 401.
Thyroid and Psychiatry. K. A. Menninger, Topeka, Kan.—p. 403.
Postnasal Tumors; Fibroma. F. P. Schuster, El Paso.—p. 407.
Focal Infections in Relation to Abnormalities of Vision. W. E. Scarborough, Albuquerque, N. M.—p. 411.
Splenic Anemia. O. Egbert and B. F. Stevens, El Paso.—p. 413.
*Congenital Absence of Anus and Rectum. H. A. Miller, Clovis, N. M. —p. 416.
Case of Hypertension Due to Endocrin Disturbance. S. D. Swope, El Paso.—p. 417.

Granuloma Inguinale.—The case reported by Frank was unrecognized for three years and the patient was first operated on for carcinoma and then treated for syphilis. A clinical diagnosis was readily made from the gross appearance—a warty, nodular, superficial, granular, bright, red lesion of the vulva and vagina. The histologic, serologic and bacteriologic tests excluded syphilis, tuberculosis and carcinoma. The effect of treatment confirmed the diagnosis.

Congenital Absence of Anus and Rectum.—Not being able to find the blind pouch of the rectum in the usual way in his case, Miller did a left colostomy. A long blunt curved forcep was then inserted in the colostomy wound toward the caudad end of the intestine. There was found to be quite a spacious blind pouch; with a finger in the lower wound, the forcep was pushed forward, and hugging the hollow of the sacrum the pouch was delivered in the wound below and sutured to the skin margin and opened. About two months later, the baby was returned with the history that the colostomy wound had closed in about four weeks. The anus was discharging bowel contents, but the instructions about gentle dilatation had not been carried out, hence the opening was too small. It was dilated by forceps and finger and a firm rubber tube was inserted about 1½ inches and sutured to the skin with instruction to irrigate freely with sterile saline and leave in place for at least three weeks. There is now no incontinence.

Surgery, Gynecology and Obstetrics, Chicago

37: 579-528 (Nov.) 1923

*End-Results in Nearly Three Hundred Cases in Which the Gallbladder was Drained, Not Removed. H. L. Darner, Baltimore.—p. 579.
Treatment of Duodenal Fistula. Report of Case. A. L. Cameron, Minneapolis.—p. 599.
*Usefulness of Duodenal Tube. M. Finkelstein, Winnipeg, Manitoba. —p. 607.
Actinomycosis of Head and Neck. G. B. New and F. A. Figi, Rochester, Minn.—p. 617.
Radium Therapy in Carcinoma of Rectum. H. A. Kelly and G. E. Ward, Baltimore.—p. 626.
Tuberculous Tenosynovitis of Hand. Report of Fourteen Cases. A. B. Kanavel, Chicago.—p. 635.
Adenomyoma Involving Signoid. Five Cases. E. S. Judd and G. S. Foulds, Rochester, Minn.—p. 648.
Postoperative Renal Hemorrhage. A. Jianu, Bucarest, Roumania.—p. 653.
*Pathology and Treatment of Chronic Leukorrhea. A. H. Curtis, Chicago.—p. 657.
Fifty-Nine Breech Presentations Treated by Prophylactic External Version. G. H. Ryder, New York.—p. 660.
Retroperitoneal Operation for Subphrenic Abscess. Report of Two Cases. C. Nather, Vienna, and E. W. A. Ochsner, Chicago.—p. 665.
Open Operation for Congenital Dislocation of Hip. H. P. H. Galloway, Winnipeg, Manitoba.—p. 674.
Reconstruction of Urethra After Complete Loss, Complicating an Extensive Vesicovaginal Fistula. G. G. Ward, New York.—p. 678.
Cancer of Upper Jaw; Its Surgical Treatment. W. S. Schley, New York.—p. 683.
Major Urologic Surgery Under Sacral and Parasacral Anesthesia. O. S. Lowsley, New York.—p. 688.
Three Aids to Render Conduct of Labor More Scientific. J. B. DeLee, Chicago.—p. 693.
Use of Fat to Prevent Sutures Cutting Into Parenchymatous Organs by Underpinning. D. Beer, New York.—p. 694.
Intraperiteneal Hemorrhage in New-Born Following Thies' Method of Resuscitation. M. P. Rucker and S. W. Budd, Richmond, Va.—p. 695.

Drainage of Gallbladder.—Darner believes that drainage of the gallbladder is the safer and easier procedure in the hands of the average surgeon and in the average case. In a second operation should become necessary, cholecystectomy should be considered seriously. No hard and fast rules can be laid down. Each case must be considered by itself.

Usefulness of Duodenal Tube.—Five hundred cases were studied by Kinkelstein and he concludes that duodenal drainage is a helpful clinical method in the diagnosis and treatment of early diseases of the biliary system. Cases of suspected gallbladder lesions that have come to operation have had the preoperative duodenal drainage diagnosis definitely confirmed. This method presents an important means of determining the presence of parasites and their ova or focal infection of the biliary tract, conditions which may be of the greatest diagnostic and therapeutic value in obscure conditions, such as arthritis, neuritis, etc. Therapeutically, the method has proved to be extremely valuable in the early stages of catarrh and infection of the biliary tract, biliary stasis, chronic biliousness, and severe migraine. The duodenal tube cannot, by any manner or means, supplant surgery, when gross pathologic lesions exist, but when surgical interference is contraindicated, because of a heart or kidney complication, the tube offers an alternative which in not a few cases affords much relief. In cholecystectomized patients who still complain of trouble in the right hypochondrium, the tube has been useful in clearing up the stasis and infection, which could not be treated surgically.

Treatment of Chronic Leukorrhea.—Available measures in the control of chronic leukorrhea, Curtis says, consist in eradication of gland infection in the vicinity of the urethra, dilatation of cervical strictures, and destruction of hyperplastic glandular tissues of the cervix. Whether the latter is to be accomplished by endocervix removal or through the use of the radium should depend on the character of the pathology encountered, modified by the experience of the surgeon in charge. Destruction of infected Skene's ducts and urethral glands, together with thorough dilatation and radium treatment of the cervix, has been followed by recovery from chronic leukorrhea in 87 per cent. of 104 patients.

Tennessee State Medical Association Journal, Nashville

16: 197-238 (Oct.) 1923

Experimental Work with Iletin (Insulin) in Treatment of Diabetes. Report of Cases. H. Litterer and S. R. Teachout, Nashville.—p. 197.
Management of Diabetes Mellitus. Treatment with Insulin. R. C. Derivaux, Nashville.—p. 203.
Organic Syphilis of Stomach. J. D. Lester, Nashville.—p. 207.
Wassermann—Fast Syphilis. B. W. Fontaine, Memphis.—p. 214.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

28: 129-160 (Oct.) 1923

Treatment of Actinomycosis by Roentgen Rays. Report of Nine Cases. C. P. G. Wakeley.—p. 129.
Cauterization of Adhesions in Artificial Pneumothorax Treatment of Pulmonary Tuberculosis Under Thoracoscopic Control. H. C. Jacobaeus.—p. 136.
Radiography of Fetus in Utero. T. I. Candy.—p. 146.
Radium Dermatitis. M. S. Thomson and C. P. G. Wakeley.—p. 153.

British Journal of Ophthalmology, London

7: 449-496 (Oct.) 1923

Blood Pressure in Eye; Relation to Chamber Pressure. P. Smith.—p. 449.
Pectinate Ligament in Relation to Chronic Glaucoma. H. Herbert.—p. 469.

British Medical Journal, London

2: 847-906 (Nov. 10) 1923

Habits (Ecology) of Tumors. J. Bland-Sutton.—p. 847.
Arsenical Pigmentation of Mouth and Skin. R. Stockman.—p. 852.
*Rationale of Parathyroid Therapy. H. W. C. Vines.—p. 854.
*Epidemic Hiccup and Lethargic Encephalitis. W. R. Brain.—p. 856.
Summer Diarrhea. D. Nabarro.—p. 857.
*After Results of Abdominal Tuberculosis in Children. H. T. Ashby.—p. 863.
Treatment of Tuberculous Cervical Adenitis by Radium. E. S. Molyneux.—p. 865.
Reaction of Blood in Children. R. Conway-Verney.—p. 866.
Labyrinth Deafness. D. McKenzie.—p. 867.
Retrobulbar Neuritis of Nasal Origin. E. D. D. Davis.—p. 873.
Canfield's Operation on Antrum. J. Dundas-Grant.—p. 874.
Butyn as Local Anesthetic in Nose and Throat Practice. W. Hill.—p. 876.
Hydrocephalus Following Spina Bifida. A. P. Birtwistle.—p. 877.
Sporadic Case of Myoclonus Multiplex. J. C. Ramsay.—p. 878.
Facial Paralysis Following Herpes Facialis. J. W. Tomb.—p. 878.

Parathyroid Therapy.—Parathyroid therapy, as stated by Vines, is considered a means of reestablishing the normal endocrine balance of the body, which infection has disturbed. Emphasis is laid on the point that the balance between sympathetic and parasympathetic must be brought back to the normal level; adequate resistance to disease is not a function either of the sympathetic system or of the parasympathetic system, but of the equilibrium between them.

Relation Between Epidemic Hiccup and Lethargic Encephalitis.—After suffering for a month from intermittent brief attacks of hiccup, Brain's patient developed a typical though mild attack of the lethargic form of encephalitis with ocular palsies. Two months later, after further brief attacks of hiccup, an attack of hiccup developed which lasted eight days, and for which the patient was admitted to hospital. On admission she exhibited cranial nerve palsies, hiccup, and also myoclonic movements of the arms and abdominal wall. This, in Brain's opinion, would seem to establish finally the relationship between epidemic hiccup and epidemic encephalitis.

After Results of Abdominal Tuberculosis in Children.—Ashby has followed up 250 cases of abdominal tuberculosis in childhood for a number of years, and has analyzed results. Many patients are apparently cured for a time, but have a relapse later on. The outlook is virtually hopeless under the age of 1 year, and not much better under the age of 2 years. However, as the age increases, the outlook improves considerably. The more that can be felt in the abdomen, the worse, as a rule, is the outlook. The type with ascites does better on the whole than the other types, and this class of case often responds well to operative treatment. The after-histories of children who have had abdominal tuberculosis and who have kept well for some years are good, even though there are still enlarged calcareous glands felt in the abdomen. Of the 250 cases analyzed a cure was effected in 56 per cent.

Journal of Laryngology and Otology, Edinburgh

38: 565-620 (Nov.) 1923

Nasopharyngeal Fibroma. P. G. Goldsmith.—p. 565.
Two Cases of Chronic Hyperplasia of Upper Jaw: Relationship to Other Osseous Tumors and to Otosclerosis. D. Guthrie.—p. 575.
Statistical Tables for 1922, from Ear and Throat Department of Royal Infirmary, Edinburgh. J. M. Gibson and A. G. Brough.—p. 580.

Journal of Physiology, London

58: 1-110 (Oct.) 1923

Physiology of Plain Muscle. I. Effect of Alteration of Hydrogen-Ion Concentration. S. W. F. Underhill.—p. 1.
Isolation of Different Parts of Digestive Tract as Method of Studying Its Movements. B. P. Babkin and E. I. Sinelnikov.—p. 15.
*Absorption of Insulin From Stomach. L. B. Winter.—p. 18.
Physiology of Plain Muscle. II. Oxygen Usage and Relation of Tonus. C. L. Evans.—p. 22.
*Does Insulin Influence Glycogenic Function of Perfused Liver of Turtle? E. C. Noble and J. J. R. Macleod.—p. 33.
Rate of Recovery of Nerves in Asphyxia. S. Cooper.—p. 41.
Antidromic Action. II. Stimulation of Peripheral Nerves of Cat's Hind Foot. J. N. Langley.—p. 49.
*Vascular Dilatation Caused by Sympathetic and Course of Vasomotor Nerves. J. N. Langley.—p. 70.
*Ovarian Factor Concerned in Occurrence of Oestrus. F. H. A. Marshall and W. A. Wood.—p. 74.
*Regulation of Respiration. T. Lumsden.—p. 81.
Ergometer Adaptable for Either Hand or Foot Movements. E. P. Cathcart, G. M. Wishart and J. McCall.—p. 92.
*Nerve Regeneration from One Into Other of Two Rats United in Siamese Pairs. B. Morpurgo.—p. 98.
Comparison Between Colorimetric and Electrometric Methods of Determining Hydrogen Ion Concentration of Blood. R. Conway-Verney and L. E. Bayliss.—p. 101.
*Possible Relation Between Pancreas and Parathyroids. L. B. Winter and W. Smith.—p. 108.

Absorption of Insulin from Stomach.—The activity of the crude insulin used by Winter in his experiments was such that the subcutaneous injection of 40 mg. into a rabbit weighing 1.5 kg. caused convulsions in two and a half hours. The insulin was dissolved in from 15 to 25 c.c. of 20 per cent. alcohol. The blood sugar fell to a low level. It was evident, therefore that absorption of the insulin must have taken place from the somach. In those cases in which convulsions occurred, no difficulty was experienced in recovering the animals with glucose. In experiments with smaller quantites of insulin, 60 mg., an appreciable effect was noted, and in one experiment half this amount reduced the blood sugar to 0.04 per cent. Convulsions did not actually occur and the animal recovered without the aid of glucose. A delayed action following the administration of insulin per os has not been noticed. That the alcohol was responsible for the absorption of the insulin was shown by a control experiment in which 60 mg. of insulin was given per os, dissolved in physiologic solution of sodium chlorid. No effect on the blood sugar was observed. Another experiment in which the same amount was given per os, dissolved in twentieth normal sodium hydrate solution, gave negative results.

Does Insulin Influence Glycogenic Function of Liver.—The conclusion reached by Noble and Macleod is that the rate of postmortem glycogenolysis in excised turtle liver is not influenced by the presence of varying concentrations of insulin at ranges of p_H between 7.0 and 7.4.

Vascular Dilatation.—The results of experiments with cats have convinced Langley that periarterial section in man, so far as it relieves peripheral vasoconstriction, in all probability does not do so by severing nerve fibers running with the arteries to the periphery.

Ovarian Factor Concerned in Occurrence of Estruation.—Experiments performed by Marshall and Wood on dogs show that if all the graafian follicles visible on the surface of the ovary are cauterized, and therefore probably destroyed, a short time before a heat period is due, then the period is missed and there is a prolonged period of anestruation which may extend over the duration of two or more normal estrual cycles. That the uterus does not undergo atrophy is shown by the subsequent reappearance of heat and the resumption of normality. If the follicles are cut into without being destroyed, heat is not postponed or only slightly so. The general conclusions reached are that preestruation and estruation are due to an internal secretion of the ovary produced by the follicles during the preinseminal stage of development. The secretion which is responsible for uterine and mammary hypertrophy during pregnancy and pseudopregnancy is different, and is produced by the corpus luteum. There is also an ovarian internal secretion which is responsible for maintaining the normal nutrition of the uterus and preventing it from lipsing into an infantile or atrophic condition, and this is

produced by the smaller follicles or by the interstitial cells. These three ovarian secretions probably differ from one another qualitatively as well as quantitatively.

Regulation of Respiration.—Lumsden asserts that the factors which regulate the three lower respiratory centers are partly chemical (lack of oxygen and excess of carbon dioxid) and partly nervous (vagal and trigeminal impulses mainly).

Nerve Regeneration in United Rats.—If two rats are united parabiotically, no nervous connections are formed between them. Experiments have been carried out by Morpurgo in order to determine whether this was due to the incapacity of the nerves of one individual to grow into the other. For this purpose, artificial nervous connecitons were made in Siamese pairs of rats. The results indicate that nervous connections are formed. For instance, the sciatic trunk of the left hand rat sends branches both into the leg of the right hand rat and into that of the left hand one; a nerve path in the shape of a Y turned upside down is formed which, from the legs of both rats, reaches the spinal cord of the left hand rat. The regeneration of the nerve endings takes place in both rats. Muscle spindles and neurotendinous organs also regenerate.

Relation Between Pancreas and Parathyroids.—The fact that ephinephrin and thyroid extract have been found to raise the blood sugar of rabbits in such a manner as to maintain the normal ratio, copper reducing to polarimetric value suggested to Winter and Smith that the parathyroids might exercise some function on the carbohydrate metabolism in conjunction with another ductless gland. Injection of parathyroid alone was found to be without appreciable effect on the blood sugar, but injection of parathyroid extract into animals suffering from hypoglycemic convulsions due to insulin, had a very marked effect. The animals quickly became rigid and died in a few minutes.

Journal of Tropical Medicine and Hygiene, London

26: 313-324 (Oct. 15) 1923

Withdrawal of Fluid from Chest by Trocar and Cannula and Syphonage Without Excision of Ribs. J. Cantlie.—p. 313.

Lancet, London

2: 963-1016 (Nov. 3) 1923

*Principles of Symptomatology. I. J. Mackenzie.—p. 963.
*Simulation of Active Pulmonary Tuberculosis by Painless Maxillary Sinusitis. A. L. Yates.—p. 968.
*Incidence of Malignant Disease in Apparently Benign Enlargement of Prostate. R. H. J. Swan.—p. 971.
Applications of Nomography to Medicine. W. A. M. Smart.—p. 974.
*Case of Exemphalos. F. Blake.—p. 976.
*Case of Osteo-Arthritis in Childhood. P. Weatherbe.—p. 976.

Principles of Symptomatology.—Believing that a great mass of symptoms are produced by the disturbance of normal reflexes and that a great group of symptoms is the result of an increase or decrease of functional activity, Mackenzie and his associates are now studying what is meant by stimulation and inhibition. This has led to a long and intricate inquiry and has exposed many avenues for investigation. The principle of the reflex arc is here discussed at length and a new concept—the law of fluctuation—is mentioned.

Simulation of Pulmonary Tuberculosis by Maxillary Sinusitis.—Yates discusses the cases of patients, who, while exhibiting all the symptoms of pulmonary tuberculosis, are in fact suffering from sinusitis of such a nature that no localizing symptoms are present. Many of these cases had been diagnosed as pulmonary tuberculosis. They generally presented not only the symptoms of tuberculosis—namely, cough, often waking the patient at night; morning sputum, yellow or green in color, and often nummular; progressive wasting, a rise of temperature in the evening and after exercise—but also certain physical signs in the chest due apparently to bronchitis, which, while not typical of tuberculosis were sufficient to render it extremely difficult to negative the diagnosis of pulmonary tuberculosis; the fact of the absence of tubercle bacilli in the sputum does not, apparently, negative the presence of pulmonary tuberculosis.

Incidence of Malignant Disease of Prostate.—In a series of 678 prostates removed by operation and submitted for pathologic examination, no less than 174, or 25.7 per cent., were definitely malignant, while fifty-eight others, or 8.6 per cent., are classified as borderline or precancerous cases; 443, or 65.3 per cent., were innocent (adenomatous), and three, or 0.4 per cent., were tuberculous. Swan himself has had four cases out of twenty-eight consecutive prostatectomies. These cases emphasize the comparative frequency with which carcinoma may exist as an undetected focus in a prostate which is the seat of senile enlargement. In the breast, in the tongue, the stomach and the intestine, as well as in other organs, carcinoma may occur in areas which have been the seat of simple chronic inflammation or of ulceration. Swan wonders whether the same sequence may not occur in the prostate, and thus carcinoma commence as a focus in a gland already the seat of benign enlargement.

Exomphalos.—In Blake's case there was a defect in the middle line of the body from the umbilicus to the sternum, and the liver, gallbladder, jejunum, ileum, ascending and transverse colons, were outside the body cavity and merely covered with amnion.

Osteo-Arthritis in Child.—Weatherbe's patient was only 4 years of age and had been bedridden since the deformity began at 18 months of age. There was absolute ankylosis of the left elbow joint; the left wrist joint was swollen and stiff, and impossible to dorsiflex, but easily flexed, with no tenderness or pain in these two joints. Both knees were flexed beyond a right angle and ankylosed in this position with swelling and slight tenderness. Both ankle joints were swollen and stiff with very limited movement.

Medical Journal of Australia, Sydney

2: 377-400 (Oct. 13) 1923

Breast Feeeding. S. F. McDonald.—p. 379.
Diagnosis of Silicosis. W. Watkins-Pitchford.—p. 382.
Use of Insulin. J. Sprent.—p. 384.
*Thrombosis of Superior Mesenteric Vein. K. J. G. Wilson.—p. 386.

Thrombosis of Superior Mesenteric Vein.—Wilson's patient was admitted to the hospital complaining of severe pain in the abdomen of five days' duration. At first it was colicky; then as it increased in severity it became continuous. She vomited several times and the pain lessened considerably, so that two days after the onset of the illness she felt almost well. But on the third day, the pain came on again, with greater severity than before. She vomited many times and, in fact, kept no food down. After admission, the pain was not very severe while she was at rest, but increased in severity on movement. She had vomited last in the morning. She was constipated. The diagnosis of subacute intestinal obstruction was made and operation advised. As soon as the peritoneum was incised, an appreciable amount of fluid escaped, at first clear, but later blood stained. The small intestine was distended, bluish in color and lusterless. The arteries formed a visible network in its walls, were engored and raised above the surface of the bowel. When the upper part of the mesentery of the small intestine was examined, a clearly visible dark swelling was seen at its root. On palpation it proved to be a collection of firm nodular clots in the lumen of the superior mesenteric vein, completely blocking the lumen. It was decided to close the abdomen and allow egress to any accumulation of toxic fluid in the peritoneal cavity by a pelvic drain. At the end of the second day after operation a simple enema acted well with a formed stool. Enemata were given every second day until the seventh day, when aperients were given by mouth, when necessary. The abdomen remained distended for three days and then gradually subsided. Fluid diet (water and milk) was given for fourteen days, when the diet was increased to full amount. Evidently gradual recovery occurred through the inferior mesenteric vein taking on the function of the superior vein.

South African Medical Record, Cape Town

21: 437-460 (Oct. 13) 1923

Acute Diarrhea of Infants. B. G. Melle.—p. 439.
Complications of Diarrhea and Vomiting. F. S. D. Berry.—p. 443
Bacteriology of Diarrhea. J. Pratt-Johnson.—p. 443.
Care of Pregnant Woman. C. W. Comrie-Sharp.—p. 446.
Duration of Human Life in Different Parts of South Africa. C. Pijper.—p. 448.

Annales de l'Institut Pasteur, Paris

37: 787-878 (Sept.) 1923

*Lipoids from Tubercle Bacilli. A. Boquet and L. Nègrc.—p. 787.
*Algid Phase in Cholera. G. Sanarelli.—p. 806.
Morbid Sensitivity. M. Nicolle and E. Césari.—p. 837.
*Destruction of Fixed Virus. P. Remlinger.—p. 852.
Complement Fixation in Bovine Tuberculosis. Brocq-Rousseu, A. Urbain and Cauchemez.—p. 872.

Lipoids from Tubercle Bacilli.—Boquet and Nègre state that extracts of tubercle bacilli made with methyl alcohol or with acetone fixed complement with the serum from tuberculous animals, and produced complement fixing antibodies. The methyl alcohol extract, however, did not produce anaphylaxis. Similar extracts of diphtheria bacilli and a suspension of lecithin from eggs reacted also with these serums. It is probable that the reaction depends on the phosphatids. Injection of methyl alcohol extracts slightly prolonged the life of tuberculous animals, while acetone extracts shortened it.

The Algid Phase in Cholera.—Sanarelli produced experimentally a condition very similar to the algid stage of cholera by injecting sublethal doses of other microbes into animals that had been previously injected with harmless doses of cholera vibrios or their proteins.

Destruction of Fixed Virus.—Remlinger publishes observations on rabbits which did not react to inoculation with *virus fixe,* or which developed merely choreiform movements instead of the typical symptoms of paralytic hydrophobia. It is possible that accidental contamination had destroyed the virus so completely that the animals remained susceptible to hydrophobia at a second inoculation.

Annales de Médecine, Paris

14: 173-256 (Sept.) 1923

Nucleus Ruber Syndrome. M. Chiray, C. Foix and Nicolesco.—p. 173.
Syphilitic Psychoses. R. Targowla.—p. 192.
Variations in Sympathetic Irritability. Laignel-Lavastine.—p. 207.
*Kidney Function in Diabetes. E. Urech.—p. 231.
*Treatment of Diabetes. M. Labbé.—p. 249.

Kidney Function in Diabetes.—Urech examined the renal function in twenty-two diabetics. It was good in young patients and was disturbed in the older subjects. There was, however, no pronounced retention of urea in the blood. The retention of sodium chlorid did not parallel the retention of water.

Treatment of Diabetes.—Labbé discusses Petrén's views on the pathology and treatment of diabetes. The central point is the theory of the dominating disturbance of protein metabolism. Proteins are much more dangerous in acidosis than fat, of which Petrén gives 200-300 gm. daily.

Archives Franco-Belges de Chirurgie, Brussels

26: 711-806 (Aug.) 1923

*Bone Syphilis. B. Dujardin.—p. 711.
*Rhizomelic Spondylosis. Peugniez.—p. 720.
*The Condition After Splenectomy. J. Silhol and Y. Bourde.—p. 744.
High Amputation for Senile Gangrene. E. Aubert.—p. 754.
*Missing Fibula. G. Peremans.—p. 764.

Syphilis of the Bones.—Dujardin enumerates the various affections of the bones due to inherited or acquired syphilis. He classifies them as the secondary or early anallergic, the tertiary or allergic parasyphilitic, and the tardy anallergic lesions. He emphasizes that during the allergic phase the susceptibility is not only for the toxins of the causal spirochetes, but for other toxins, tuberculin, and even for harmless substances like milk. Skin tests with any of these substances may elicit positive reactions and mislead the diagnosis, as in a case reported. The patient was a woman, aged 50, with a liver tumor and osteitis in the tibia, with tubercle bacilli in the scrapings. She was sent to a Swiss tuberculosis sanatorium, where she was found to have a positive Wassermann test; the osteitis recovered rapidly under treatment for syphilis. When the allergy of the tissues subsides under specific treatment, this removes the foundation for the secondary tuberculous infection, which vanishes with the syphilitic lesion. He explains further that the organism after living peaceably with its parasites suddenly develops intolerance for them, and this allergy induces a violent local reaction which acts like a fixation abscess, killing off the parasites in minor foci elsewhere. This phase of allergy is useful, further, because the violent local reaction is peculiarly amenable to specific treatment.

Rhizomelic Spondylosis.—Peugniez argues that ossification of the ligaments is the essential element in rhizomelic spondylosis. The total crippling deformity when the process was complete and stationary was overcome, in a case described, by subtrochanteric osteotomy of both hip joints. From absolute immobility and helplessness, the man has become able to walk for three or four hours a day, and sit on a seat 0.69 cm. high. [This case was summarized in these columns Sept. 1, 1923, p. 784, when published elsewhere.]

After Splenectomy.—From the medicolegal standpoint, the injury caused by splenectomy seems to be only the impairment of the abdominal wall; but before certifying to the harmlessness of the loss of the spleen, the blood must be examined for anemia, for cholesterol, and for fragility of the corpuscles, and the stools should be examined to estimate liver functioning.

Absence of the Fibula.—A bilateral congenital case, and a case of loss from osteomyelitis in a child, are reported.

Archives des Maladies du Cœur, etc., Paris

16: 625-688 (Sept.) 1923

*Oscillometry of the Pulse. R. Alexandre and R. Moulinier.—p. 625.
Aneurysms of Aorta Above the Diaphragm. Saloz and Frommel.—p. 637.
Prognosis of Inflammatory Valvular Lesions. N. Betchov.—p. 646.
Purulent Pericarditis; Recovery After Puncture. E. Cottin and M. P. Gautier.—p. 651.
*Function of the Left Ventricle. E. Géraudel.—p. 659.

Oscillometry of the Pulse.—Alexandre and Moulinier conclude that the diagram of the oscillations of the pulse is a picture of the play of cardiac energy. But it is only a reflected and distorted picture.

Function of the Left Ventricle.—Géraudel reports, as the result of his examinations of the shape of the cavity of the left ventricle, that the changes are different in different affections.

Journal d'Urologie Médicale et Chirurgicale, Paris

16: 177-255 (Sept.) 1923

*Correlation Between Bladder and Kidneys. M. Sérès.—p. 177.
*Pseudostone Colic in Renal Tuberculosis. R. Lanzilotta.—p. 205.
*Functional Tests of Polycystic Kidneys. Negro and Colombet.—p. 216.
*Neoplasm of the Prostate. A. Cosacesco.—p. 226.
Fistula with Hypertrophied Prostate. J. Martin.—p. 229.
Double Urethra. G. Bernadet.—p. 232.
*Autoserotherapy in Gonorrhea. A. Quenay.—p. 234.

Correlation Between Bladder and Kidneys.—Sérès investigated the polyuria which accompanies retention of urine, and found that it is more marked in the first hours of the retention and after evacuation of the bladder. In prolonged retention, oliguria is the rule. Patients with normal or exaggerated contractility of the bladder react more intensely than those with a weak muscle. Experiments on dogs proved that this polyuria is of reflex origin, and he was able to trace in the dog the afferent route from the inferior mesenteric ganglion to the kidneys. Similar anatomic conditions are present in human fetuses. These facts may prove of value in the explanation and treatment of reflex anurias.

Pseudostone Colic in Renal Tuberculosis.—Lanzillotta describes seven cases of the "pseudolithiasis" type of tuberculosis of the kidneys. The patients had typical renal colic. Examination of the urine and roentgenography furnished the differentiating signs.

Functional Tests of Polycystic Kidneys.—Negro and Colombet publish seven cases of polycystic degeneration of the kidneys from Marion's clinic. The elimination of phenolsulphonephthalein was markedly diminished in all of them, although the other tests (concentration, Ambard's coefficient) were normal or only slightly affected.

Neoplasms of the Prostate.—Cosacesco found in patients suffering from neoplasms of the prostate a retraction of the wall and subsequent enlargement of the lumen of the prostatic part of the urethra. The change can be clearly seen with the cystoscope.

Autoserotherapy in Gonorrhea.—Quenay's experience has been that autoserotherapy (2-4 c.c. of serum) influenced favorably the complications of gonorrhea, but did not act on the urethritis at all.

Médecine, Paris

4: 813-888 (Aug.) 1923

Recent Acquisitions in Pediatrics. P. Lassablière.—p. 813.
*Mitral Disease in Children. P. Nobécourt.—p. 822.
Pneumococcus Infection in Infants. Weill and C. Gardère.—p. 824.
*Convulsions in Infants. P. Rohmer.—p. 830.
*Diagnosis of Scarlet Fever. G. Mouriquand.—p. 836.
*Maternity Home for Unmarried Women. P. Chatin and Rheuter.—p 841.
*Nephritis in Children. P. Merklen.—p. 847.
*Splenomegaly in Syphilis. M. Péhu.—p. 853.
*Adenopathies in Inherited Syphilis. G. Blechmann.—p. 859.
Therapeutic Pneumothorax in Children. P. F. Armand-Delille. [illegible] 863.
*Ipecac in Digestive Disturbances. A. Bérard.—p. 869.
Vulvovaginitis in Little Girls. G. Schreiber.—p. 871.
*Myxedema in Infants. G. L. Hallez.—p. 876.
Treatment of Acute Endocarditis. P. Lassablière.—p. 881.
Treatment of Rickets. L. Pélissier.—p. 882.

Mitral Disease in Children.—Nobécourt finds that combined mitral stenosis and insufficiency is about as frequent in children as pure mitral insufficiency. The differential sign is the dilatation of the left auricle in the combined form. Its symptoms and prognosis are graver than in pure insufficiency. Pure mitral stenosis is rare.

Convulsions in Infants.—Rohmer sees a physiologic predisposition to convulsions in infants. In 90 per cent. of the cases the convulsions are due to spasmophilia. Doses of 12 gm. of crystallized calcium chlorid (or 6 gm. of the anhydrous salt) given in solution daily for two weeks stop the dangerous attacks of convulsions and laryngospasm in the children.

Diagnosis of Scarlet Fever.—Mouriquand confirms the claim that Pastia's sign is characteristic of scarlet fever. It consists in a linear exanthema following the flexion folds of the skin, especially at the elbow. It was found only exceptionally in measles and in recurring scarlatiniform erythema. Schultz and Charlton's extinction phenomenon is also characteristic.

Maternity Home for Unmarried Women.—Chatin and Rheuter describe the regulations of the "Samaritaine," a house where unmarried pregnant girls are accepted and cared for medically and socially. Absolute secrecy is maintained on request of the girl.

Nephritis in Children.—Merklen reviews the differences between nephritis in children and in adults. He asserts that the urine should be examined not only after scarlet fever, but after every infectious disease and suppuration. The majority of cases are of the dropsical type. Hypertension is present in acute cases, and causes dilatation of the heart. Contrary to adults, gallop rhythm may occur in the acute stage rather than in the chronic. Enlarged liver is the rule in such cases. Albuminuria is often only intermittent, which necessitates repeated examinations. Orthostatic albuminuria has to be taken into consideration in some instances of post-scarlatinal nephritis of a similar type. Syphilitic nephritis can be guessed at rather than diagnosed. Renal aplasia may be responsible for part of the disturbances.

Splenomegaly Suggests Inherited Syphilis.—Whenever the spleen of an infant is palpable a finger breadth below the costal arch, Péhu thinks of syphilis. The enlargement is not present in all cases. Other diseases which might be responsible for the splenomegaly are certain bronchopneumonias, cutaneous ulcerations and tuberculosis.

Adenopathies in Inherited Syphilis.—Blechmann reviews the frequency of small enlarged lymphatic glands in inherited syphilis in infants. The enlargement may be due to cutaneous affections (eczema, prurigo, impetigo), to tuberculosis or to syphilis. The epitrochlear (especially if affected on both sides) and the retromastoid glands are the most important.

Ipecac in Digestive Disturbances.—Bérard uses in chronic dyspepsias in children 4-40 drops of tincture of ipecac an hour or half an hour before meals. Six or more drops daily act favorably on the dyspepsia alleged to be normal in artificially fed infants.

Thyroid Treatment of Myxedema in Infants.—Hallez considers 1 cg. of dried thyroid for each 6 months of age as the proper dosage. He advises beginning with small doses and increasing if the rectal temperature remains under 37 C. or if the symptoms do not disappear. Rapid loss in weight, tachycardia, diarrhea, agitation and insomnia are contraindications. Etiologic treatment should not be omitted in syphilitic infants.

Nourrisson, Paris

11: 289-352 (Sept.) 1923

*Eczema of Infants. A. B. Marfan.—p. 289.
Blood in Experimental Scurvy. Lesné et al.—p. 304.
Inherited Syphilis. H. Lemaire and R. David.—p. 308.
*Vaginal Hydrocele in Infants. G. Salès and P. Vallery-Radot.—p. 321.
*Intestinal Motor Function in Infants. H. Blagodatny.—p. 331.

Eczema of Infants.—Marfan finds that the popular term "milk crust" expresses exactly the fact, namely, that eczemas in infants are related to the milk diet. A hereditary taint (arthritism) is necessary, but the main cause is overfeeding with milk (usually too frequent feedings), especially excessive fat content of the milk. Over 4.5 per cent. of fat in the mother's milk might be the cause. Local treatment after removal of the crusts, thyroid medication, subcutaneous injections of milk, and high altitudes (3,000-4,500 feet) are recommended.

Vaginal Hydrocele in Infants.—Salès and Vallery-Radot consider as probably syphilitic those hydroceles in the first months of infancy that last over four to six weeks after puncture. The testis is hard and smaller, rarely larger, than normal. The affection is unilateral.

Intestinal Motor Function in Infants.—Blagodatny publishes roentgenograms and observations on the time of passage of a test meal in infants.

Revue Française d'Endocrinologie, Paris

1: 281-376 (Sept.) 1923

*The Islands of the Pancreas. E. Laguesse.—p. 281.
Insulin. Benoit.—p. 312.
*Thymocytes and Lymphocytes. A. P. Dustin.—p. 332.

The Islands of the Pancreas.—Laguesse reviews the history of the discovery of the endocrine function of the pancreas, and its present status.

Thymocytes and Lymphocytes.—Dustin found differences between the reactions of lymphocytes and similar cells in the thymus (thymocytes). He therefore considers these two classes of cells as different.

Revue Franç. de Gynécologie et d'Obstét., Paris

18: 433-480 (July) 1923

Management of Breech Presentation. L. Demelin.—p. 433.
Pituitary Extracts in Obstetrics. F. Chatillon.—p. 448.
Hypertrophy of Breasts at Puberty. J. P. Tourneux.—p. 454.
Technic of Epidural Anesthesia. Audebert and Bernardbeig.—p. 460.

18: 481-520 (Aug.) 1923

*Congress on Puerperal Fever.—p. 481.
*Congress on Gynecology and Obstetrics.—p. 497.

Congress Transactions.—This issue is devoted to the main addresses presented at the Congress on Puerperal Fever, held at Strasbourg, August 2-3, and the Congress of French-speaking gynecologists and obstetricians, held at Geneva, Aug. 9-11, 1923.

Archivio Italiano di Chirurgia, Bologna

7: 517-608 (Aug.) 1923

The Scientific Works of V. Remedi. G. Bolognesi.—p. 517.
*Case of Cephalocele. F. Rossi.—p. 523.
*Arterial Pressure in Spinal Anesthesia. F. Virgillo.—p. 529.
Traumatic Aneurysm. F. Purpura.—p. 550.
*Ligation of Wisp of Esophagus Wall. M. Bufalini.—p. 567.

Encephalocele.—The tumor in the prematurely born infant was removed at the age of two months. It was an encephalocystocele, and contained 290 c.c. of fluid. Two silk ligatures sloughed out and the child developed strabismus; but these were the only postoperative disturbances. In Reali's compilation of 144 cases of occipital encephalocele, only 7 lived to adult age, and all of Müller's 39 cases died within the first year. Rossi has collected 28 operative cases since 1907,

with 17 cured and one improved. Syphilis should always be sought in these cases.

The Blood Pressure During Intraspinal Anesthesia.—Virgillo was unable to detect any connection between the pressure in the spinal fluid and the blood pressure. The latter always declined during intraspinal anesthesia by 10 or 20 mm. of mercury, and in a few cases even by 100 or 130 mm. This drop in blood pressure was not accompanied by general symptoms in his experience with 110 cases. He gives a preliminary subcutaneous injection of 0.25 gm. of caffein two or two and a half hours before. This reduces the systolic and diastolic pressure in from thirty to sixty minutes, but by the end of the second hour they have risen to above normal.

Experimental Ligation of Wisp of Esophagus Wall.—The aim was to induce conditions in rabbits analogous to a diverticulum in man, to permit study of the effects of ligation. Bufalini reports that the outcome does not justify ligation alone in treatment of a diverticulum in the upper esophagus. The outlook is more favorable when the ligature can be applied to the abdominal portion.

Pediatria, Naples

31: 1025-1080 (Oct. 1) 1923

Qualitative Arneth Leukocyte Count in the New-Born. S. Fabris.—p. 1025.
Latent Tuberculosis in Infants. A. Corica.—p. 1032.
*Treatment of Vincent's Angina. G. Castorina.—p. 1036.
Hernia in Children. V. Craglietto.—p. 1041.
Inorganic Murmurs in Infancy. A. de Capite.—p. 1060.

Treatment of Vincent's Angina.—Castorina reports favorable results in seven children suffering from fusospirillar infections. He used in some patients silver arsphenamin, and in others potassium tartrobismuthate.

Policlinico, Rome

30: 485-532 (Oct. 1) 1923. Medical Section

*Experimental Rickets. U. Nuvoli.—p. 485.
Cyst at Apex of Lung. A. Baccichetti.—p. 505.
Relapsing Fever in Somalia. U. Reitani and E. Parisi.—p. 514.
*Leukolysins in Leukopenia. A. Ronchi and L. Sabatini.—p. 528.

Experimental Rickets.—Following Ghilarducci's advice, Nuvoli subjected the pituitary region of young rabbits to the action of roentgen rays. Abnormal growth of bones, resembling rachitis, followed. No adiposogenital syndrome developed.

Leukolysins in Leukopenia.—Ronchi and Sabatini found leukolysins in the serum of children suffering from different diseases that caused leukopenia. The substance is thermolabile, and they believe that it is a product of the microorganisms present.

Rivista di Clinica Pediatrica, Florence

21: 513-576 (Sept.) 1923

*Intestinal Phenomena in Pneumonia. U. Montanari.—p. 513.
Vaccination and Growth of Infants. Allaria and Canelli.—p. 531.
New Home of Pediatric Clinic at Bologna. C. Francioni.—p. 545.

Intestinal Phenomena in Pneumonia.—Montanari concludes from the presence of the pneumococcus in the feces, that the intestinal tract may be affected in pneumonia. It was in fact, in the necropsies he had seen. Constipation indicates a good prognosis in pneumonic children, while diarrhea, as already observed by Hipprocrates, is an unfavorable sign. In his sixty-two cases, with a mortality of 8 per cent, four died of the nine children who had diarrhea.

Archivos Brasileiros de Medicina, Rio de Janeiro

13: 861-1018 (Sept.) 1923

*The Model Hospital. I. Malagueta.—p. 861.
*Protozoa. A. E. Estellita Lins.—p. 881.
Diagnosis of a Normal Pregnancy. R. Pacheco.—p. 910.

The Hospital Question.—Malagueta discusses practical arrangements and management of hospitals, and their utilization for teaching purposes. He remarks that the study of tuberculosis, from the practitioner's standpoint, seems to be neglected. The tuberculous are sent away from the hospitals accessible to the students, and no arrangements are made for graduate courses in phthisiology.

Protozoa.—Estellita Lins here concludes his long and detailed study of the diseases traceable to protozoa. He is assistant at the national public health bacteriologic laboratory, and discusses the subject mainly from the standpoint of the diagnosis and prophylaxis.

Archivos Españoles de Pediatría, Madrid

7: 449-512 (Aug.) 1923

*Prophylaxis of Diphtheria. J. Bravo y Frias et al.—p. 449.
Teaching the Mentally Backward. F. Pereira.—p. 473.

Prophylaxis of Diphtheria.—The Schick reaction was positive in 47.4 per cent. of 675 children in a Madrid orphan asylum in which diphtheria had developed in epidemic form this year. In nineteen days, twenty-five cases had developed, but after prompt toxin-antitoxin treatment of the susceptible children, no further cases developed. Of the 319 passively immunized, 4.7 per cent. presented a cutaneous reaction or rheumatoid pains, and one girl developed a severe anaphylactic shock after injection of only 0.5 c.c. No attempt at isolation was made thereafter, but the epidemic was arrested at once. One child with a negative Schick test developed a febrile sore throat next day, but the absence of tachycardia and of pallor testified against diphtheria, and the child recovered without antitoxin. One child entering the institution too late was overlooked, and was not tested or immunized, and this child promptly developed diphtheria, the last case of the epidemic.

Archivos Latino-Amer. de Pediatría, Buenos Aires

17: 561-640 (Aug.) 1923

*Puncture of the Pericardium. J. C. Navarro and J. M. Moret.—p. 561.
*Acid Hyperfat Milk for Infants. E. Gaing.—p. 566.
Suppurative Endopericarditis in Child. A. Volpe.—p. 571.
*Meningitis in Infant. J. M. Penco.—p. 573.
*Laryngeal Tuberculosis in Children. J. C. Munyo and M. Jaureguy.—p. 578.
*Infant Welfare Work. C. Ferreira.—p. 582.
Pneumothorax Complicating Typhoid. E. Portu Pereyra.—p. 606.
*Tetanus in Infants. R. Berro.—p. 611.

Puncture of the Pericardium.—The dyspnea and cyanosis in the girl, aged 4, the enormous cardiac area, and the enlarged liver confirmed a diagnosis of pericardial effusion, but the good general condition and moderate fever testified against a suppurative process. Navarro and Moret punctured the pericardium by Marfan's technic. The needle enters at the lowest point, and there is no danger of injuring the pleura or lung. The patient was in a semiseated position, and the needle was introduced to graze the vertex of the xiphoid appendix. The case illustrates the ease and effectiveness of this technic, which released 60 or 70 c.c. of fluid, although the benefit was only transient in this tuberculous case.

Infant Feeding During Hot Weather.—Gaing's acid hyperfat milk for infant feeding was described in THE JOURNAL, Oct. 1, 1921, p. 1140. He here reports further success with it in twenty-two weakly, newly born infants during the hot weather.

Meningococcus Meningitis in Infant.—The infant was 5 months old, and the acute meningitis subsided completely under treatment with 75 c.c. of antiserum injected intraspinally in amounts of 20 or 15 c.c. during the week.

Laryngeal Tuberculosis in Children.—Munyo and Jaureguy state that they have observed six cases in the last two and a half years. There had been no symptoms indicating that the lungs were affected. In a case described in detail, the diagnosis had been acute laryngitis in the boy, aged 7, and diphtheria antitoxin was injected. Chronic pulmonary tuberculosis and the laryngeal process proved fatal in about two months.

Infant Welfare Work.—This is the annual report for 1922 on the work in the state of S. Paulo of the infant welfare department of the public health service.

Tetanus in the New-Born.—Two of Berro's four cases terminated fatally. The two other infants recovered under serotherapy; 70 c.c. was given by the longitudinal sinus in scarcely more than forty-eight hours in one of the surviving children. Tetanus developed in a boy, aged 5, eight days after a fall which had driven a stick into the perineum so deep that its presence had not been suspected. The anti-

serum was injected around the wound, into the gluteal muscle and intraspinally, thus distributing 60 c.c. Under continued serotherapy recovery was soon complete.

Prensa Médica Argentina, Buenos Aires

10: 305-332 (Sept. 30) 1923

*To Raise Funds for Public Health Work. M. Aberastury.—p. 305.
*Malignant Slow Endocarditis. C. Dominguez and J. J. Puente.—p. 312.
Ankylosis of Hip Joints and Spine. R. Finochietto.—p. 320.

Ways and Means to Raise Funds for Public Health Work.—Aberastury proposes a small additional tax on every form of tobacco, to provide a reserve fund for general public health work.

Slow Malignant Endocarditis.—The onset had been acute with joint disturbances suggesting acute rheumatism and chills, but these symptoms subsided, and the clinical picture became that of septicemia, with heart disease, painful large spleen and glomerular nephritis. A hemolytic streptococcus was cultivated from the blood. The anemia was pronounced, and of an aplastic type. The case ran a six months' course, and necropsy disclosed a fibrinous pericarditis as well as the typical vegetations in the mitral valve, etc.

Revista Española de Medicina y Cirugía, Barcelona

6: 429-492 (Aug.) 1923

Pyelotomy. Manuel Serés.—p. 429.
Influenzal Pneumonia. J. Cuatrecasas Arumi and L. Trias de Bes.—p. 438.
*Malaria in Southern Spain. A. Salvat y Navarro.—p. 441.
Insulin Treatment in France. J. Salvat y Martí.—p. 450.

Malaria in Southern Spain.—Salvat discusses the ways and means proposed by the official committee which has been studying the malaria question in certain provinces.

6: 493-556 (Sept.) 1923

*Compound Fracture of Shafts of Bones. M. Corachán.—p. 493.
The Heart Murmurs. M. Torelló Cendra.—p. 502.
*Diathermy in Gonorrhea in Males. M. Serés.—p. 511.
The New Criteria of Social Hygiene. A. Salvat et al.—p. 515.

Treatment of Compound Fracture of Shafts of Long Bones.—Corachán emphasizes that every compound fracture must be regarded as infected. He regards traction on the bone itself as the best means for extension, and urges care of the general condition as an important aid in treatment of fractures. Antiserums against tetanus and gangrene are often indispensable.

Diathermy in Gonorrhea in the Male.—Serés is convinced that nothing is so effectual as diathermy in dislodging gonococci lurking in the tissues around the urethra, which may maintain the infection for years. His rectal electrode opens like a fan in the rectum, and thus acts on a large area, including the prostate and seminal vesicles. Even at the best, this treatment is not always successful, as some gonococci escape in the deeper tissues. But gonococcal epididymitis and gonococcal urethritis in women can always be cured with diathermy as the anatomic conditions allow a perfect electric bake. When technic is perfected to allow this throughout, gonorrhea will be conquered; it is merely a question of enough electrodes. With recent infection, the gonorrhea is cured in two or three sittings, but acute urethritis in the male once established has generally proved refractory. Only when it has subsided under the usual local measures, does diathermy help to eradicate the infection. With more and larger electrodes he is confident that every acute urethritis can be conquered.

Revista Médica del Rosario, Argentina

13: 233-311 (Aug.) 1923

Artificial Pneumothorax with Creosoted Air. Barralt.—p. 233.
*Hemorrhagic Glioma in Medulla. T. Fracassi and F. R. Ruiz.—p. 245.
Osteomyelitis of the Femur with Myiasis. A. Zeno and A. Boden.—p. 262.
*Congenital Hypertrophy of Limbs. M. Steinsleger.—p. 265.
*Vesical Dystocia. R. B. Borghi.—p. 273.
*Emetin Intoxication. C. Alvarez.—p. 276.
Cultivation of the Gonococcus. R. Barralt.—p. 287.
Spirochetal Bronchitis. Three Cases. A. A. Otaño.—p. 292.

Hemorrhagic Glioma in Medulla.—Fracassi and Ruiz give seven illustrations of a case of a hemorrhagic glioma in the medulla oblongata of a girl of 8. Another child at the same time presented similar symptoms from intracranial hypertension and a focus in the cerebellopontile angle, but the lesion was tuberculous in this case.

Congenital Hypertrophy of One Leg.—In Steinsleger's three cases, the presence of angiomas in the hypertrophied limb and elsewhere sustains the etiologic importance of circulatory disturbances. In one infant, aged 25 days, one thigh measured 28 cm., the other 15; one calf, 24 cm., the other 10. Kondoleon's resection of the aponeurosis seems the most promising treatment in such cases when the monstrosity is compatible with life.

Vesical Dystocia.—A tumor that seemed to be a cyst below the fetal head impeded delivery, and it was punctured through the vagina. About 400 c.c. of blood-stained fluid was withdrawn and the child was delivered with forceps. The tumor proved to have been the bladder, and in a later pregnancy the bladder was found again in the same low position in the side, pushing the uterus over completely to the left side, but it returned to place when the bladder was emptied.

Emetin Intoxication.—In one of Alvarez' three cases, paralysis of the pharynx and difficulty in holding up the head, with extreme asthenia, were the main symptoms of the intoxication. In the others the disturbances were gastro-intestinal. Study of these cases and of the literature seems to indicate that treatment of amebic dysentery should be with subcutaneous injection of 0.10 gm. daily for five days. After a two weeks' pause, repeat with a second series with a smaller dose, never giving more than 1 gm. in one month.

Semana Médica, Buenos Aires

2: 185-240 (Aug. 2) 1923

Zinc in Treatment of Syphilis. N. V. Greco.—p. 185.
*Hookworm in Argentina. T. A. Tonina.—p. 191.
Defective Osteogenesis. M. T. Vallino.—p. 218.
Secondary Anthrax Pleurisy. J. B. Ormaechea.—p. 221.
Morphin and Nitrosomorphin. L. Rossi.—p. 224.
Subtotal Hysterectomy for Dystocia. M. Cella.—p. 226.

Hookworm in Argentina.—Tonina states that the hookworm is common in a large part of Argentina, and is occasionally imported into the regions which have as yet escaped its ravages. Children are infested much more frequently than generally suspected, but the infection may lie latent until early adult age. At the Children's Hospital at Buenos Aires, there have been 36 cases under treatment in fifteen years, and 16 cases of malarial anemia. Bacigalupo uses an extract of hookworms to induce a reaction like the Schick reaction in diphtheria. The responses and the significance seem the same except that the findings in the healthy are sometimes conflicting.

Archiv für Gynäkologie, Berlin

119: 379-580 (Sept. 29) 1923

Inadequate Labor. F. Kermauner.—p. 379.
*Vaccines in Gynecology. Bucura.—p. 384.
Decapitation with Hooked Knife. R. Franz.—p. 396.
*Metabolism and Eclampsia. A. Mahnert.—p. 407.
*Defensive Ferments with Cancer. H. Zaeherl.—p. 440.
Chorio-Angioma. A. Santner.—p. 454.
*Thyroid Function in Pregnancy. H. Knaus.—p. 459.
Serologic Diagnosis of Cancer. K. Lundwall.—p. 468.
Mechanics of Labor. A. Mueller.—p. 474.
*Neutralization of Placenta Toxin. T. Hayashi.—p. 505.
*Cholesterol Metabolism. E. Leupold and F. Seisser.—p. 552.
Rare Kind of Ovarian Tumors. E. M. Matsner.—p. 563.

120: 1-340 (Oct. 1) 1923

Transactions of the Eighteenth German Gynecologic Congress.

Vaccines in Gynecology.—Bucura suspects defective technic in treatment in the reported instances of failure of vaccine therapy of gonococcal infection in women. The treatment acts, however, only on closed affections. Open localizations have to be treated locally. He uses vaccines in prophylaxis before operations (including curettements) on infectious processes. Focal reaction following the injection of a vaccine is a warning sign against a premature operation. Deferring the operation allows it to be performed successfully later, if it does not become superfluous after a full course of vaccine treatment. Vaccine therapy should precede the operation in infected carcinomas of the cervix.

Metabolism and Eclampsia.—Mahnert found that carbohydrates, proteins, fats are less regularly and less well oxid-

ized in pregnant women. The respiratory quotient is lower than normal, and the decrease in carbon dioxid elimination is especially marked on a protein diet. Examination of the blood revealed a tendency to acidosis. This was particularly pronounced in the toxemias of pregnancy.

Defensive Ferments with Cancer. — Zacherl had clean-cut results with Pregl and de Crinis' method of determining the Abderhalden ferments in the serum in cases of carcinoma of the uterus. The age of the patients and controls did not influence the results. Complete extirpation of the tumor was followed by a progressive disappearance of the ferment. Roentgen irradiation of some of these patients provoked in a day or two a reappearance of the ferment. They attribute this to the latent presence of cancer cells. One must not assume a cure, they reiterate, unless these ferments are absent before and after irradiation.

Thyroid Function in Pregnancy. — Knaus injected virginal rats for two to four weeks with extracts from the corpus luteum. The sex organs of these animals were enlarged and hyperemic, and the thyroid glands were also much heavier than the controls. There was an increase in the amount of colloid in these goiters. He concludes that the corpus luteum causes inhibition of the output of thyroid secretion. The animals gained in weight, which speaks also against hyperthyroidism. The analogy of these findings with the changes in the thyroid during pregnancy is very close.

Neutralization of Placenta Toxin.—Hayashi has continued his experiments in this line. He mixed placental extract and serum, and found that the noncoagulable nitrogen and especially the amino-acid nitrogen was decreased when the action of the serum was not sufficient. It was increased when the serum neutralized the poison. The antitoxic substance is probably of protein nature.

Cholesterol Metabolism.—Leupold and Seisser lowered the cholesterol content in the blood of rabbits by means of thyroidin or diphtheria toxin. They then found pronounced degeneration of the sex gland follicles, affecting especially the more mature animals. Similar results were obtained by extirpation of a suprarenal gland. They believe that cholesterol protects the sex glands (both male and female) from the action of toxins. When it was taken by an animal treated with diphtheria toxin, degeneration was slight. Male rabbits in which the blood cholesterol had been lowered by thyroid feeding, had a much decreased libido.

Archiv für klinische Chirurgie, Berlin

127: 1-758, 1923. Körte Festschrift.

*Regeneration of Bone. A. Bier.—p. 1.
Regeneration of Tendon Inside Its Sheath. H. Huek.—p. 137.
*Reconstruction of the Face. Perthes.—p. 165.
*Operative Treatment of Hydrocephalus. O. Hildebrand.—p. 178.
*Treatment of Erysipelas. F. Bange.—p. 195.
*Surgical Treatment of Angina Pectoris. A. Borchard.—p. 212.
Acute Infectious Disease of Costal Cartilages. F. König.—p. 222.
Transperitoneal Operation for Pelvic Tumors. W. Müller.—p. 233.
*Diffuse Peritonitis. H. Wildegans.—p. 239.
*Gallstone Operations. A. Brentano.—p. 275.
*Gastric Secretion in Gallstone Cases. G. Cohn.—p. 306.
Resection for Perforated Ulcer. H. Riese.—p. 327.
*Diagnosis of Perforation of Ulcer. F. Oehlecker.—p. 344.
The Stomach Channel. J. C. Lehmann.—p. 357.
Gangrenous Prolapse of Ileocecal Valve. L. Rehn.—p. 376.
Radical Treatment of Rectal Cancer. M. Kirschner.—p. 385.
Invagination-Resection. C. Falkenburg.—p. 407.
Surgery of the Spleen. R. Mühsam.—p. 415.
Colon Bacillus Infection of the Kidney. A. Barth.—p. 438.
Supernumerary Ureters. D. Kallmann.—p. 453.
Treatment of Genital Tuberculosis in Males. E. Schwarz.—p. 474.
Inguinal Hernia in Wartime. S. Peltesohn.—p. 493.
*Varices. R. Klapp.—p. 500.
Symmetrical Senile Gangrene. L. Heidenhain.—p. 514.
*Cancer on Leg. M. Grosser.—p. 529.
Removal of Bullets Under Roentgen Rays. A. Eiselsberg.—p. 550.
*"Lattice-Work Lung." F. Sauerbruch and R. Nissen.—p. 582.
*Cholecystitis Without Gallstones. O. Nordmann.—p. 600.
*Cancer in Accessory Thyroid. A. Kamsler.—p. 624.
*The Muscles in Fractures. E. Rehn.—p. 640.
Purpose and Fate of Albee Implants. K. Biesalski.—p. 667.
*Operative Treatment of Asthma. H. Kümmell.—p. 716.
Pneumocephalus After Fracture of Skull. H. Schloffer.—p. 731.
Ileocecal Tumor from Perforating Gallstones. Müller-Hagen.—p. 745.
Successful Operation for Diaphragmatic Hernia. Müller-Hagen.—p. 747.
Spontaneous Restitution After Gastro-Enterostomy. J. Ulrichs.—p. 749.
Repeated Fracture of Spine. G. Puppe.—p. 752.

Regeneration of Bone.—Bier recalls that he has published more than twenty reports on his research in the last thirty years on bone implants, pseudarthrosis and regeneration of bone in general. The 102 illustrations in this article confirm his view that true regeneration occurs only under certain conditions, and it is impossible at present to foretell when these conditions will be realized, but everything testifies to the importance of the formative stimulus of the implant. The regeneration of the bone proceeds along the lines which the implant would have followed if it had been left in its normal position. A metatarsal bone implanted in the mandible allowed free use of the jaw, but, notwithstanding years of this functional training, the implant grew into the shape of a whole metatarsal bone, the twin of the half left behind. The implant imposed its structure also on the bone into which it was fitted; marrow formed in the adjacent jaw bone in this case. Consequently he selects the implant with a view to structure conditions. A joint can be reconstructed at the natural site of the joint much better than at other points.

Visor Scalp Flap Reconstruction of Face.—Perthes' experience has been gratifying in cases of destruction of the floor of the mouth and chin. A case is described of tardy roentgen-ray necrosis with sloughing of the entire lower jaw and its soft parts. Also a case of cancer involving the jaw and neck.

Operative Treatment of Hydrocephalus in Children.—Hildebrand summarizes the various attempts in this line. He reports a case in a girl infant, aged 6 months, with progressive improvement during the six months since he cut an opening, totaling nearly 2 square centimeters, in the roof of the right orbit, with a corresponding opening in the dura. Through this the lateral ventricle was punctured and the puncture hole enlarged to make it permanent. He adds that this intervention is mild compared to Dandy's method.

Treatment of Erysipelas.—Bange recalls that the aim in all methods of treatment of erysipelas seems to be to induce hyperemia. Iodin and the ultraviolet and roentgen rays seem to be the simplest means of accomplishing this.

Surgical Treatment of Angina Pectoris. — As the last resource in a case of daily attacks of angina pectoris, with good heart action, in a man aged 54, Borchard resected the depressor nerve and also removed the superior ganglion of the cervical sympathetic. The patient died in less than three weeks with symptoms suggesting a focus of softening in the left fossa of Sylvius. There had been no return of the angina pectoris after the first four days.

Diffuse Peritonitis.—Wildegans reports from Körte's service 1,071 operative cases since 1910, with recovery of 64 per cent.

Gallstone Operations. — Brentano states that gallstones escaped discovery at the operation in 6 per cent. of his 280 cases.

The Digestive Juices in Gallstone Cases. — Cohn's tables show hypo-acidity in the stomach with gallstone disease in 87 per cent. of 44 cases, and in 100 per cent. of 63 after removal of the gallbladder. This constant achlorhydria seems to be permanent after cholecystectomy. He traced in 11 cases this decline in gastric juice secretion from before to after the removal of the gallbladder. Ferment production does not seem to be modified.

Diagnosis of Perforation of Gastric and Duodenal Ulcer.—Oehlecker has found pain in the shoulder a reliable symptom in dubious cases of gastric or duodenal ulcer when perforation ocurred. There is no special tenderness in the shoulder, no radiating pain from the liver, but an isolated spontaneous pain mostly at the extreme tip of the shoulder. This "distant phrenic nerve symptom" he ascribes to irritation of the phrenic nerve by material escaping into the subphrenic space on account of the perforation. This symptom was pronounced in 90 per cent. of all his gastric or duodenal ulcer perforation cases. This isolated shoulder pain is an index of something abnormal in the subphrenic space.

Study of Varices.—Klapp argues that the waste products of metabolism are not swept along in the saphenous vein as in other veins, on account of gravity, and the large size of

the vein. The blood with this local excess of waste products induces regional disturbance in metabolism, and this explains the complications of varices, leg ulcer, eczema or anomalies in bones or nails. He extols his method of multiple subcutaneous discission of all the varicose veins, the leg supported perpendicularly.

Cancer of the Leg.—A chronic ulcer had preceded the cancer in all of the eight cases of this kind recorded at the Urban Hospital. All were women but 2; one woman had the right leg amputated for cancer, and, seven years later, the left leg for the same cause. Bruns has collected 368 cases, and says that more than 33 per cent. were cured by an operation. Grosser describes further the case of a girl who developed lupus at the age of 3½. Roentgen treatment and arc light treatment were applied, with the complete cure of the lupus in the face, but four years later roentgen cancer developed in the dorsum of one foot and on both arms. The girl was only 13½ when the roentgen cancer was removed from the first hand. Hesse found in 94 collected cases of roentgen cancer that the intervals between the first roentgen dermatitis and the first suspicion of cancer varied from one to eleven years. The incubation of the dermatitis also ranged from one to eleven years.

"Lattice Lung."—The colored plate shows the changes in the lung after chronic suppuration which justify the term *gitterlunge*. Four cases are reported, all with recovery.

Cholecystitis Without Stones.—Nordmann has operated in 500 cases of gallbladder disease. In 33 of them no trace of gallstones could be discovered although the symptoms had included colic simulating gallstone mischief, and 4 in this group died. These fatal cases emphasize the necessity for calling in the surgeon whenever jaundice persists for two weeks, or with the first attacks of pain, not waiting until irreparable lesions have occurred. The danger of complicating pancreatitis must always be borne in mind: There was acute pancreatitis in 4 of his 18 acute cases, and in 4 of the 15 chronic cases; none died of those with the infectious process restricted to the gallbladder.

Cancer in Accessory Thyroid.—There has been no sign of recurrence during three years since the accessory thyroid with malignant disease was removed from the right side of the neck of a girl aged 18. Five somewhat similar cases are summarized from the records.

The Muscles with Fracture.—Rehn's experimental and clinical experiences confirm the close biologic connection between the bone, the periosteum and the muscles. It is imperative to maintain this physiologic connection, and hence nothing should be injected or be allowed to separate the muscle from the periosteum. This *organgemeinschaft* is an important factor in the healing of fractures.

Operative Treatment of Asthma.—Kümmell explains the basis for his cure of asthma by excluding and paralyzing the nerves that control the constriction of the bronchi. By severing these nerves, the inspiratory dyspnea disappears. In the four patients successfully treated by this means, the asthma of twenty or more years' standing, was cured at once by resection of the cervical sympathetic and its ganglions, the superior and middle and also the stellate, and the vagus fibers in them. He reaches them between the two parts of the sternocleidomastoid. Even if the asthma should return later, the success to date justifies the operation in such severe cases as these he reports.

Archiv für Verdauungskrankheiten, Berlin

32: 1-88 (Sept.) 1923

Liver Function Test with Indigocarmin. M. Einhorn and G. L. Laporte.—p. 1.
Excretion of Foreign Substances in Bile. A. Winkelstein.—p. 7.
Nose and Digestive Apparatus Reflexes. G. Suda.—p. 13.
Pathogenesis of Icterus. G. Felsenreich and O. Satke.—p. 21.
*Carcinoma in Ulcer. T. Plaut.—p. 51.
*Stomach Juice in Gallbladder Disease. A. Ohly.—p. 61.
Pseudotabetic Type of Gastric Ulcer. S. Mintz,—p. 77.
Low Position of Right Breast. F. Schilling.—p. 81.
"Palpation of Abdomen." T. Hausmann.—p. 83.

Carcinoma in Ulcer.—Plaut reviews critically the question of development of cancer in gastric ulcers. He reports five clinical histories, which make it probable that the carcinoma was present for several years before the operation and did not develop in an ulcer. No occult bleeding was noted in some of his cases. The possibility of subsequent malignant degeneration must not be taken as an indication for resection of ulcers. On the other hand, a chronic indurated ulcer is suggestive of malignancy from the beginning, rather than development into a cancer.

Gastric Secretion in Gallbladder Disease.—Ohly examined the gastric juice in 200 patients suffering from cholelithiasis. He found that early uncomplicated cases have hyperacidity, while the chronic cases present usually subacidity or anacidity. The subjective disturbances localized in the stomach, and the amount of mucus present in some patients of this second group seem to indicate an independent chronic gastritis, which might have been the primary affection.

Deutsche Zeitschrift für Chirurgie, Leipzig

182: 1-160 (Sept.) 1923

*Operative Treatment of Wounds of the Heart. E. Hesse.—p. 1.
Operative Treatment of Hallux Valgus. I. Wymer.—p. 27.
*Biology of Elastic Fibers in Transplants. A. Ladwig.—p. 40.
The Appendicitis Question. F. Heinlein.—p. 48.
*Tumors in Large Intestine. B. Tenckhoff.—p. 57.
*Access to Subdiaphragmatic Space. A. Melnikoff.—p. 83.
*Bullet Runs Around the Skull. K. Gentzsch.—p. 152.
*Resection of Phlegmon in Stomach. H. Zoepffel.—p. 158.

Wounds of the Heart.—Hesse analyzes 48 operated cases at the Petrograd city hospital in twenty years. He insists that there is no absolutely certain symptom of injury of the heart. Of 4 gunshot wounds, 50 per cent. proved fatal, and 70.4 per cent. of 44 stab wounds. The bleeding was temporarily arrested by compressing the wound with the fingers and suturing with silk. One case required eleven sutures; the thread tore through in 8 cases, and only 2 of this group were saved. The patients were all hard drinkers, and as drinking men are more subject to heart wounds, this friability of the heart must be borne in mind and the suture reenforced. Otherwise the linear suture becomes a star suture, with danger of bleeding to death. A free flap from the pectoral muscle is preferable for the plastic operation. He used an omentum flap in one case but it slipped aside and became adherent to the internal layer of the pericardium. Internal hemorrhage was responsible for the fatal outcome in 66.6 per cent. of the 48, including 2 cases in which the bleeding was from an overlooked lesion in the lung. Adhesive pericarditis developed after recovery in 4 cases, and the heart became enlarged in 5 of the total 15 cases with recovery.

Biology of Elastic Fibers.—The illustrations are from heterotransplants.

Tumors in Large Intestine.—Tenckhoff discusses in particular a case of fibroplastic appendicitis in a hernial sac.

Access to Subdiaphragmatic Space.—Melnikoff reaches this region through the lower margin of the thorax, his illustrations showing the various modes of access according to the organ concerned.

Contour Bullet Wounds of the Skull.—In the case of suicide described, the bullet traversed the frontal brain from side to side and then traveled around to the occiput inside the skull.

Phlegmon of the Stomach.—The man recovered after resection of an idiopathic circumscribed phlegmon in the greater curvature of the stomach. It had perforated and induced an encapsulated perigastric abscess.

182: 161-288 (Sept.) 1923

*Syphilitic Disease of Joints. A. Pochlmann.—p. 161.
Present Status of Duodenal Intubation. H. Bronner.—p. 180.
*Cholecystitis. L. Blendermann.—p. 200.
*Lingual Thyroid Tumor. M. Rossteuscher.—p. 217.
*Pathology of the Thymus. E. Bircher.—p. 229.
*Spontaneous Correction of Incarcerated Hernia. v. Renner.—p. 268.
*Renal Hemorrhage. W. Peters.—p. 273.
Incision for Access to Nerves in Axilla. L. Drüner.—p. 281.
*Heredity of Hemophilia. F. Lenz.—p. 284.

Syphilitic Disease of Joints.—Poehlmann is convinced that joint syphilis is common, but is usually mistaken for other affections. The Wassermann reaction is often negative with syphilitic disease of bones and joints. It may be negative

even in the puncture fluid from the diseased joints in known syphilis. The normal synovia, however, allows the passage into the joints of the substances giving the Wassermann reaction and also of stains and of bile pigments in jaundice. The inability to differentiate syphilitic joint disease fully justifies tentative treatment for syphilis in cases of obscure joint disease. The joint fluid findings are tabulated from 100 patients.

Indications for Operative Treatment of Cholecystitis.—Blendermann reports that there were eight deaths in 106 operations for acute cholecystitis, and eighteen deaths in ninety-eight interval operations in Pels Leusden's service in the last four years. He concluded his appeal for early intervention with *Doppelt hilft, wer schnell hilft.*

Lingual Thyroid Tumor.—Rossteuscher adds another case to the 100 on record in which a tumor at the base of the tongue proved to be thyroid tissue. The great danger is that removal of the tumor may deprive the patient of all thyroid tissue. Postoperative myxedema and tetany have been reported in 9 and 22 per cent. of the cases (Asch and Lenzi). In Asch's case the myxedema and tetany gradually improved in time. Only 12 per cent. of the cases of lingual goiter have been found in males.

Pathology of the Thymus.—In this third communication on this subject, Bircher reports experimental research on exophthalmic goiter and on the relations between the thymus and the thyroid. He induced the complete picture of exophthalmic goiter in three dogs by implantation of thymus tissue. Partial results were obtained in three other dogs after implantation of child thymus tissue. These experiences confirm the possibility of thymogenous exophthalmic goiter. He describes further the frequent finding of an enlarged thymus in persons dying from goiter disturbances (not exophthalmic). The diffuse goiter developed in two of the cases after thymectomy.

Self-Healing of Incarcerated Hernia.—The incarcerated hernia had become spontaneously reduced, but persistence of certain symptoms was explained by an intraperitoneal encapsulated fecal abscess, evidently an attempt at spontaneous healing.

Kidney Hemorrhage of Unkown Origin.—Sudden and repeated hemorrhage from the right kidney of a previously healthy woman, aged 64, compelled nephrectomy. But nothing to explain the hemorrhage could be found even with the microscope. In a second case the kidney was merely decapsulated and there has been no further disturbance.

Heredity of Hemophilia.—Lenz urges surgeons to investigate the family tree of every patient who displays a tendency to bleed excessively. Data in regard to hemophilic grandchildren would settle the question whether spermatozoa with the hemophilic taint always die prematurely or not. Instances are being reported now of bleeder women, with both father and son bleeders. The question needs further light, and this the surgeons can provide by search for bleeding grandchildren.

Jahrbuch für Kinderheilkunde, Berlin

102: 321-380 (Aug.) 1923

*Tuberculosis in Children. A. Czerny and H. Eliasberg.—p. 321.
Registration of Heart Sounds in Children. A. Hotz.—p. 337.
Anemia from Goat's Milk. E. Brouwer.—p. 357.

Treatment of Severe Tuberculosis in Children.—Czerny and Eliasberg consider artificial pneumothorax the greatest progress in treatment of pulmonary tuberculosis. This is especially true in children, in whom the process is comparatively frequently unilateral. They maintain the pneumothorax for at least two years. They had tried to influence the cachexia of tuberculous children by daily injections of horse serum. On Uhlenhuth's advice, they tried the serum from animals which had been injected with increasing amounts of tubercle bacilli. Although no antibodies except a weak amboceptor were found in such serums, the results in the children seemed better than with other methods. They injected daily from 0.5 to 2 c.c. of such beef serum. Edema which occurred locally in some of the children could be prevented by diluting the serum with an equal amount of normal sodium chlorid solution.

Medizinische Klinik, Berlin

19: 1279-1318 (Sept. 23-30) 1923

Treatment of Syphilis with Bismuth. J. Citron.—p. 1279.
Tuberculosis in Children. K. Dietl.—p. 1284.
*Multiple Sclerosis. R. Fetscher.—p. 1286.
*Intracutaneous Smallpox Vaccination. A. Singer.—p. 1288.
*Diagnosis of Uterine Cancer. A. Adelheim.—p. 1290. Idem. O. Gerich. —p. 1292.
Bilateral Ureter Cysts. J. J. Stutzin and Bolle.—p. 1294.
Chloramin Disinfection of Sputum. K. W. Jötten.—p. 1297.
Pneumothorax Treatment of Pneumonia. P. Schottky.—p. 1298.
Ovarian Dermoid. B. Lammers.—p. 1298.
Stenosis of Left Auricle. W. H. Chron.—p. 1299.
*Stimulating Action of Salt. A. Hauer.—p. 1300.
Professional Blood Donors. K. Brandenburg.—p. 1301.
Varices and Leg Ulcers. E. Clasen.—p. 1302.
Recent Literature on Hygiene. H. Ziemann.—p. 1306.
Recent Literature on Disease of Heart and Vessels. Edens.—p. 1309.

Multiple Sclerosis.—Fetscher surveys the present status of the etiology of multiple sclerosis. Kohn and Steiner's *Spirochaeta argentinensis* seems to be the probable causal agent. It is not impossible that the disease is transmitted by insects, especially ticks. Prolonged treatment with small doses of silver arsphenamin has given promising results in a few cases, conflicting in others.

Intracutaneous Smallpox Vaccination.—Singer confirms the advantages of Leiner's method of smallpox vaccination. He injected 0.1 c.c. of a 1:40 dilution of smallpox lymph intracutaneously. The reaction is milder than with the usual cutaneous method. Fever is rare and of short duration. There are no scars after this method, which is especially important in girls.

Diagnosis of Uterine Cancer.—Adelheim discusses the characteristic signs of carcinoma in scrapings from the uterus. Great care must be taken in examination of particles from a uterus which had been treated with caustics, because of the subsequent vigorous new formation of epithelium.

Early Diagnosis of Uterine Cancer.—Gerich quotes Winter's statement that physicians are responsible for 21.5 per cent. of the diagnoses of cancer that are made too late. Bleeding after coitus, bleeding after the menopause, and bleeding during urination and defecation are important suspicious symptoms. Increased menstrual flow and hypersecretion are suspicious. He reports several cases in which the microscopic diagnosis of cancer was made, although the clinical and anamnestic findings furnished only a slight suspicion.

Shock Action on the Blood from Hypertonic Saline Solution.—Hauer injected in the morning 10 c.c. of a 10 per cent. solution of sodium chlorid intravenously, and observed the effects on the blood. The lymphocyte count was frequently lowered almost immediately, and increased after a quarter of an hour. In one case, five minutes after the injection, there were four times as many lymphocytes as before, and a little over one half of the original figure later. The neutrophils were almost always changed: younger forms appeared and lasted for several hours. Cachectic patients had only a few younger forms.

Zeitschrift für Urologie, Leipzig

17: 513-592, 1923

Hemorrhage from One Kidney. H. Schranz.—p. 513.
Physiologic Import of Uric Acid. Armbruster.—p. 516.
Etiology of Pyelitis. A. Matusovszky.—p. 517.
*Chronic Contraction of Neck of Bladder. H. Rubritius.—p. 522.
Sources of Error in Roentgenography of Ureter Calculi. H. Hohlweg. —p. 533.
Calculus in Urethral Diverticulum. H. Boeminghaus.—p. 535.
*Surgical Insufficiency of the Kidneys. E. Joseph.—p. 537.
Calculi in the Ureter. A. Zaky.—p. 541.
Casts and Albumin in Urine in Surgical Affections of Kidneys. R. Rinaldi.—p. 561.

Chronic Contraction of Neck of Bladder.—Rubritius reports a case of apparently hereditary hypertonia of the sphincter of the bladder. This condition causes retention of urine in some cases of beginning tabes and after spinal injuries.

Surgical Insufficiency of the Kidneys.—Joseph places more reliance on the anatomic findings in cases of pyonephrosis than on functional tests. If the pelvis and calices of the other kidney, as shown by pyelography, are approximately

normal, he operates even if the indigocarmin test is not satisfactory. On the other hand, elderly patients with hypertrophied prostates may die of uremia after the operation, even when the elimination of the stain had been good.

Zentralblatt für Chirurgie, Leipzig

50: 1433-1464 (Sept. 22) 1923

Resection of Clavicle Improves Function of Shoulder After Arthrodesis. M. Kappis.—p. 1433.
*Experiences with Sympathectomy. H. Kümmell, Jr.—p. 1434.
*Spontaneous Gangrene. M. Jegorov.—p. 1439.
Operative Results of Cryptorchidism. R. Paschen.—p. 1440.
Color and Growth of Hair in Diagnosis of Cancer. Zöllner.—p. 1442.

Fifty-Two Sympathectomies.—Kümmell has performed periarterial sympathectomy forty-four times in thirty-four, and resection of the cervical sympathetic ganglion, in eight cases. The operation was successful in many cases, and in no case proved harmful. Sympathectomy usually entailed a lowering of the blood pressure, a more feeble pulse and a drop in the skin temperature, which after a few hours or a few days were followed by the opposite conditions. The circulation in the capillaries seemed to improve, as was shown by microscopic examinations. Kümmel agrees with Brüning that hyperemia is one of the main factors in the favorable effect of sympathectomy in vasomotor disturbances in the extremities. But that other sympathetic functions take part in the results is shown by remission of pain and also by the remarkable fact that following unilateral sympathectomy an effect on the opposite side was observable in some cases. In trophic ulcer the results were especially satisfactory.

Changes in the Thyroid Gland in "Spontaneous" Gangrene of the Extremities.—Clinical observations and laboratory researches on a series of cases of "spontaneous gangrene" (blood pressure measurements, application of the Eppinger and Hess tests for vagotonia and sympathicotonia, estimation of the epinephrin content of the blood by the Krawkov method) have convinced Jegorov that in the majority of cases no sympathicotonia or epinephrinemia can be proved. Vascular spasms in the arteries of the foot, however, could be distinctly observed in many cases. Jegorov concluded that in most cases there was weakness of the vasodilators (vagus asthenia). To confirm this assumption, he made a biopsy of the thyroid gland. His conjectures were confirmed. The gland cells were found in the form of slender, spindle-like formations. Excess of colloid was found. Jegorov asserts that biopsy of the thyroid is a simple method of examination and that reduced functioning of the thyroid in many forms of "spontaneous gangrene" is established.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

2: 1070-1172 (Sept. 15) 1923

*Nature of Diabetes. H. A. Lubbers.—p. 1070.
*Familial Amaurotic Idiocy. G. P. Frets and J. F. A. Overbosch.—p. 1091.
*Peritonitis with Cirrhosis of Liver. F. van Oppen.—p. 1112.

Nature of Diabetes.—Lubbers, a specialist in gastro-intestinal disease, presents evidence that, in certain cases of diabetes, increasing the protein proportion of the food improved the tolerance for carbohydrate. He discusses the reasons for this paradoxic behavior, giving charts from several concrete examples, and reiterates that in every case there is a certain optimal proportion of protein with which the assimilation of carbohydrates proceeds most favorably. This suggests that the carbohydrates are assimilated or rejected according to the group of side-chains which prevails, the carbohydrates or the zymases. The carbohydrates exert an amboceptor function, allowing the zymase opportunity to split the diacetic acid, and thus giving it a chance to fasten on the protoplasm. He explains the cause of diabetes on this basis, and reiterates that disturbance in the functioning of the pancreas is not responsible for all cases of diabetes; other endocrine glands may be involved.

Amaurotic Family Idiocy.—The symptoms developed in the three brothers at the age of 3, and proved fatal in three years in all. The family was not Jewish, and the child born before and the two born since seem to be normal. Seventeen illustrations of the microscopic findings class the cases as of the Spielmeyer-Vogt early juvenile type, with severe pathologic changes in the cerebellum.

Chronic Arsenic Poisoning.—Van Oppen ascribes the remarkable findings at necropsy to the medicine the girl had been taking for asthma for about a year. The clinical course had been that of adhesive peritonitis with chronic partial ileus, bronzing, and cirrhosis of the liver. No signs of the anticipated tuberculosis were found at necropsy.

2: 1293-1384 (Sept. 29) 1923

Eijkman and the New Science of Nutrition. D. J. Hulshoff Pol.—p. 1294.
Development of Sinus Durae Matris. C. van Gelderen.—p. 1300.
Estimation of the Flocculation Reactions. M. van Riemsdijk.—p. 1309.
*Agglutination of Proteus in Paratyphoid. G. Kapsenberg.—p. 1314.
*Disturbance in Circulation in Deafness. W. P. Meyjes.—p. 1320.

Positive Weil-Felix Reaction in Paratyphoid.—Kapsenberg reports a case of paratyphoid B in which extreme agglutination of *Proteus X 19* had misled the diagnosis at first. This possibility of paratyphoid should be borne in mind in applying the Weil-Felix test for typhus.

Treatment of Deafness and Dizziness.—Meyjes quotes Schwerdtfeger's recent success in curing severe symptoms following prolapse of the brain after a cerebral abscess by fitting the man with a prosthesis to correct the prolapse. There was no return of the dizziness, tinnitus, headache, aphasia and nystagmus. This convinced him that these symptoms are due to derangement of the circulation in the region. This assumption was confirmed by pressure on the veins and arteries in the neck in this and other cases. Meyjes expatiates on the importance of this for treatment of these symptoms, and also of certain forms of deafness by means to modify the circulation.

Svenska Läkaresällskapets Handlingar, Stockholm

49: 157-208 (Sept. 30) 1923

*Research on the Vitreous Body. L. Cronstedt.—p. 157.
Place of Origin of the Glaucoma Colored Ring. J. W. Nordenson.—p. 206.

The Bactericidal Property of the Normal Vitreous Body.—Cronstedt found the vitreous body in man, horses, cattle and rabbits an excellent culture medium for certain bacteria, but for others it has a bacteriolytic action, and this can be activated. He explains how this can be done, and how it can be utilized in treatment by direct injection into the vitreous body.

Ugeskrift for Læger, Copenhagen

85: 717-740 (Oct. 11) 1923

Improved Inhalation Apparatus. C. Engelbreth.—p. 717.
*Arsphenamin Treatment of Infants. G. Gelbjerg-Hansen.—p. 720.

Intravenous Arsphenamin Treatment of Young Infants.—Gelbjerg-Hansen states that in the last five years there have been 132 children with congenital syphilis at the Bergh Hospital, and nearly all were given intravenous neo-arsphenamin treatment. The effect was excellent. In the 19 under 4 months of age, the Wassermann reaction became completely negative in 16 and nearly negative in 3. The child that has been treated the longest is now 3 years old, and has been given twenty-nine injections, to a total of 6.7 gm., and is now sturdy and strong. The children seem to develop exceptionally well; possibly from the tonic effect of the arsenic. Nine of the children died within ten days of birth, and 9 have succumbed to intercurrent disease, and one to congenital heart disease. The total mortality was 23 cases, or 17 per cent. His experience indicates that infants can bear arsenicals even better than adults. The dose of 0.075 gm. of neo-arsphenamin under the age of 3 months was increased to 0.09 from 3 to 6 and 0.12 from 6 to 12 months. After the age of 8, the dose was 0.30 and for older children 0.45 gm. There were no mishaps in over 376 injections. A vein at the elbow or neck was generally selected, with the superior sagittal sinus as the last resort. In their first attempts to use the sinus, partial necrosis of the frontal lobe and purulent meningitis developed in 2 cases but there have been no complications in any of the numerous cases since. The arsenical treatment was supplemented with a course of inunctions in the young infants.

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DIAGNOSIS AND TREATMENT OF HEAD INJURIES *

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I am presenting this subject again when so much has already been written about it because I find, after talking with others and noting what others have said, that there still remains the greatest confusion both as regards the classification and the treatment of this very frequent injury. In presenting this subject to my students I have for years eliminated as far as possible many of the theoretical considerations in order to bring out as clearly as possible a concrete, practical, simple and, I believe, logical method of dealing with these cases. The plan here outlined is the one I have followed for the last ten years; and though my series is not very large, the cases have been studied with a good deal of care and with due consideration for the methods that from time to time have been suggested by others.

Some authorities have laid great stress on the mechanism by which skull fractures are produced and on the type of fracture, whether linear, stellate, vault or basal. Though this is unquestionably of great academic interest, I have never been able to see why determining this point was of much practical value. I see no way in which it helps materially one's treatment of the patient. Treatment must be directed to the disturbance within the intracranial cavity, and classifying the type of fracture does not indicate the nature of the intracranial injury. Besides, it happens not infrequently that an intracranial injury occurs without any fracture of the skull.

The injury to the brain, both temporary and permanent, must be our principal, really our sole, consideration. There is much still to be learned on several points: namely, why certain individuals have a permanent cerebral defect after an apparently slight injury, while others with a huge cerebral lesion show no neurologic disturbance at all; why certain individuals develop epilepsy and countless others do not is equally puzzling, but I do not propose to go into those questions today.

THREE TYPES OF INJURY

There are three important questions to be determined in a head injury as regards the injury to the bone:

1. Is there a compound fracture?
2. Is there a depressed fracture?
3. Is there a simple fracture without depression?

Any one of these three types of fractures may have associated with it some intracranial injury, a hemorrhage either rapid or slow, or a contusion and laceration of the brain with edema of the brain. These may give rise to symptoms of compression, symptoms of irritation or paralysis, or so-called concussion. Symptoms of compression may, however, occur even without any injury to the skull, and this is the point we must never lose sight of, namely, that the intracranial injury is our chief concern.

The symptoms and signs arising from these various types of injury may be divided into the general and focal ones. Such signs may occur with any type of intracranial injury. Therefore, our first procedure should be to identify all these signs and symptoms, evaluate them, and try to determine the nature of the pathologic process and then decide on the treatment. To enumerate all of these symptoms would take too long and be perhaps confusing. Some are more important than others. Some are particularly valuable to enable us to decide what the nature of the lesion is and what to do for it. The most important general symptoms are changes in the blood pressure, the depth of unconsciousness, the pulse rate, the appearance of the eye grounds, and the character of the respirations. Headache, vomiting, cranial nerve palsies and irregularities of the pupils are far less important symptoms. The most important focal symptoms are convulsions, general or focal, symptoms of paralysis and abnormal reflexes. Any of these symptoms may be produced by hemorrhage, by contusion and laceration or by cerebral edema, and all intracranial injuries, I believe, fall into one of these three groups. Any one of these pathologic processes may give rise also to symptoms of compression. In the vast majority of cases our treatment is directed to relieve signs of compression, and but rarely does any treatment have to be instituted for the fracture of the skull itself. Compound fractures and depressed fractures call for operative interference even if there are no symptoms of intracranial injury.

All patients with compound fractures and all with depressed fractures, regardless of symptoms, should be operated on as soon as they have recovered from primary shock. The compound fractures should have a radical débridement, and the soft tissues should be sewed up without any drainage or, at most, a small drain of rubber tissue. The depressed fractures should be elevated even if they have no symptoms, since the local pressure of a depressed fragment may produce permanent damage to the brain. It is these patients, when not operated on, that seem very prone to develop epilepsy.

About these two conditions I feel quite certain every one is in accord. Nor can there be any difference of opinion in regard to the treatment of cases of middle meningeal hemorrhage or a progressive hemorrhage

* Read before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Nervous and Mental Diseases at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

from some other vessel. The classical picture of the typical case is too well known to need more than passing mention: the short period of unconsciousness, followed by recovery, and then succeeded by a more or less rapidly spreading unilateral paralysis with a lapse into unconsciousness, and all this accompanied by a progressive rise of blood pressure. There are two points, however, that I want to emphasize in passing. The first is that the rise in blood pressure may develop so rapidly that it can be detected only by frequent blood pressure readings. In my service it is a routine to record it every fifteen minutes. The second point is that an intracranial hemorrhage may occur without any appreciable change in blood pressure, owing to the fact that the vasomotor centers are too exhausted to react to the stimulus.

CASES THAT CONSTITUTE THE REAL PROBLEM

The large group of cases in which there are none of the three conditions just mentioned, hemorrhage, depressed fracture or compound fracture, constitutes the real problem and includes by far the bulk of all cases of head injury. These patients have contused and lacerated brains of varying intensity, from the type that merely has numerous minute punctate hemorrhages and a brain that is otherwise in good condition and not greatly disorganized, to the type of the brain that is lacerated, pulpified and fearfully traumatized.

All such contused and lacerated brains, whether the injury is severe or slight, have one feature in common: they readily and rapidly become edematous, and this edema, if marked enough, may cause an increase of intracranial pressure and symptoms of compression. This pressure does not develop so rapidly that changes in blood pressure are noted as in a hemorrhage case, for it is only rapidly increasing pressure that produces this phenomenon. At times these cases show moderate ophthalmoscopic changes; there is edema of the edges of the disk and tortuosity of the vessels. These cases show all grades of cerebral involvement, from slight mental disturbance to deep coma. They may show pathologic reflexes on one or both sides; there may be irregularity of the pupils; there may be an ocular palsy, especially of the sixth nerve; but the outstanding features of these cases are that they show no signs of a focal cerebral lesion, but all the symptoms are general signs of increased intracranial pressure. The outstanding ones are slow pulse, irregular respirations, or, in very severe cases, Cheyne-Stokes respirations, semiconsciousness or deep unconsciousness, vomiting, and bleeding from the nose, ears or throat. Occasionally there may be great restlessness, and at times jacksonian convulsions or partial or complete unilateral paralysis.

When there are focal convulsions, an exploration is indicated; and in such a case and only in such a case do I believe that a bone flap should be turned down so that the blood clots and débris that are irritating the cortex can be removed. But those other cases in which there are no focal signs are our principal concern. We must relieve the compression symptoms. There are three possible ways of doing this: (1) getting rid of the edema; (2) giving the swollen brain more room by removing cerebrospinal fluid every few hours or as quickly as it reforms, or (3) giving the brain permanently more room so that during the weeks after the accident, until the edema has disappeared, it has more room, thereby removing pressure from the medulla. Surgeons differ as to which of these methods is most desirable and most effective.

For getting rid of the edema, saturated salt solution, either intravenously or in the gastro-intestinal tract, has been used. The method was first suggested by Weed in some experimental work. Undoubtedly it shrinks the brain tremendously, and the shrinkage is due to removal of fluid from the ventricles and from the edematous tissue; but in my experience it does not seem to work well on the brain in a closed skull, though others seem to have had different experiences, notably Dowman of Atlanta. My former assistant, Dr. George W. Belcher, and I could not convince ourselves that it had much effect. Dowman reports that he gets results by purging the patients and thus withdrawing fluid. I have seen so little benefit from saturated salt solution in fracture cases that I have given up using it in these cases.

The second method of taking care of the increased pressure due to edema is by lumbar puncture. Lately this has been again urged by Jackson and others. Lumbar puncture is very generally used, both for treatment and as a diagnostic method in head injuries. I do not approve of or employ lumbar puncture in such cases either for purposes of diagnosis or treatment, for I have seen the same thing happen after lumbar puncture in head injuries that has happened so frequently from lumbar puncture in brain tumor cases—sudden death. I have seen at least two such deaths in fracture cases myself, and since that time lumbar puncture has no longer been carried out in my clinic in traumatic cases.

This question of the danger of spinal puncture is one that should be freely discussed and made clear. Many of us dislike or neglect to report unfavorable results. I have never yet spoken of this question in any gathering that a number of men have not cited such deaths, and I doubt not that there are a number in this audience who have had similar experiences. I do not feel the need of spinal puncture for diagnostic purposes because I believe it is perfectly possible to decide how to deal with a given case without knowing the character or pressure of the spinal fluid. I have no rule of thumb; but in those cases in which the patient is unconscious or remains semiconscious and has a slow pulse, I usually do a subtemporal decompression. My purpose is twofold: first of all, to relieve the immediate compression symptoms, and, secondly, to prevent late complications, particularly persistent headache and mental symptoms, which I believe may be produced by the prolonged pressure on certain portions of the brain. In other words, I make a permanent opening in the skull to give the brain more room during the period in which it is swollen and edematous.

I do not believe that a carefully performed decompression ever adds to the mortality in this condition, but certain precautions are very important. Frequently the intracranial pressure is so great that if the dura is opened without the pressure first being reduced, the cortex would protrude so rapidly that it would rupture and cause most serious damage. The pressure is readily reduced by withdrawing cerebrospinal fluid from the ventricle. This withdrawal of ventricular fluid is an essential part of every decompression operation when the dura is under tension. It sometimes happens that, when the dura is nicked for the purpose of doing a ventricle puncture, a considerable amount of blood-stained fluid under great pressure escapes, and

with this the intracranial pressure is reduced. This fluid is in the subdural space, and just where it comes from and what its character is is not certain. I have thought that it might be cerebrospinal fluid which has escaped into the subdural space through rupture of the pia arachnoid. Dr. Naffziger has drawn particular attention to the cases in which this collection of fluid is present; and they are particularly favorable cases for operation. I do not know whether there is any way of recognizing these cases before operation; I have never been able to discover characteristic features.

CONTRECOUP INJURIES AND CONCUSSION

There are two conditions that must be mentioned in any consideration of head injuries: (1) contrecoup injuries and (2) concussion. It is well known that if a blow is struck on one side of the skull and the bone does not give way at that point, the injury of the brain is found at a point opposite to the point of impact. If operation is needed in such a case, that is, if there are signs of compression or hemorrhage, the site of operation should be determined not by the location of the fracture, if there is one, but by the neurologic signs; and these will indicate that the cerebral injury is on the side opposite the impact. Lastly, regarding concussion: I have avoided using this term throughout this paper because I feel it is a misleading and undesirable term. There is no group of symptoms that is characteristic of concussion and that can be differentiated from the symptoms produced by a moderate contusion and laceration. If the cases cannot be distinguished clinically, it is quite impossible to ascribe any pathology to the condition. It would simplify our consideration of the subject if all cases hitherto grouped under this heading were classed with the contusions and lacerations. Whether there is much brain destruction or only a few punctate hemorrhages makes no difference; it still is a contusion and laceration. The only cases I am willing to call concussion are those in which the patients have been struck on the head, are stunned or have a brief period of unconsciousness, have a slightly slowed pulse for an hour or two and some headache, and then go back to work and never have any further trouble.



Fig. 1.—Section through optic nerve and disk (Weigert-Pal preparation); slightly reduced from a photomicrograph with a magnification of 8 diameters.

CONCLUSION

I should like to emphasize one point particularly, namely, that in dealing with injuries to the head we must differentiate sharply between those cases that require treatment for the fractured skull, namely, compound and depressed fractures, and those in which there are intracranial injuries. The treatment of cases of intracranial injury resolves itself practically to the control or relief of compression symptoms.

BRAIN ABSCESS

CLINICAL AND OPERATIVE DATA*

CHARLES BAGLEY, JR., M.D.
BALTIMORE

For ten years I have been accumulating data in the form of clinical notes and pathologic specimens of brain abscess, and for the past year have studied this material, gleaning facts and recording personal experiences with the hope of combining forces with other workers toward the finding of a common ground for clinicians in the management of these troublesome cases. The serious state of patients when presented for treatment, the difficulty in making decisions concerning operations, and the high mortality rate in reported cases all indicate a lack of precision which we should endeavor to overcome. Gradually increasing interest in surgical conditions of the nervous system has exerted a good influence, but a review of the literature and a survey of one's clinical experience force the admission that our cures of brain abscess today, like the cures twenty-five years ago, are more or less accidental, and in many cases merely a question of luck. In spite of the fact that the cerebral function may be entirely restored and there need be no recurrence of the lesion, that ever present phantom in tumor cases, this malady is feared, and patient and physician often abandon hope at the first sign of involvement. The present dread of the condition seems justified when we consider that the mortality rate in a series published in 1922 was 75 per cent.; it will be remembered that Sir William McEwen, in 1893, reported eighteen recoveries in nineteen patients operated on. I feel that the recovery in McEwen's series will not be equaled until our methods of diagnosis rid the surgeon of the necessity of performing eleventh hour operations in obviously hopeless cases.

"Do you believe the diagnosis could have been made earlier?" is a usual question after all operations for brain abscess. The physician then looking backward is anxious to determine whether he has deprived the patient of a chance for recovery. In the light of operative findings, one is always forced to acknowledge that more attention should have been paid to certain symptoms observed during the few days or even weeks before admission to the hospital. It is often difficult, of course, to differentiate between symptoms of the primary inflammation and those due to the brain

* Read before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Nervous and Mental Diseases at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

abscess. Fear of the presence of an abscess frequently prevents the physician from facing the extremely unpleasant situation until the appearance of grave symptoms. A headache after mastoid operation, for instance, is discounted until it becomes very troublesome and associated with other evidence of intracranial involvement. The period between initial and advanced symptoms varies from a few days to several months, but in either case the operative procedure is likely to be postponed until demanded by the patient's condition.

In looking over our histories with abscesses secondary to otitis media, mastoid and accessory nasal sinus inflammation, we find that the shortest interval between the initial symptom and the drainage of the abscess was three weeks.

Case 1.—R. W., a girl, aged 15 years, had left otitis media beginning Dec. 1, 1913. The left mastoid was drained, December 9. The condition was favorable until Jan. 7, 1914, when she had frontal and temporal headache, vomiting, and very severe dizziness and diplopia, and these symptoms were still present, January 27. The patient was stupid, and her general physical condition poor. There were ataxia of the left upper and lower extremity, and bilateral choked disk. There was no nystagmus. The temperature and pulse rate were slightly above normal. A left cerebellar hemisphere abscess was drained, January 28, but the patient died suddenly, forty-eight hours later. The course was short, but it is probable that there was a circumscribed collection of pus in the left hemisphere several days before operation, so that nothing was gained in waiting. If serious signs of compression had not appeared, the operative procedure would have been further postponed.

Case 2.—E. B., a girl, aged 8 years, had severe pain in the left ear, Jan. 11, 1914. A paracentesis was done, January 21, but as the symptoms continued, the left mastoid was opened, January 24. She had a slight chill with a sharp rise of temperature to 102.2 F., January 30. The temperature gradually returned to normal three days later, and was subnormal, February 8, at which time vomiting commenced; dizziness was first complained of, February 10. Examination by a neurologist on this date showed normal disks and coarse nystagmus to the left; functions attributed to the temporal, occipital and parietal regions were not disturbed; adiadokokinesis and some ataxia were present on the left. The diagnosis of left cerebellar abscess was made but was not concurred in by the physician in charge, as he considered the condition due to inflammatory involvement of the labyrinth. Examination, March 15, revealed marked choking of the disk, leaving no doubt about the diagnosis. The advice was not accepted, however, until the condition became very serious, March 30, when the abscess, due to staphylococci, was drained; the patient made a complete recovery.

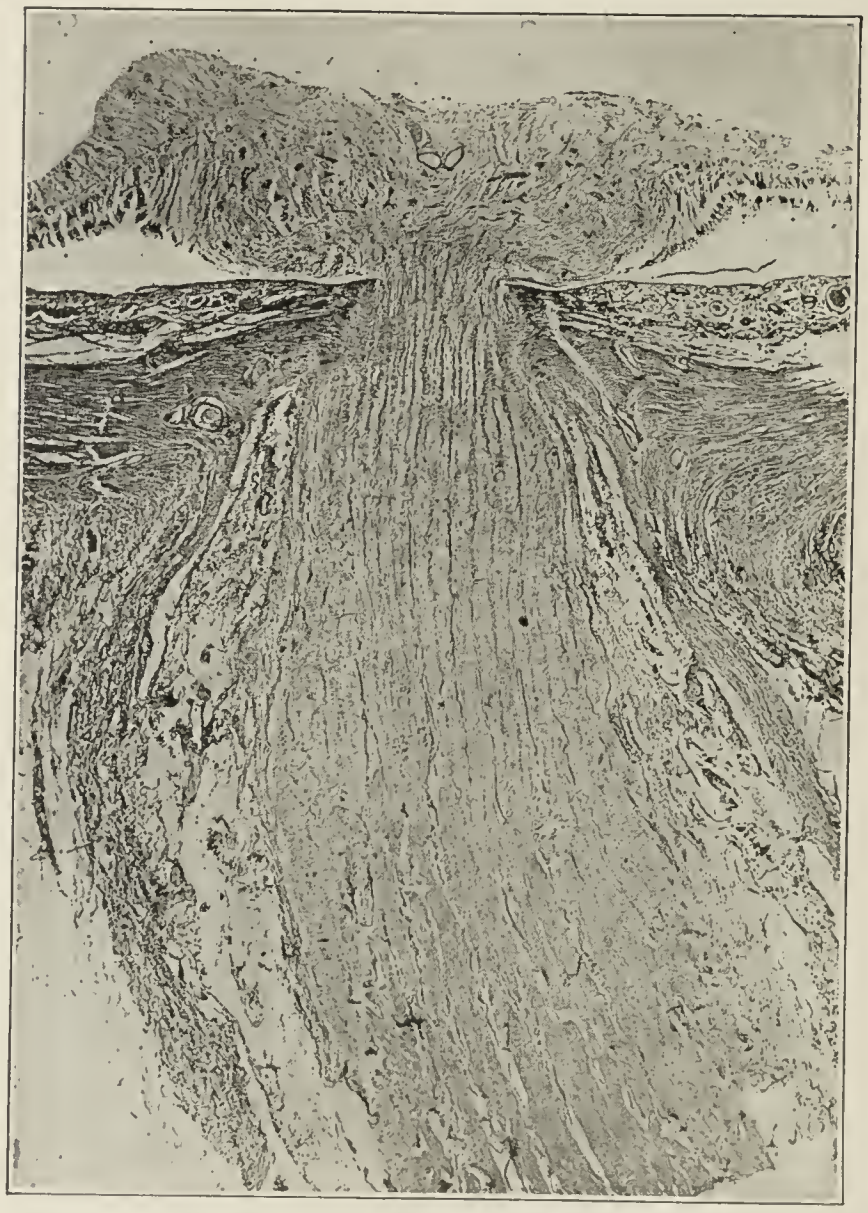


Fig. 2.—Section through optic nerve and disk (hematoxylin and eosin preparation); reduced from a photomicrograph with a magnification of 20 diameters.

This patient's life was spared because the organism producing the infection permitted delay between the time when a positive diagnosis of abscess was possible and the undertaking of the proper surgical procedure.

Abscesses must frequently be differentiated from neoplasms, encephalitis and meningitis. The history of a primary inflammation in the adjacent cavities or pulmonary suppuration is valuable, but I have been misled in tumor cases to believe that there was an abscess because of the presence of such suppuration. The rapidity of the progress of symptoms, usually greater in cases of abscess, is helpful, but this rule is not entirely trustworthy, as tumors may produce symptoms over a period quite as brief as that sometimes seen in abscess.

Case 3.—E. T. E., a man, aged 43, was seized March 16, 1915, with severe headache in the occipital region, a few weeks after a severe attack of grip. After the first headache he was free from pain for several days, when it recurred, accompanied by vomiting, dizziness, disturbance of speech, confusion of ideas, difficulty in walking, choked disk and diplopia, and within six weeks from the sudden onset of symptoms his state was very grave. Because of the attack of grip and rapid development of symptoms, the disturbance was believed to be inflammatory. Aspiration for abscess was negative; a decompression for relief of pressure was done, after which progress was very slow and a diagnosis of tumor was made. This patient died a little less than eight months after the beginning of symptoms, and the necropsy showed an extensive infiltrating glioma, involving the right frontal and temporal lobes, and basal ganglions on both sides.

The difficulty of differentiating encephalitis from brain abscess has been strongly encountered in some recent cases.

Case 4.—R. F., a man, aged 22, during the course of a mild attack of influenza suffered with severe headache which necessitated his leaving the train on which he had been traveling for twelve hours. The following day he resumed his journey, but the headache continued and was always very severe, and fourteen days later there developed weakness of the left face, weakness of the left leg, jerking of the muscles of the left shoulder and fingers of the left hand, and very slight postcervical rigidity. The reflexes were exaggerated on both sides, with ankle clonus, positive Babinski and suggestive Kernig sign on the left side; all were negative on the right. Hyperesthesia was very troublesome over the left side of the head, neck, left upper extremity and two fingers of the left hand. The ophthalmoscopic examination was negative. In the early part of the course, the pulse rate was as low as 52 a minute, and the temperature was subnormal at times. The leukocytes were 26,000, with 90 per cent. polymorphonuclears. The cerebrospinal fluid contained 14 cells per cubic millimeter.

Sixteen days after the sudden onset, under local anesthesia and through a trephine opening, an exploring needle was passed in various directions into the right parietal lobe, resulting in negative findings. The patient died forty-eight hours later, and the necropsy revealed an acute meningoencephalitis.

An interval of eighteen days between the initial symptom and death in this case gave a period quite as long as that sometimes seen in abscess cases. The negative needle exploration of the parietal lobe made the diagnosis of encephalitis possible, and certainly did no harm.

CASE 5.—G. B., a girl, aged 13 years, was admitted to the hospital, April 27, 1923, with symptoms of mastoiditis following left otitis media. A mastoid operation was performed, April 28. The postoperative course was satisfactory until May 18, when a severe convulsive seizure occurred following pain in the right arm, with marked weakness of all muscles of the right side of the body, including the face. The deep reflexes of the right side were increased; there was also definite incoordination on the right side. Headache was present, but not severe. Ophthalmoscopic examination revealed definite overfilling and slight tortuosity of the veins and slight obscuration of the margins. Moderate postcervical rigidity and a positive Kernig sign were present. A diagnosis of intracranial inflammation, probably abscess, was made. The left temporal and lower portion of the parietal lobe were aspirated, but no pus was found. The postoperative course was very satisfactory except for a convulsion three days after the operation. Examination, June 15, showed marked improvement, with negative fundi and full recovery of motor power. No elevation of temperature, disturbance of pulse rate or headache occurred.[1]



Fig. 3 (Case 8).—Appearance ten weeks after drainage of an abscess: *A*, original drain in small granulating wound; *B*, site of first negative puncture.

Similar cases have been seen, but the absence of choked disk, high temperature range and pulse rate made diagnosis possible without aspiration.

The differentiation between abscess and meningitis is often difficult and always of great importance. The effort on the part of the physician to arrive at an exact diagnosis often leads to lumbar or ventricular puncture, a most dangerous procedure when an abscess is present. In cases of suspected abscess, lumbar puncture will of course give definite information concerning meningitis; but unless the meningitis is due to *Diplococcus intracellularis,* nothing will be accomplished. To overlook this type of infection would rob the patient of a chance of recovery, but the balance of evidence should be in favor of meningitis, when the puncture may be undertaken for the purpose of confirmation. One hesitates to call attention again to the danger of lumbar puncture in patients with a high degree of intracranial pressure, but I do so because what has been accepted about lumbar puncture in brain tumor cases is often lost sight of by the physician when dealing with inflammatory conditions.

CASE 6.—H. T., a girl, aged 16 years, was admitted to the hospital with the history of a discharging ear for a number of years and an intracranial involvement for several weeks. An abscess was suspected, and with the view of gaining a full knowledge of the case before consultation, a lumbar puncture was done at 3:30 in the afternoon. At 4 o'clock the respiration and pulse rate were definitely disturbed; at 6 p. m. there was cessation of respiration and loss of consciousness, and the pulse was full and bounding. During artificial respiration an hour later, there was spontaneous evacuation of about 50 c.c. of thin, foul pus from the auditory canal, so that nothing further could be accomplished by aspirating the abscess. Five hours after the cessation of breathing, a cerebellar decompression was done with the hope of relieving what was believed to be a jamming of the medulla and cerebellum into the foramen magnum. When the cerebellum was uncovered, pressure cones were found extending from each hemisphere into the vertebral canal, a distance of 4 cm., so that it was necessary to remove the laminae of the first and second vertebrae to relieve the pressure on the medulla. The patient died twelve hours later. Necropsy revealed a firm wall temporal lobe abscess, with stalk leading from the tympanic cavity.

The symptoms present were sufficient to establish a diagnosis of brain abscess; lumbar puncture was unnecessary and only added another and more serious condition. A second danger of lumbar puncture lies in the change of cerebrospinal pressure and the likelihood of rupture of the abscess into the ventricles or the subarachnoid space.

Case 7.—Another case of interest in differentiation in diagnosis between primary inflammation and possible intracranial involvement was that of M. C., a school boy, aged 18 years, who had been operated on several years before for mastoiditis on the right side. Postoperative recovery was good and his condition caused no concern until March 28, 1923, when sudden acute pain in the right ear required paracentesis. Free drainage of the ear followed, but two days later he was dull and rather stupid. At midnight, April 1, he was seized with convulsions, which lasted for two hours until temporarily relieved by chloroform anesthesia. Examination revealed normal fundi and rapid pulse, but no evidence of focal disturbance. In the absence of symptoms of abscess, and as the illness had been so brief, an intracranial exploration was not advised. The mastoid was opened by Dr. E. A. Looper at 3 a. m., April 1. A convulsion had occurred immediately prior to the operation. Extensive necrosis of the mastoid was revealed, but the dura was not exposed. The postoperative recovery was entirely smooth and the patient was discharged, April 16. June 1, the wound was completely healed, and the patient was entirely free from adverse symptoms.

It is still too early entirely to rule out abscess in this case, but the prompt subsidence of symptoms after operation justifies the opinion that the disturbance was merely irritative.[2] In borderline cases of this type, one is often led to do lumbar puncture fearing the presence of meningitis. There must have been a very narrow margin between the extracranial and intracranial inflammation, and I am of the opinion that a lumbar puncture would have favored a meningeal extension.

Correct localization of an abscess is almost impossible if the neurologic examination must be made in a patient too dull to cooperate with the examiner. The value of an examination is well shown in the following case:

CASE 8.—R. H., a boy, aged 7 years, was operated on, in the middle of August, 1922, for left perirenal abscess, the cause of which was not determined. Postoperative recovery was sat-

1. This patient was examined eleven weeks after operation and found to be entirely free from neurologic disturbance. It is probable that symptoms noted were due to a local encephalitis which did not go on to suppuration.

2. Neurologic examination of this patient more than four months after operation (August, 1923) revealed nothing abnormal.

isfactory as concerned the abscess, and the wound healed in the usual time. One week after operation, the boy had a very severe convulsive seizure followed for some days by marked disturbance of speech; two months later there was a second but less severe convulsion, followed by slight aphasia. During the winter months his condition caused no concern, and slight disturbances, such as dizziness when stooping, were attributed to his previous illness. Early in March, 1923, he had severe headache definitely localized in the left frontal and anterior temporal regions, followed by evidence of increased intracranial pressure. Because of clouding of the left frontal sinus, the diagnosis was that of left frontal lobe abscess. A neurologic examination was made, March 25, at which time the child was restless and complained of left frontal headache so severe that at times it caused him to cry out. During intervals of pain he was cooperative, making possible a complete nurologic examination. The most important facts were high grade choked disk, slight right facial weakness, and right homonymous hemianopia. The making of perimetric charts was not possible, but by repeated examination with various objects, including a coin, the presence of the visual defect was definitely established. This alone led to the proper localization of the abscess, which was immediately drained. Forty-eight hours later there was complete relief of all signs and symptoms except hemianopia, which disappeared in three weeks.

Hemianopia was also the sole sign of localization value in Case 9, in which the original diagnosis was cerebellar abscess.

CASE 9.—R. L., a man, aged 27, entered the hospital five weeks after a sudden attack of dizziness which had continued so troublesome that it was almost impossible for him to sit up. Headache was very severe, the gait unsteady, and high grade choked disks were rapidly increasing. There was some incoordination on the right. In the left occipital region there was an area of bone necrosis, the cause of which was not determined. This area was drained, but the symptoms continued and the cerebellum was aspirated with negative results. Several weeks later he developed a right homonymous hemianopia; the abscess was located in the right occipital lobe. Although the patient recovered, there has been no improvement in the hemianopia.

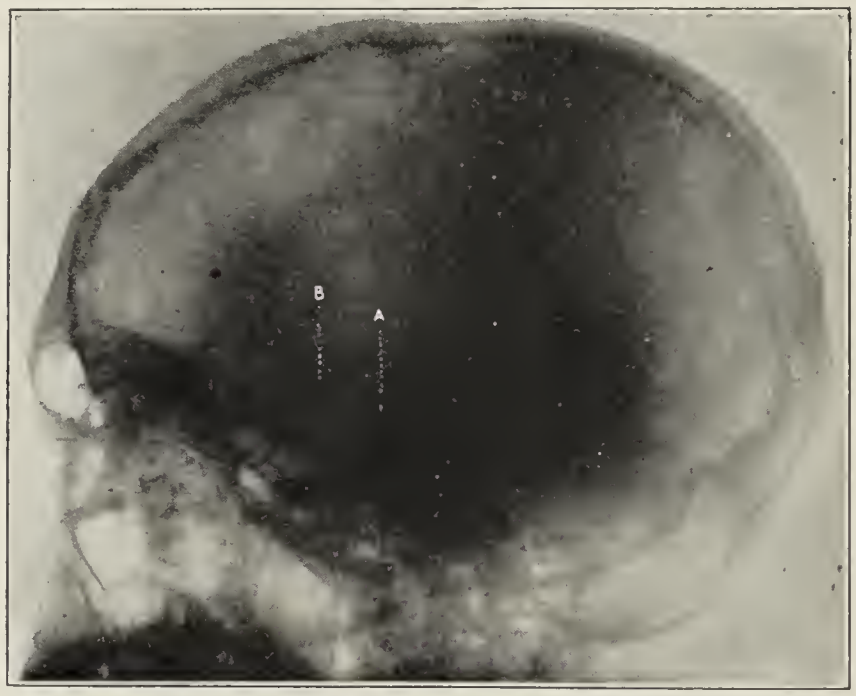


Fig. 4.—*A*, fragment of a high explosive shell, the site of a temporal lobe abscess; the fragment was later removed; *B*, a small, split rubber tube placed through the floor of the abscess into the middle fossa of the skull after section of zygoma.

CASE 10.—C. H., a man, aged 50, had hemianopia several weeks before other symptoms were observed. This was discovered while the patient with his family was on a trip through the Gettysburg battlefield, when he found that he was not seeing objects to the right of him. No attention was paid to the defect, and just before admission to the hospital there was a sudden increase of symptoms, and the patient died of meningitis. Though a necropsy was not permitted, the clinical course suggested a slowly increasing abscess, which ruptured into the ventricle, causing meningitis.

The ophthalmoscopic examination has been helpful in all cases of long duration, and in Case 1, in which the entire course was only three weeks, there was well advanced bilateral choked disk. The early appearance of choking in this case was perhaps largely due to internal hydrocephalus produced by the cerebellar abscess. In some cases of temporal lobe abscess there was no choking when the period of involvement was even longer than three weeks. An extreme degree of choking is shown in Figure 1, a photograph of the nerve head in the case of a young woman (L. F.) who had a frontal lobe abscess with definite symptoms for a period of two months. The opposite is seen in Figure 2, L. H., who had symptoms for a period of a month, when a convulsive seizure occurred and he suddenly died. Necropsy revealed a very large abscess in the left parietal lobe.

The wide difference of opinion as to method in evacuating a brain abscess indicates the chaotic state of surgical procedure directed toward the relief of the condition. There is, of course, no one method applicable to all types of cases, but it is not likely that the chosen mode in a given type should vary from a small trephine opening to a large bone flap plus ventricular and lumbar punctures. After a study of the pathologic specimens[3] and a full appreciation of the effort of the brain to surround the invading infection by a limiting membrane, I developed a great respect for the abscess wall and determined to avoid any interference with its function. Operative procedures, therefore, must prevent any breaking of the abscess wall. Large explorations through a bone flap cause distortion and sometimes even extrusion of the wall. To rid the brain of the entire cavity would seem an ideal procedure were it not for the fact that the area immediately outside the wall is often the seat of inflammatory changes, and another abscess or diffuse encephalitis may follow.

The distortion of the brain which follows decompression makes this a very bad procedure in brain abscess, as it favors rupture of the membrane, with escape of pus into the ventricle, subarachnoid space or brain tissue.

In the usual type of deep brain abscess, the most simple drainage of the cavity through a small opening as near the bottom as possible, I believe, gives the best results. The opening in the skull and dura should be only large enough to accommodate the drains, thereby preventing herniation. At the initial operation, a goodly portion of pus can be evacuated without danger of collapse of the wall, and drains should be placed well into depths of the cavity. The drainage material should be selected with a view to prevent deterioration if left in for a number of weeks, and it should be flexible to insure adjustment to the gradually contracting abscess wall. Folded rubber protective drains without gauze and split rubber tubes meet these requirements. When drainage is established in this way there is no postoperative reaction, and the care of the patient consists in changing the outside dressing at frequent intervals.

The original drains should be left in place until there is practically no pus, at which time one may feel that

3. Bagley, Charles, Jr.: Brain Abscess with Pathological Observations, Surg., Gynec. & Obst., to be published.

the abscess cavity has been converted into a small sinus immediately surrounding the drains. If these have been satisfactorily placed free drainage will begin by the fourth or fifth day. This interval is necessary for the establishment of the tract, because the original evacuation has relieved some of the pressure and a reaction must occur along the course of the drains. In one patient with a temporal lobe abscess, about ten days after the operation there was a visible ebb and flow of pus at the external opening of the drains, synchronous with the heart beat, and the flow could be increased by coughing. This seemed to indicate a normal pressure relation, as the flow was similar to that seen in a needle when the normal ventricle is punctured. With this type of drainage, all symptoms disappeared.

During the first few days, some manipulation may be necessary; but, when drainage has been established, only the outside dressings should be changed. As the wall contracts, the drains may be extruded a few millimeters a week after the first three or four weeks. To provide for this slight extrusion and to prevent injury of the abscess wall by the inner end of the drains, a mishap not to be overlooked if split rubber tubes are used, the drains should be cut close to the scalp, and dressings applied about them so as to prevent pressure on their outer extremities. Any such procedure as sewing to the scalp to prevent extrusion should be avoided.

Figure 3 shows a small granulating wound with small split tube drains leading to a large abscess of the left hemisphere in Case 8. A scar in the lower left temporal region marks the site of the first aspiration, which was negative. As this was a metastatic abscess, there was no adjacent sinus inflammation to lead one in selecting a point of drainage, so that an effort was made to evacuate the abscess at its lowest portion. When the first puncture was negative, it was evident that we were below the lesion, and the higher puncture gave positive results.

Gravity is a most important aid in drainage of abscesses, and should always be considered in the placing of drains. The inability to drain frontal lobe abscesses from the bottom constitutes one of the chief obstacles in the management of this type. This difficulty was forcibly brought to our attention in one of our fatal cases.

Figure 4, reproduced from a roentgenogram of E. M., who had a large left temporal lobe abscess, shows a rubber tube drain placed through the floor of the middle fossa into the bottom of the abscess. This point was selected for drainage because the metallic foreign body producing the abscess had entered through the malar bone, and the proximal part of the original tract was used for drainage. Recovery followed this procedure.

G. S. S. had a left temporal lobe abscess of three and one-half weeks' duration. The left mastoid also was involved, and during the mastoid operation, which preceded the abscess drainage by four days, the otologist, Dr. M. L. Breitstein, noted that the dura was exposed above. With this knowledge, and the open mastoid wound, drainage of the left temporal lobe abscess through the original incision was simple. As this abscess was due to a *Streptococcus hemolyticus,* thorough drainage with very little operative trauma was essential. The photograph reproduced as Figure 5 was made three and one-half months after the operation, and there was practically no drainage of pus, although the small protective drains were still in position.

The after-care of the patient is very much more important than the operation, and all the dressings during the period of free drainage should be done by one person, that there may be no division of responsibility in having the drains remain in position. It may be necessary to continue drainage for three or four months after the operation, but the course is otherwise simple and there is little risk of having the infection light up after an apparent cure.

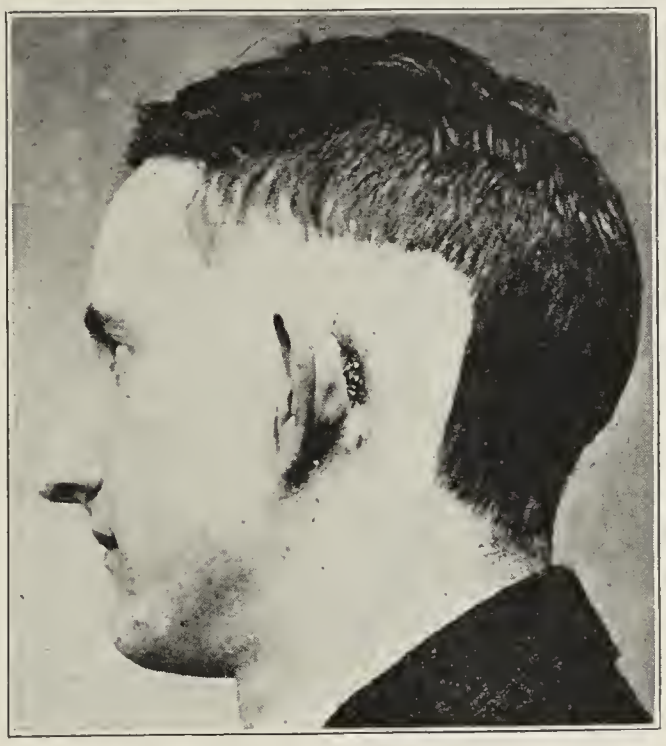


Fig. 5.—Appearance fourteen weeks after drainage of a temporal lobe abscess through the original mastoid incision. The small rubber tissue drains placed in the wound at the time of operation were still in position.

This method of drainage is not useful in cortical abscesses occurring at the site of smashing skull injuries, when liberal drainage is usually demanded. It has been shown that the protective reaction in cases of this type establishes a firm fibrous tissue barrier; and, if care is taken to avoid injury to the membrane, a very free drainage can be established without danger of herniation.

A patient had a large left temporal abscess, the result of bone fragments driven into the cortex by a butcher's cleaver, six weeks previous to the operation, which consisted in removal of the bone fragments and the filling of the cavity with rubber tissue drains. Free drainage continued for three months, and a small drain was allowed to remain for a longer period. Recovery was complete.

In another case, fibrous tissue containing the bone fragments was removed in mass, leaving an area of unprotected brain. Into this area ruptured a second abscess, the presence of which was not previously known, and a diffuse encephalitis resulted, followed by death. In an exactly similar case, drainage was done without interfering with the fibrous tissue wall, and the patient recovered.

The occasional success following extirpation of the abscess wall is due to a particular type of abscess, as shown in Case 9. The abscess was of long duration, and when right homonymous hemianopia determined its location, an effort was made to aspirate the pus. A ventricular puncture needle, passed through a trephine opening, encountered the dense fibrous tissue wall, but even with firm pressure failed to penetrate the wall. We then believed that we were dealing with a tumor, and a bone flap was turned down. When the mass was removed and held in the operator's hand, a small pedicle about the size of the radial artery was found to be patent, and the slight pressure of the hand caused pus to exude. A study of the wall of this abscess

showed it to be made up entirely of fibrous tissue, and it was classified as a pedunculated dural abscess. The postoperative result was entirely satisfactory, but I believe that we should not be led to practice this method, which entails the removal of the protective membrane and exposes the brain to any organism, and may result in a diffuse encephalitis.

It is with a great deal of interest that I sum up the results of our efforts in the twenty-four cases studied. The abscess was verified by operation or necropsy in all but one case. Of the number, three patients died without operation; twenty-one were operated on, of whom twelve recovered and nine died, giving a recovery rate of more than 57 per cent. Among the patients who recovered, three are under treatment in that drains are still in the wound, but all are out of the hospital and entirely free from symptoms. In the most recent case, the patient was operated on, May 3, 1923.[4]

The three patients not operated on who died were so seriously ill when admitted that it was evident that operation offered nothing. The condition was far advanced in all the fatal cases; in some instances meningitis was known to complicate the abscess and the operation was undertaken as a last resort.

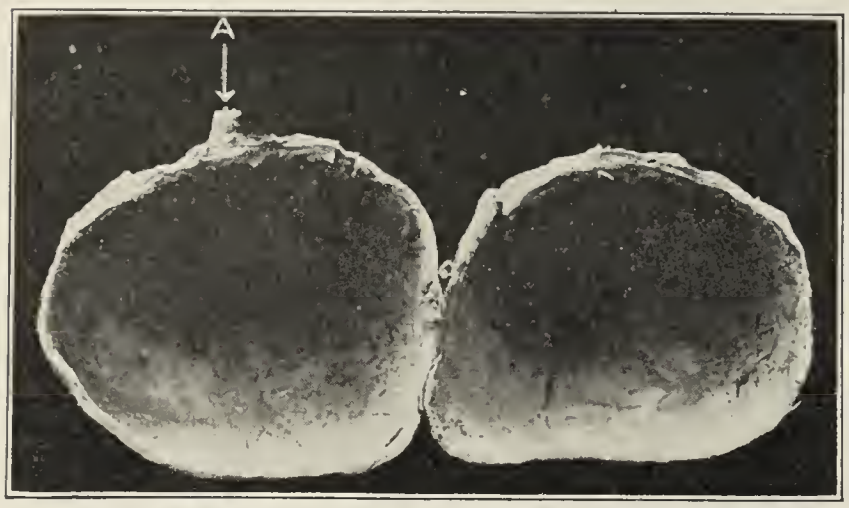


Fig. 6.—Bisected abscess sac with thin wall; *A*, pedicle forming communication between the abscess and an area of skull necrosis.

The twelve patients who recovered were seriously ill, and each at some time or other during the course caused us much anxiety.

SUMMARY

Brain abscess, still one of the most serious of cerebral lesions, requires prompt diagnosis and precision in treatment. The diagnosis often depends on some very obscure sign or symptom. Many patients, when admitted, are in such condition that errors in judgment as to time or method of procedure may determine the issue.[5]

The Latrobe, Charles and Read streets.

4. These patients were examined in August, 1923, and found free from neurologic symptoms. In two cases, the tracts were healed; the third was draining satisfactorily.

5. This work was done in the Neurological Laboratory of the Phipps Psychiatric Clinic, Johns Hopkins University, and has been greatly facilitated by the interest and cooperation of Dr. Adolf Meyer. I am indebted to Miss Cecilia Bisson for the photographs.

Special Line of Health Work Impossible.—The time is at hand when legislative bodies and the people themselves should thoroughly understand that no special line of health work can be complete in itself; that the whole problem of health and disease is so interrelated and complex that it is impossible to make satisfactory progress along one line unless it is conducted in a definite and proper relation with all others. —W. S. Draper: *Pub. Health Rep.* **38**:2716 (Nov. 16) 1923.

IMPORTANCE OF COMPLETE EXAMINATION OF THE CEREBROSPINAL FLUID

IN SURGERY OF THE SPINAL CORD*

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The diagnosis of tumor or other causes of chronic compression of the spinal cord is difficult, and the delay that usually takes place before such cases come to operation is a source of regret and sometimes mortification both to the surgeon and to the neurologist.

There are fifty cases in my own series in which the date of the initial symptom is accurately known and in which the cause of compression was determined at operation. The average time lost in this series between the onset of symptoms and the operation was two years and four months. Many of these patients had had prolonged treatment for various supposed ills under mistaken diagnoses, and not a few had had major surgical procedures, such as cholecystectomy, appendectomy and pelvic operations, before coming under my care.

In the whole series there have been fourteen cases in which laminectomy was absolutely negative. Several times in the last two years, operation has been advised against in cases in which exploration would certainly have been performed a few years ago. This has been due almost entirely to the added information obtained by the complete and systematic examination of the cerebrospinal fluid which we have been carrying out in all suspicious cases during the last four years.

In this connection I wish to touch on a few other points which may be conveniently classed as a portion of the more direct examination as contrasted with the more strictly neurologic examination.

In omitting all reference to the neurologic examination and the recent advances that have been made, it is not that I am not keenly alive to its importance. Far from it; our earlier knowledge of pathologic changes in the cord was based alomst entirely on neurologic study. In itself it is a wide field and entirely beyond the scope of this paper.

Palpation of the spine may bring out important facts, particularly in regard to the level of the suspected lesion. A localized kyphos, even if very slight, should always be noted, and is an important indication of the level of a neoplasm orginating in the spine. Limitation of motion, particularly if confined to a small extent of the spine, should not be overlooked. Scoliosis, also, particularly if sharply localized, is to be given serious consideration. Tenderness of the spinous processes or localized pain on motion of the spine or coughing is of perhaps even greater importance. None of these are new, but we all too commonly neglect this part of the examination, and during recent years I have frequently had the importance of it impressed on me. I know that this part of the examination is frequently omitted or at least not recorded, as in going over the hospital records I found no mention of the condition of the spine in about 20 per cent. of my own cases.

* Read before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Nervous and Mental Diseases at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

Recent advances in roentgenology have increased greatly our knowldge of such growths as we have under discussion, and should be used to the fullest extent. We must be fair to our roentgenologist, however, and not ask him to roentgenograph the whole spine. If we do, he gives us only a part of that of which he is capable. If we postpone the roentgen-ray examination in a given case until after we have reached a fairly definite conclusion as to the suspicious level, the roentgenologist

TABLE 1.—*Cases of Suspected Spinal Cord Compression*

Total number of cases	89
Date of onset known; lesion demonstrated at operation	50
Time elapsing between onset and operation	2 years and 4 months
Date of onset unknown; lesion demonstrated at operation	7
Lesion not demonstrated at operation	14
Cases in which operation was not performed	18

can focus there and give us a clear-cut, stereoscopic picture of great value. We must remember, however, that the neurologist, the roentgenologist and the surgeon talk a different language in speaking of levels. The neurologist speaks in terms of cord segments, the roentgenologist in terms of vertebral bodies, and the surgeon in terms of spinous processes. We should be sure that segment levels have been translated to terms of vertebral bodies before we tell our roentgenologists at what level we wish him to focus, and to terms of the spinous processes before we operate.

The most important single sign of cord compression, and by all odds the most reliable, is that evidence which is obtained from the cerebrospinal fluid.[1] This is so important that, at the risk of repetition, I shall explain the whole scheme as we have used it at the Massachusetts General Hospital.

I cannot speak too highly of the brilliant and painstaking work of Dr. J. B. Ayer in his studies on the chemistry and dynamics of the cerebrospinal fluid. He has made the cerebrospinal fluid studies in almost all the cases in my series. Every patient suspected of cord tumor is prepared for puncture of the cisterna magna, as well as for lumbar puncture, and lumbar puncture is performed. Pressure readings are made, pulse and respiratory oscillations are noted, and the patient is directed to cough and to draw a deep breath. Next, the jugular veins are compressed, and finally a small amount (usually 5 c.c.) of fluid is withdrawn. Notes are taken on the behavior of the fluid in the manometer during all these procedures. A portion of the fluid withdrawn is tested with alcohol for excess of protein. If the information obtained in these various ways gives definite evidence of block, puncture of the cisterna magna is not done. If there is absolutely no evidence of block, either chemical or dynamic, puncture of the cisterna magna is not done. If, however, there is the suspicion of block, either chemical or dynamic, the cisterna magna is punctured, combined readings are made, and fluid is drawn from both needles for quantitative examination of protein and for Wassermann examination and study of the cells. If tumor of the cauda equina is suspected, two lumbar punctures, one usually between the twelfth dorsal and first lumbar vertebrae and the other between the fourth and fifth lumbar vertebrae are performed. Occasionally, sacral puncture with injection of physiologic sodium chlorid solution into the epidural space, with observation of dynamic changes in the lower manometer, is also deemed advisable. Everything is arranged beforehand to carry out all of these procedures, if necessary. In this way, all the information required can usually be obtained at one sitting.

As suggested above, I feel that the presence of marked increase of protein in the lumbar fluid, and absence of rise in pressure on jugular compression (the so-called Queckenstedt test [2]) is evidence of complete block. Ayer has found this to be so in all cases of complete block as shown by double puncture in our earlier series. Such cases are almost always far advanced, and irreparable cord damage is frequently to be expected. In such cases, cistern puncture is unnecessary. Cistern puncture is of great value to us in this type of case before the evidence of complete block by lumbar puncture alone has been proved, and it is of even more value in the early case. In the early case, evidence of complete block is frequently absent, and it is in this group of early doubtful cases that we must of necessity look for our best surgical results. We feel that a slow change in pressure in the lumbar manometer, as compared with rapid change in the cistern manometer, is dynamic evidence of partial block; and that a difference is shown by quantitative examination, in the amount of protein present in the fluid taken from the cistern and lumbar needles is chemical evidence of partial block.

The danger of cistern puncture has been emphasized at many gatherings of physicians, and has, I think, been overestimated. It is beyond question a delicate procedure, one requiring skill and judgment, and one that should not be attempted without repeated trial on the cadaver. In careful hands it is a harmless procedure, as is shown by Dr. Ayer's compilation of nearly 2,000 such punctures without a fatality.[3] We would not think of using it in some minor ailment, but spinal cord tumor is such a serious and obscure disease that we must use this additional diagnostic measure.

It is easy to see that, if double puncture is performed in the presence of a small tumor or a tumor without enlargement of the cord, there may be no dynamic block. Such was the case once in our series, a metastatic carcinoma of the medulla of the cord; no dynamic block was demonstrated, but a distinct difference in the chemical tests was shown. We feel that such a result should be counted as a positive, since a chemical difference is, to our minds, a more delicate test than evidence of dynamic block.

It is difficult to analyze the results of a test such as this without permitting the personal equation to creep in, but I have attempted to do so with these results:

TABLE 2.—*Suspected Cord Compression: Series 1919-1923*

Double puncture positive, lesion proved		31
Double puncture unnecessary in view of recent knowledge	22	
Double puncture necessary for positive diagnosis	9	
Lumbar puncture positive, double puncture omitted; lesion proved	7	
Double puncture negative; no lesion found		8
Double puncture positive; no lesion found		2
Double puncture negative; lesion found		1
Total number of double puncture cases		42

Positive though incomplete evidence of block was shown in two cases in which no lesion was found.

1. Ayer, J. B.: Spinal Subarachnoid Block as Determined by Combined Cistern and Lumbar Puncture, with Reference to Early Diagnosis of Cord Tumor, Arch. Neurol. & Psychiat. **7**: 33 (Jan.) 1922.

2. Queckenstedt: Ztschr. f. Nervenh. **55**: 325, 1916.

3. Ayer, J. B.: Personal communication to the author.

In a rather typical case of cord compression, at the first double puncture no evidence of block was shown. About ten days later, partial block appeared and was proved by both dynamic and chemical tests. Following an exploratory operation, which did not reveal anything, this patient showed some evidence of pressure at a higher level. At no time was her general condition good enough to warrant further exploration. She died eight weeks after the operation. Necropsy was not allowed.

A patient had had multiple neurofibromas for many years. During the last year, there was increasing evidence of compression of the dorsal cord with a fairly definite girdle sensation at the fourth dorsal level. Six weeks ago, an exploratory operation was performed, which revealed nothing of interest. I still hope that the lesion causing the partial block in this case will finally be demonstrated.

In a case of long duration, with definite periods of remission of symptoms, double puncture was performed during a stationary period, and was negative. Exploration revealed an extradural cyst of unknown origin which caused no local deformity of the cord. There has been little or no improvement in this case since operation, two years ago.

My own belief is that positive evidence of block, dynamic or chemical, whether obtained by double puncture or by lumbar puncture alone, is almost conclusive evidence of a compressing lesion. The two "error" cases cited above were not proved either by necropsy or subsequent history, and to my mind they may well represent a surgical failure rather than an error in diagnosis. Lack of evidence of block does not necessarily prove the absence of a compressing lesion. In nine such cases a lesion was found but once, and the other eight have been proved, either by necropsy or the subsequent course of the disease, to be degenerative lesions. In view of these facts, I am willing to accept absence of block as presumptive evidence of the absence of a compressive lesion.

I had hoped that the quantitative determination of protein in the lumbar field alone, after sufficient experience, would give us enough evidence of block so that we might do away with double puncture. Unfortunately, this is not the case, for results have shown that we cannot rely on that single test alone. Chemical evidence of block, if slight, can be rated as positive only in case a difference is shown in the protein content of fluid from above and below the lesion. Protein increase in connection with a corresponding increase in cellular elements points to some inflammatory change. Without this cellular increase, the cause may be uncertain. Four out of eight cases of negative exploration or double puncture in which the process has since run the typical course of a purely degenerative lesion have shown a small but definite increase in protein. One case, as yet an unsolved problem, in which a negative exploration was made, showed xanthochromic fluid at both the cistern and the lumbar needle, and no dynamic evidence of block.

The tumors of the cauda equina must be taken as a group by themselves, as their cerebrospinal fluid picture is very peculiar, in that many of them show a marked increase in protein at the lumbar needle with a lesser increase at the cistern needle, and without any evidence of dynamic block. There have been seven such tumors in our series. Six have shown the sharp increase in protein above the tumor, mentioned above. The seventh (one of our early cases) was not carefully studied, and only fluid from below the tumor is recorded. Two showed definite block on differential lumbar puncture, and one gave no fluid at the lower needle, the canal being obliterated by tumor. I can find no mention of this peculiar behavior of cauda equina tumor in the literature, and am indebted to Dr. Ayer [3] for this interesting observation.

If I were asked to name the conditions that most closely simulated cord tumor, I should answer, without hesitation, multiple sclerosis, the degenerative lesions associated with pernicious anemia, and localized degenerative myelitis. These may now be excluded by complete examination of the cerebrospinal fluid, and in pernicious anemia we have, in addition, much more definite knowledge of the blood picture than was the case a few years ago; and in multiple sclerosis the progressive cases usually show a characteristic spinal fluid.

We now come to a different phase, namely, the level of the lesion. I have already spoken of the part that multiple puncture may play in tumors of the cauda equina, but it is a long distance from the cisterna magna to the tip of the cord, and between these points Dr. Ayer and I have not ventured to attempt spinal puncture. We realize that it has been done,[4] but feel that there is great danger of damage to the cord.

Selling [5] has advocated the injection of a dye into the lumbar space as a guide at the time of operation, and this, I think, must be of distinct advantage in complete block. I have had no experience with it, but intend to use it on the next suitable case. Dandy [6] has given us injection of air into the cerebrospinal space, and by it has demonstrated the presence of cord compression. In my hands this has not been as satisfactory as injection of air into the ventricles, owing to the passage of air by a partial block and to the technical difficulty of showing the air by the roentgen ray.

We have been looking for some nonirritant fluid, opaque to the roentgen ray, for use in the spinal canal, but as yet we have not found it. We are told that Sicard [7] has perfected such a fluid and is using it successfully. If this new fluid proves to be really successful in a considerable series of cases, one of our greatest difficulties, that of determining accurately by laboratory methods the level of a given lesion, will have been solved.

Finally, there are certain new procedures to be followed at operation which will give us additional information if we do not come down directly on the new growth. Sellings' procedure has already been mentioned, and should prove of value. I should like to point out a few more. When the laminae are first removed, the epidural fat should be carefully inspected. Absence of this layer suggests local pressure, and is an accurate sign of the presence of tumor. Absence of this sign, however, does not mean absence of tumor. When the dura is opened, the cerebrospinal fluid pours out and is taken up with gauze. After this is done, and the fluid level has been noted, pressure on the jugular veins will cause a rapid rise in the cerebrospinal fluid if the dural opening is above the block. If it is below, there will be no rise; if it is below a partial block, the rise will be gradual.

I feel sure that the important recent advances in the surgery of the spinal cord are largely those relating to diagnosis, and that, of these, the complete study of the cerebrospinal fluid is the most important.

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4. Marie, Foix and Bouttier: Rev. neurol., 1914, p. 315. Marie, Foix and Robert: Rev. neurol., 1913, p. 712.
5. Selling, Lawrence: Localization of Spinal Cord Tumors, Arch. Neurol. & Psychiat. **8**: 27 (July) 1922.
6. Dandy, W. E.: Bull. Johns Hopkins Hosp. **33**: 190 (May) 1922.
7. Sicard, Robineau and Lermoyez: Rev. neurol., 1923, p. 158.

LOCALIZATION OF BRAIN TUMORS

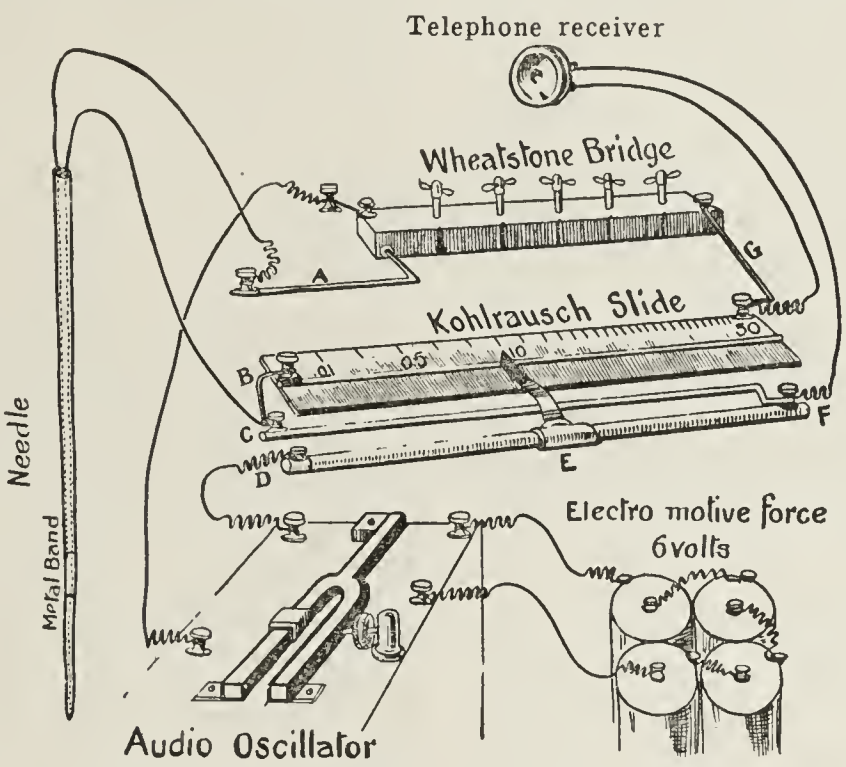
BY DETERMINATION OF THE ELECTRICAL RESISTANCE OF THE GROWTH *

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That different tissues produce a varying resistance to the passage of an electric current has long been known. Waterman,[1] Crile [2] and others have tested out the electrical conductivity of tissues and shown that there is a difference in conductivity between normal and fatigued tissue and between healthy and pathologic tissue. Meyer and Schlueter [3] used the degree of resistance of the brain tissue to an electric current as a means of differentiating between normal brain and tumor tissue at the operating table. It is this application of the resistance of tissue to the passage of an electric current that is of particular interest.

Meyer and Schlueter report one case in which the resistance produced by the tissue in a proved gliomatous tumor was less than one half that of the normal brain. We have duplicated their apparatus and, from observations on twelve cases at the operating table and over sixty tests on animals, on fresh and formalized brains, we can substantiate their assertions as far as gliomatous tumors are concerned. In every case in this series, either at the operating table or at postmortem, gliomatous tissue produced an electrical resistance from a third to a half lower than that of the surrounding normal brain.

Through the kindness of Prof. A. W. Goodspeed, of the Department of Physics of the University of Pennsylvania, we were able to reproduce the apparatus used. The instruments employed are simple. An audio-oscillator of about 1,000 frequency is operated by four dry cells in series. This is inserted as one of the arms of a Kohlrausch bridge, which has a wire 25 cm. long with a sliding contact. The method of use is similar to that of the Wheatstone bridge. A low resistance telephone receiver forms another arm, the unknown resistance being that of the tissue in which is inserted the special electrode. This electrode is in the form of a needle of glass or hard rubber in which are buried two fine iridoplatinum wires carefully insulated from each other. One wire passes to the surface through the tip of the needle; the other is connected to a platinum band on the surface of the needle, 1 cm. below the tip. It is the resistance of the tissue to the passage of the current between these two poles that is determined. The resistance in the needle circuit is determined by inserting a known resistance in ohms on the bridge. The sliding contact is then moved up and down the wire until the high-pitched hum from the oscillator, as heard in the telephone receiver, reaches a minimum. When this occurs, the resistance to be determined is read on the scale under the wire. This apparatus is sufficiently accurate for clinical use, and is easily adapted to the operating room.



Apparatus: *A*, *C*, connections for needle circuit; *F*, *G*, connections for telephone; *B*, connection between slide and needle circuit; *E*, sliding contact.

Experimentally, we tested the electrical resistance of normal brain and different areas of the same brain in a series of ten dogs. The resistance of all these was approximately the same, and the motor cortex, frontal lobe and occipital lobe showed no appreciable difference in resistance. As observed by Meyer and Schlueter, we found that the cerebellum is more resistant than the cerebrum, and the spinal cord more than either. We have had no opportunity clinically to compare the cerebrum with the cerebellum.

In a series of thirty formaldehyd-hardened brains containing proved gliomatous tumors, the gliomatous tissue consistently produced a resistance from a half to two thirds less than that of adjacent normal tissue. Formaldehyd-hardened tissue gives a much higher resistance than living brain tissue, and the resistance of the preserved normal tissues vary from specimen to specimen; but in every instance the gliomatous tissue is strikingly less resistant to the current. In fifteen brains containing certified endotheliomas, the resistance of the tumor was a half less than the normal tissue in twelve, in two from a third to a quarter less, and in one the resistance was approximately the same as the surrounding tissues.

In a series of eight normal brains tested immediately on removal from the body and before preservation, there was found but little change in the resistance on passing from the surface to the deeper areas of the brain. We have also noted this fact in five cases in the living brain, but the change was so slight that it in no way affected the reliability of the test. A slight increase in the resistance may be noted on passing into the lentiform nucleus, internal capsule or thalamus.

In two cases of hydrocephalus, the resistance of the ventricular fluid was determined. There is very little difference between the resistance offered by the cerebrospinal fluid and that of tumor tissue. In testing the resistance on entering the ventricle, there was a drop in the resistance closely comparable to that obtained on entering a tumor. At the operating table, we have had no opportunity to compare tumor resistance with that of the ventricular fluid, but we feel that there is as marked a drop in resistance on passing the needle into the ventricle as on entering tumor tissue.

In formaldehyd-hardened brains containing areas of softening or hemorrhage, the area of the lesion pro-

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* From the Surgical Service of Dr. C. H. Frazier, University Hospital.

* Read before the joint meeting of the Section on Surgery, General and Abdominal, and the Section on Nervous and Mental Diseases at the Seventy-Fourth Annual Session of the American Medical Association, San Francisco, June, 1923.

1. Waterman, N.: Bioch. Ztsd. **133**: 535, 1922.
2. Crile, Hosmer and Rowland: Am. J. Phys., February, 1922, p. 458.
3. Meyer and Schlueter: Zentralbl. f. Chir. **18**: 1827, 1921.

duces somewhat less resistance to the current than the normal brain, but not as much change as tumor tissue. There has been no opportunity, clinically, to compare the resistance of these different lesions with that of known tumor tissue.

It must be remembered that the resistance of the entire circuit containing the needle is being estimated. Changes in the material, or in the caliber of the conducting wires, or in the distance between the electrodes on the needle, will produce changes in the resistance. But whether the resistance found to be constant for normal brain tissue is higher or lower than those we obtained, the variation in the resistance on entering pathologic tissue will still appear. It is this comparative estimation of the resistance on passing from normal to tumor tissue that makes the procedure of value. The instruments should be standardized against an electrolyte of known constant resistance before use. We found that tenth normal hydrochloric acid was about as resistant as the normal living brain, and did not change its resistance to the passage of the current over long periods of time. When tested against this standard, the apparatus now in use showed a resistance of from 200 to 250 ohms.

At the operating table we have used the apparatus in twelve cases. Of these, five were gliomas. In every case, the resistance of the tumor was only half of that of the normal brain. One was a sarcoma, and in this, the resistance between normal brain and tumor coincided closely with that of the gliomas. Of the endotheliomas, the resistance was lower than the normal brain tissue in four and higher in two. We are at a loss to provide an explanation for this difference in tumors of the same pathologic structure. But the resistance differed so markedly from that of the surrounding brain that we had no doubt but that the needle had passed from normal to abnormal tissue. In three cases, the cortex was normal in appearance when the dura was opened. The presence of a subcortical growth was determined by passing the needle into the brain substance, and noting the sudden drop in resistance when the tumor was encountered.

Table 1.—*Clinical Results and Resistance*

Case	Type of Tumor	Normal Brain Ohms	Tumor Ohms
1	Glioma of frontal lobe	550	200
2	Glioma of motor cortex	525	250
3	Glioma of frontal lobe	900*	400
4	Glioma of temporal lobe	500-600	250
5	Glioma of occipital lobe	550	250
6	Sacroma of temporal lobe	550	250
7	Endothelioma of frontal lobe	550	750-809
8	Endothelioma of frontal lobe	550	250
9	Meningeoma of frontal lobe	550	350
10	Endothelioma of frontal lobe	550	300
11	Endothelioma-sarcoma of parietal lobe	550	250-300
12	Endothelioma of motor cortex	850*	1,600
		Hydrocephalus Cortex	Needle B Ventricle
1		850	250
2		850	250-300

* Needle B.

REPORT OF CASES

A short summary of the operative notes on the three cases of subcortical growths may be of interest.

Case 1.—An exploratory operation was performed for frontal lobe tumor. When the osteoplastic flap was turned back, the dura proved normal on inspection and palpation. The dural flap was reflected, but the cortex was normal on inspection, and palpation did not reveal any positive evidence of a new growth. The frontal lobe was carefully raised, but was apparently normal at all points. The electrode was then introduced into the frontal lobe downward and forward. When both contacts of the needle were just buried in the tissue, the resistance was 550 ohms. On advancing the needle 1 cm. farther, the resistance remained unchanged. At a depth of three centimeters, the resistance suddenly dropped to from 200 to 250 ohms. The cortex was then opened along the track of the needle, and a large tumor arising from the dura, near the anterior clinoid process, was found and removed. The pathologic diagnosis was endothelioma.

Table 2.—*Measure of Resistance in Fresh Brain, Eight Hours After Death, to Show Changes at Different Depths of Penetration and Various Areas*

	Needle B Penetration Cm.	Resistance
Frontal lobe	1	3,250
	2	3,500
	3	3,500
	4	3,600
Temporal lobe	1	3,500
	2	3,200
	3	3,500
	4	3,700
Parietal lobe	1	3,300
	2	3,500
	3	3,500
	4	3,700
Occipital lobe	1	3,400
	2	3,600
	3	3,600
	4	3,750
Cerebellum	1	4,000
	2	4,250
	3	4,250
	4	4,250
Internal capsule		3,700
Thalamus		3,600
Ventricle		1,200

Case 2.—An exploratory operation for tumor in the motor cortex was performed. When the bone and dura were turned back, the cortex appeared normal. The areas of the motor cortex were identified by stimulation with a unipolar electrode by noting the reactions in the extremities. The chief symptom had been convulsions of the jacksonian type in the face and hand. The resistance electrode was therefore passed inward through the cortex in the facial area. With both contacts of the needle just buried, the resistance was 550 ohms. When the needle was advanced 0.5 cm. farther, the resistance fell suddenly to from 225 to 250 ohms. A transcortical incision was made in this area and to this depth, but apparently no tumor was visible. It was decided that the resistance estimation was incorrect, and the wound was closed. At a later date, the patient succumbed. Examination of the necropsy material showed that there was a very soft infiltrating gliomatous tumor in the area below the transcortical incision. This, then, confirmed the correctness of the reduction in tissue resistance.

Case 3.—An exploratory operation was performed for frontal lobe tumor. When the osteoplastic flap and dura were turned back, the cortex was normal on inspection and palpation. Inspection of the tip and side of the frontal lobe, and the tip of the temporal lobe, revealed no pathologic changes. The needle was therefore passed inward through the cortex. When both contacts were just buried, the resistance was estimated to be 550 ohms. At a penetration of 3 cm., the resistance had risen to 600 ohms. When the needle was advanced about 0.5 cm. farther, the resistance fell at once to 250 ohms. The frontal lobe and the tip of the temporal lobe were then raised and reflected inward, and a large, red, granular tumor was found growing from the wing of the sphenoid and the temporal bone at the base of the brain. This tumor mass bled so freely that no attempt was made to remove it. A radium needle was inserted, and a specimen removed for pathologic study. The diagnosis was sarcoma.

COMMENT

In a case in which the neurologic signs are sufficiently definite to warrant exploration, without the necessity of incurring the risk attendant on a ventriculogram, it may be found that, on laying back the osteo-

plastic flap and dura, the operator is confronted by an apparently normal cortex. The question of the justification of a transcortical incision becomes important. The passage of a small needle through the cortex to determine the electrical resistance of the tissues beneath is a relatively simple procedure. It is under these circumstances that this test has proved of especial value.

We feel that the electrical resistance of tissues may be estimated by the simple apparatus described with sufficient accuracy for clinical work.

Tumor tissue, particularly gliomas, produces much less resistance to the passage of an electric current than does normal brain tissue. Endotheliomas produce a different resistance to the current than does normal brain tissue, but this resistance may be higher or lower than that of the normal brain tissue.

3600 Walnut Street

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SACHS, BAGLEY, MIXTER AND GRANT

DR. HOWARD NAFFZIGER, San Francisco: I agree with Dr. Sachs that there is nothing much to be said about the treatment of compound depressed fractures. One point on which I am somewhat at variance with him is the matter of brain edema. When I might use that term I refer only to those cases in which the fluid increase is fixed in the tissues of the brain and not to other cases in which there is free fluid, not fixed, and which are quite different from edema. In cases of edema with a dry surrounding brain showing, probably, punctate hemorrhage or something worse in the manner of hemorrhages, I have finished a decompression unable to institute drainage, and felt that the operation was inadequate. My feeling about these traumatic head cases is that the ones in which we are able to give relief surgically are the ones in which we can remove something—fluid, blood or slightly blood-tinged subdural fluid. At any rate, the removal of something is usually essential. I have not yet had a case of head injury in which I thought the bone flap operation would be preferable to a subtemporal decompression, which also permits a fairly good exploration of the motor region and also of the frontal and occipital lobes. I am particularly glad to know of Dr. Sachs' experience with spinal puncture. It will certainly make me more cautious, but in a considerable number of spinal punctures done after head injuries I have not seen trouble following. We have been doing decompression for the relief of pressure less and less. The cases in which we have felt that this has been of value have been the middle meningeal hemorrhage cases and extrameningeal hemorrhage cases of other types, which are not very common. I feel that we have been unable to get blood which showed a subdural or extra-arachnoid accumulation of fluid. It is an impression not based on actual figures that posttraumatic symptoms do not occur as frequently in the cases in which operation is performed as in those in which operation is not performed. There is only one other point in connection with the signs for operation; that is, regarding the low pulse pressure. I cannot agree that those are the signs that determine pressure. I think most of us feel that it depends on which way those signs are going. One case may show a pulse pressure of 50 with stupor, and I think many of us would feel with those symptoms increasing that operation was necessary. If the symptoms are decreasing or at a standstill I think one can feel that he can wait. As I listened to Dr. Bagley, the fact was brought home to me that, in the main, the outlook depends largely on what we encounter in our exploration. It certainly gives one a feeling of hopelessness when the needle plunges into an abscess and pus is encountered before a capsule is found. The favorable abscesses are the encapsulated ones. I agree with Dr. Bagley as to the general principles of their treatment. In two cases of abscesses with meningitis, recovery ensued after drainage of the abscess. Evidently when the organisms reached the spinal fluid they were of low virulence and there was only a feeble reaction to them. As to Dr. Mixter's paper, I should like to add my support of the Ayer puncture as being very useful. I have had no fatalities and, except in one case, did not get into the cisterna. One of the things Dr. Ayer indicated is that even without cistern puncture we can gain a great deal from lumbar puncture alone. I have followed the scheme that Dr. Mixter has outlined not only of pressure at the falx but of jugular compression. I feel that we can secure very accurate information from that and rely a little less on the combining with cistern puncture, though in some cases the clinical knowledge cannot be gained in any other way than by the two punctures. Dr. Grant's work is new to me. I hope to learn more of the method and to have an opportunity of watching his use of it.

DR. GILBERT HORRAX, Boston: Dr. Sachs does well to emphasize the fact that it is not so much the fracture that we are concerned with as the brain injury. Like Dr. Naffziger, I have not seen any deleterious results in lumbar puncture in cases of fractured skull, which is quite contrary to the experience that exists in cases of brain tumor. Lumbar puncture is a great asset in certain types of fractured skull, preferable to operation. My experience with the hypertonic salt solution has been somewhat favorable as an aid in getting rid of the cerebral edema. Dr. Bagley certainly has had some excellent results with brain abscesses. To have a mortality as low as his is certainly commendable. It is in abscesses with a thick capsule that our best results can be obtained. One method of technic, which applies in a certain number of cases, is worth while. It is well known that leaving a drain in a brain abscess without having it pushed out is a very difficult thing to control. If there were a way of inserting a drain and having it stay in, the method that I am about to outline would not be necessary; unfortunately, it is just such a problem that exists. In abscesses within 2 or 2.5 cm. of the surface, the sac may be isolated without an attempt at complete removal. The sac may then be split open fairly wide, an inch or an inch and a half, and its edges grasped with clamps. Then with a needle and silk the edges may be sewed to the dura or subcutaneous tissues, thus marsupializing the abscess and turning its contents permanently to the outside. In the case in which we applied this principle complete recovery ensued. The intracranial pressure gradually extruded the sac of its own accord and it came off as a slough, healing and then going on in the usual way. Dr. Mixter has done an excellent piece of work. Combined puncture is certainly a method that is important in certain cases. Dr. Grant has given us a very important and interesting new method.

DR. LAURENCE SELLING, Portland, Ore.: Dr. Mixter has called attention to the fact that two points must be taken cognizance of in the diagnosis of spinal cord tumors: first, the existence of compression, and, second, the level of the lesion. As to the existence of compression, there had been little advance in our methods of diagnosis from the time of the early neurologic studies until the recent work of Dr. Ayer, about three years ago. It is a matter of considerable interest that the facts developed and the technic of the procedure as originally presented by Dr. Ayer have required no revision, and have received few additions. His original conclusions and his original technic have been tried and approved by every one who has used the method as he recommended it. As he has gone on with the work, he has found it possible to diminish the frequency of resort to combined puncture. In many cases in which he first used combined puncture, he now finds lumbar puncture alone, with study of the Queckenstadt sign, adequate for diagnosis. When the Ayer technic gives evidence, both hydrodynamic and chemical, of complete block, we have positive evidence in the differential diagnosis as between degenerative lesions, on the one hand, and obstructive lesions on the other. When we find partial block, we are not quite so sure of our ground. It is here that further studies are going to add to our knowledge, and probably enable us to recognize the existence of cord tumor, and resort to operation much earlier than has been possible in the past. As to Dr. Mixter's second point, the level of the lesion, we are not so fortunately situated. He mentioned a number of aids to localization—Dandy's air injection, the

injection of indigocarmin before operation, as I have suggested, and the use of iodipin. All of these may help. All of them deserve further study. But in the meantime we must place our chief reliance on a careful clinical neurologic study of the case. In reference to Dr. Grant's paper, I had the opportunity of seeing the method used in Dr. Frazier's clinic, and to observe the striking change that occurred when the electrode passed from normal into gliomatous tissue. This may prove of great help. When the neurologist makes a localizing diagnosis of brain tumor, and the surgeon on exploration uncovers normal tissue, we are always left in a state of doubt. Are there pathologic changes below the surface? The method described by Dr. Grant may help us to solve the problem, and at the same time avoid unnecessary transcortical explorations.

Dr. James B. Ayer, Boston: Referring to Dr. Mixter's paper, thorough examination of the spinal fluid has been considerable value in determining tumors and other things, but mostly tumors, compressions from various causes and also certain types of chronic meningitis, which must be differentiated by neurologic studies. We have been able to bring to operation very much earlier tumor cases especially, and, what is more important still, we have been able to spare a number of cases of degenerative cord lesion that would otherwise have been subjected to operation. The third point, which I think the clinicians will appreciate, is this: We are in the habit of saying to a patient, "I think you have a tumor." The patient, being a paraplegic, is left with the opinion that it is, perhaps, a myelitis and nothing will be found. You say: "I think an operation is wise. I would do it in my case." The patient refuses operation because we cannot say anything definite. Now we can say to the patient: "We know there is a compression of your spinal cord; we do not know whether it is a tumor that we can take out, but we know there is compression." In every instance the patient has accepted operation. That is a small point, but it is valuable because we supplant definite for indefinite knowledge. We are not now operating when cases do not present the picture we think they ought to. I want to thank Dr. Mixter very much for his cooperation. We have cooperated splendidly in this work for the last three and one-half to four years, and I hope we shall continue to cooperate as surgeons and neurologists must if they want to get ahead in diagnostic work.

Dr. Ernest Sachs, St. Louis: I am glad that Dr. Naffziger brought up one point that I did not make clear. If a case of intracranial injury shows signs of improvement by clearing up from my consciousness or semiconsciousness, of course, it should be left alone. I follow that plan also. I agree with him also that the most satisfactory cases are those in which one can remove fluid or blood; and the prospect of a good result is certainly greater and these cases are certainly much more satisfactory to the surgeon. Regarding his point about the inadequacy of decompression, I should like to say this: I realize fully that subtemporal decompression, or even a bilateral one, is not the ideal way of relieving the pressure; that is, it may not be sufficient. Dr. Naffziger brought out the point that the only way of relieving the pressure of a tight cast is to take it all off. The only way, therefore, of relieving tight pressure on the head would be to take the entire top of the head off, and none of us advocate that.

Dr. Charles Bagley, Jr., Baltimore: I am glad Dr. Horrax mentioned marsupialization of the sac. A certain amount of fibrous tissue in the form of dural shreds is carried in with bone fragments, and acts as a most valuable barrier against infection. In superficial cortical traumatic lesions in which the infection is not severe and the trauma not too great, the proliferation of this tissue will completely surround the abscess, so that the capsule extends from the rim of the torn dura in the form of a marsupialized sac. This is the type of abscess that requires a larger opening than a simple puncture; but care must be taken to prevent extrusion of the sac. I do not know whether Dr. Horrax means to marsupialize deep abscesses; if so, I do not agree; for, I am afraid, such a procedure would cause destruction of the abscess wall.

Dr. William J. Mixter, Boston: Dr. Ayer and I fully realize the importance of diminishing the number of combined punctures if we can, and we feel that we have done so in the past. We have done a much smaller number, as shown by the fact that we have had seven cases in which we based the diagnosis on lumbar puncture alone. I think that a further advance is coming in this particular procedure. The question of the Séquard method is something we must investigate carefully, because that will give a definite mechanical level, which we have needed because the neurologic level sometimes is at fault.

Dr. Francis C. Grant, Philadelphia: We brought this work here realizing that it was new and that the series of cases is small, and hoping that it would be taken up by the other men who are interested to prove whether it is really of value, as we believe it is.

RÔLE OF TRAUMA IN THE ETIOLOGY OF ORGANIC AND FUNCTIONAL NERVOUS DISEASE*

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The subject of the possible causal relation of trauma to the development of organic and functional nervous disease is thorny and difficult, yet of first and ever increasing importance. It concerns the general practitioner fully as much as the specialist, if not, indeed, more. There must be scarcely any medical men who have had experience of the question of trauma in compensation cases but are able to quote decisions in law which have been admittedly unsatisfactory from a medical and scientific point of view. The reason is that medicine is not an exact science, at least by no means wholly so; hence we must expect (1) great variety of opinion, and (2) occasional conflict of medical evidence. I say occasional; yet when, in reality, has a case involving the question of trauma come before the courts in which medical men have not appeared to be diametrically opposed to each other? One can understand differences in opinion and in interpretation, but how can we reconcile differences in observed facts? Too often has this medical conflict provided material for the cynic; too frequently have the representatives of our profession allowed themselves to be influenced, not by the objective medical facts of a case in dispute, but by the standpoint of the particular side on which they happen to be called. A man famous in the Edinburgh medical school of the middle of last century was Sir Robert Christison, the medical jurist, and of him Lord President Inglis, the greatest Scottish judge of the same period, said: "The professor went into the witness-box not in the spirit of a partisan, but in his proper office as a medical jurist, to aid the court and the jury in the elucidation of truth, and in securing the ends of justice." Were this, the ideal attitude of the medical and scientific witness, adopted more generally, there would be fewer unseemly disagreements on the part of those of us who are asked to express medical opinion in court cases.

In fairness, it must be admitted that the absence of authoritative medical pronouncements in the matter of trauma is greatly to be deplored. There is no body or compendium of medical doctrine to assist the medical

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witness and, through him, the court. There is no unanimity in respect of terminology and definition. The least experienced and least knowledgeable medical man may find the same weight attached by the court to his evidence as to that of others much better able to express considered views. For the guidance of the profession, for the attainment of some semblance of accord, opinion expressed by a commission of accepted experts is the first desideratum. Contradictory statements cannot be avoided unless and until the physician has a thesaurus of neurologic doctrine to which he may turn and from which he may learn.

The extreme importance of the subject is evidenced by the enormous amount of litigation to which it gives rise. The total of money involved is almost incredible. According to figures recently given in the *Lancet,* quoted from a book by J. L. Cohen on Workmen's Compensation in Great Britain, the "total cost to the country of accidents and industrial diseases is from 36 to 48 million pounds a year," a colossal if in any way approximate figure. Litigation is incessant. Cases are constantly being taken up as a speculation by the less reputable kind of legal man, while, it need scarcely be said, as long as human nature is as it is, efforts will be directed to making capital out of infirmities. Erichsen, whose right to speak with authority none ever denied, declared that "an extensive experience in railway accidents will probably impress the observer more with the ingenuity than the honesty of mankind." As we shall see, and as I shall be able to prove by figures, the greater the chance of remuneration, the higher the percentage of "accident" cases.

WHAT CONSTITUTES AN ACCIDENT?

Trauma has been defined as "an abnormal condition of the body caused by external injury"; an accident, as "injury by some unexpected and external event." The original (English) Workmen's Compensation Act of 1897 was silent as to disease; the cases coming under it were defined as constituted by "personal accident arising out of and in the course of the employment" of the individual concerned. The amending act of 1906, however, included certain scheduled diseases arising out of the employment, such as lead, mercury and phosphorus poisoning, miners' nystagmus, telegraphists' cramp, and many other ailments. These are all now regarded as morbid conditions for which compensation is due. From the legal point of view, therefore, in respect of workmen's compensation, the distinction between accident and disease is vanishing altogether. I need scarcely indicate how unsatisfactory this is from the medical point of view, however, and how it tends to etiologic confusion. A few legal decisions may be quoted by way of illustration:

A woolsorter contracted anthrax, and this was held to be an "accident" arising out of employment; the "accidental alighting of the bacillus in the eye" was taken to be equivalent to the accidental squirting of molten metal or some poisonous liquid into the eye.

Owing to the breakdown of a pump, a miner had to stand in icy cold water for some hours; pneumonia supervened and led to death, and this illness was considered an "accident" arising out of employment.

On the other hand, a fever hospital attendant developed scarlet fever, but failed in his claim for compensation due for this "accident," because he could not prove a definite association of his illness with his employment.

Again, a workman inhaled sewer gas and developed enteritis; he claimed that his inhalation of the bacillus was an "accident," but the court held that sewer gas was not unexpected in a sewer, and the claim failed.

I know of a case in which a man fell off a ladder when at work and developed a hemiplegia; medical evidence showed without any question that the case was in reality one of encephalitis with hemiplegia, yet it was held to be an "accident" that the "germ" of encephalitis attacked the man while he was working.

If, then, these and similar illnesses are to be accounted "accidents" within the scope of the act, etiology becomes meaningless. It can always be maintained, apparently, that the arrival of pathogenic organisms in the tissues of the body is an "accident," arising out of external injury, and our ideas on causation are, at a stroke of the legal pen, rendered obsolete.

WHAT IS MEANT BY THE CAUSE OF A DISEASE OR MORBID CONDITION?

As medical men, we believe in the doctrine of specific causes. We know the rules laid down by Koch in regard to the bacteriologic origin of certain diseases. It may be taken as a good general rule that the more apparent causes for a disease, the less likely is any one of them to be specific. As a single illustration, take disseminated sclerosis. Because we do not yet know its actual cause, etiologic speculation has ranged, as a fact, from the inhalation of pollen to an affaire du cœur! Once the cause is discovered—we may be near it at last—these varying hypotheses will all go by the board.

The whole tendency of modern research is oriented in the direction of specific causes, both in nervous and in mental disease; hence it is shown from time to time that many "causes" are clearly spurious. No one now but believes that syphilis is the essential and adequate cause of tabes and of general paralysis. Nevertheless, we continue to suppose that some causes, not truly causative, are contributory. We suppose that the mere arrival of the spirochete in the neuraxis is not sufficient; we are taught that strain, stress, exposure, chill, other infections, trauma, etc., cause the specific organism to "light up" by reducing resistance; but such views are often unsatisfactory and always more or less speculative. In any case, it introduces an element of confusion, in my opinion, to claim such factors as contributory causes, if only for the fact that in innumerable instances the diseases mentioned develop without any such additional etiologic elements. Neurosyphilis is no more and no less an infective condition than typhoid, pneumonia, diphtheria or dysentery, but I am not aware that—to take the factor that now concerns us—typhoid or dysentery is ever considered traumatic in the sense in which the term has been applied to cases of neurosyphilis. For none of these infections will we consider trauma a cause, in the real meaning of the word, and there is no reason why the same argument should not apply to an infection of the nervous system.

In the case, therefore, of organic and of functional nervous disease, we ask ourselves whether the rôle supposedly played by trauma has not been greatly exaggerated, whether there is not a true cause for tumors and degenerations as there is for the infections to which the nervous system is liable, and whether there can be any real differences, etiologically speaking, between nervous disease and that of any other of the somatic systems. Do we hear as much of a blow on the chest producing bronchitis, of a blow on the abdomen producing appendicitis or malignant gastric disease, as we

do of a knock on the head causing a stroke, epilepsy, cerebral tumor, or what not? I have never been able to understand why it is alleged so persistently of the nervous system in particular that trauma initiates morbid neural processes, and can only imagine that our ignorance of much nervous etiology gives rein to speculation in a way scarcely applicable in respect of other parts of the body.

I do not, of course, attempt to deny for one moment that accidents such as a fracture of the skull, a fracture-dislocation of the spine, wounds and penetrating injuries of many different kinds will give rise directly to organic nervous symptoms; I am on the present occasion restricting myself to nervous disease in the ordinary acceptation of the term, and I maintain that in proportion as etiologic knowledge augments, such disease will be ascribed with less and less frequency to trauma as a vera causa.

TRAUMA IN ORGANIC NERVOUS DISEASE

1. *Cerebral Tumors.*—Cerebral tumors are often attributed to blows on or other injury to the head. In his monograph on the subject, Mendel cites four personal cases and two from other sources in which the question of a possible connection between a head injury and the development of an intracranial neoplasm arose. None of them is entirely convincing, though they are quoted as fulfilling the rules laid down by that author as follows: (*a*) The individual concerned must have had no symptoms before the accident; (*b*) other etiologic factors must be wanting; (*c*) the injury must have involved the head itself; (*d*) a certain relation in time (not specified) must exist between the injury and the commencement of the tumor symptoms, which subsequent operation or necropsy must not prove to have been erroneous.

Fortunately, the recent war has provided us with an experiment on a colossal scale, since in its course head injuries have occurred by the thousand. It is already nine years since gunshot wounds of the head began to come under my professional notice, and I have been seeing such cases ever since, as have many others. Abundant time has elapsed for the appearance of consecutive intracranial neoplasms; yet out of very many scores of personal cases I have never seen a single instance. The only practical conclusion is that the assertion that trauma may originate cerebral tumors is unjustified and obsolete.

A recent case from civil life may now be given:

A man, a laborer by trade, one morning fell about 2 feet on a scaffolding, and landed across a plank, which bruised the inside of his left thigh at its upper part. He was shaken, but resumed work an hour or two later, though in the afternoon he felt sick. The same evening he had two fits, which were definitely rightsided and jacksonian in character, beginning in the right side of the face, and temporarily interfering with speech. Progressive weakness of the right side ensued some weeks later, and after about three months he was admitted to hospital under my care, when the general symptoms of cerebral tumor, and the localizing ones pointing to a left frontorolandic site, were definitely present. Operation was undertaken but the patient's condition was not improved, and he died shortly afterward. At the necropsy a left frontal glioma was found, occupying mainly the posterior ends of the second and third frontal gyri.

The widow sued the employers for compensation, asserting that the tumor was caused by the fall of 2 feet on to the crutch. In court two medical "experts" declared that a fall on the coccyx might by concussion and dispersion of spinal fluid cause or initiate a morbid neoplastic process in the brain, but were unable to cite any experience objectively proving their speculation. On behalf of the employers I gave the argument from war experience as indicated above, and had the satisfaction of finding that the court appreciated the force of the contention.

2. *Disseminated Sclerosis.*—Trauma is not infrequently stated to be one cause of disseminated sclerosis; but since all the present available evidence suggests that the disease is infective in origin, it cannot possibly be assigned to trauma, in the sense of external injury. It is gratifying to find in the recent investigation of this affection by the Association for Research in Nervous and Mental Diseases that Dr. Lewellys F. Barker excludes trauma as a true cause, though he says injury may on occasion "light up" a latent case, or exacerbate one that is already manifest.

The evidence of the war, further, is quite opposed to any traumatic etiology. At Fulham Military Hospital, of some 900 consecutive neurologic cases seen by me from 1916 to 1918, only two were examples of disseminated sclerosis, and in neither had the patient been wounded, or blown up or gassed, or undergone any other injury. The relative rarity of cases of the disease during the war has already been commented on by more than one observer, yet nervous trauma was extremely common. Since 1919 I have had charge of a pensioners' clinic at the National Hospital, Queen Square, London, and hundreds of cases of war nervous disease have passed through my hands. Among these have been only six cases of undoubted disseminated sclerosis, and of the six the following are the only two in which a possible connection with trauma comes up for consideration.

F. R., fighting at Cambrai in 1917, was blown up and gassed at the same time. He had no mask on at the moment, was badly burned over the back, and was unconscious for a brief period. Three months later, when in a military hospital in England, he began to notice unsteadiness in his legs, and to have some slight defect in articulation. The legs became numb and cold for a time, but he had no bladder difficulty. When he came under observation in 1923, he showed the usual symptoms of disseminated sclerosis in moderate degree.

While there is no history of any previous symptom, and no evidence of the action of any other factor than that of trauma, it is clearly inadmissible to hold that trauma caused the disease; the most to be said is that it may have "lit up" a latent morbid process. In hundreds of instances of identical trauma (gassing and concussion) no such organic disease has made its appearance.

W. S., was in the Royal Air Force during four years of the war. He had crossed the English Channel some 200 times in the course of his flying experiences. Later, toward the end of the war, he was shot down in air fighting on three separate occasions, sustaining numerous minor injuries apart from the shock of crashing, but was never rendered unconscious. Four months after the last of these, he first complained of double vision and of tremor in the limbs. On his coming under observation in 1923, the symptoms and signs of disseminated sclerosis were exhibited in moderate degree.

Here again it must be allowed that the injuries, such as they were, can at the most have done no more than possibly accelerate the development of the disease; it might, indeed, be contended with perfect justice that they played no part at all in its evolution.

In view of the rarity of the disease amid the welter of war injury, one is naturally more than ever disinclined to allow its association with trauma in civilian life. Nevertheless, as every neurologist must know, such cases make their appearance at intervals. Two personal instances may be selected by way of illustration.

N. B., a young woman in domestic service, was cleaning a large and heavy mirror over a mantelpiece when it somehow became detached and fell on her right forearm, breaking as it fell. She felt a good deal of pain in the arm, which was bruised but not cut. In the course of a day or two numbness followed the pain, and weakness of the muscles of the hand and forearm. The case was diagnosed as hysterical dropwrist by the physician under whose care she came, but as the condition, though improving, did not clear up entirely, I saw her about six months after the accident. I was then struck with the fact that, on grasping, the wrist deviated unmistakably to the radial side, indicating relative weakness of the ulnar groups—an organic symptom. The patient was put on steady treatment and kept under observation. About six months later, an extensor response was obtained on the right side, and three months afterward on the left. In a word, the subsequent course of the case proved the disease to be disseminated sclerosis.

I will admit candidly that in this case I have always felt hesitation in excluding the rôle of the initial trauma, for the condition continued without a break to the development of definite organic signs; yet here also it is impossible to believe that a single trauma of the description given can by itself cause a progressive nervous, disseminated disease. That scattered islets of sclerosis of a quite peculiar kind in the neuraxis can be *caused* by a blow on the forearm is a proposition that cannot be entertained. Nevertheless, if we dismiss the hypothesis of mere coincidence, we are compelled, in fairness, to suppose that a latent organic nervous disease was "precipitated" by a relatively severe peripheral injury, incapable though we may be of framing any reasonable theory as to how such an injury might act.

I was consulted not long ago in the case of another young woman who happened to be sitting in a public restaurant when part of the metal framework of a revolving electric fan on a shelf above her became detached and fell right on her head from a height of about 6 feet. She undoubtedly received a severe shock and fright, was dazed and faint, and later on in the day was sick. She was at no time unconscious, but complained of much headache and giddiness. Her hat had kept her head from being cut, and there was no obvious evidence of direct injury.

When she was seen in consultation some weeks later, she presented unequivocal signs of disseminated sclerosis. This was surprising enough. The case, fortunately, was settled out of court, for as the girl declared she had been perfectly well up to the time of the accident, it would have been impracticable to dissociate it and the symptoms she complained of when examined. Nevertheless, medically and scientifically speaking, it would be impossible to prove that, in the absence of other etiologic factors, the injury caused the disease.

This case aptly illustrates the difficulty confronting the physician, since, as the patient was not examined by a neurologist before the accident, we do not in fact know that objective signs could not then have been found; further, when monetary compensation looms in view it is a trait in human nature to suppress anything that might tend to reduce the amount; and again, as spontaneous remissions occur in the disease under discussion, so do spontaneous exacerbations.

3. *Neurosyphilis, Including Tabes and General Paralysis.*—For years, controversy has raged on the question of tabes and general paralysis arising from or originated by trauma, but not, I venture to think, quite so much now as in the years before the discovery of the spirochete in the cortex and in the spinal fluid of neurosyphilitic cases. Various cases are on record, however, in which an apparent connection between trauma and the appearance of symptoms of general paralysis, for example, is sufficiently impressive.

In the absence of spirochetal infection no one, I suppose, will now admit that trauma, per se, can cause neurosyphilis in any of its manifestations. Can it actually initiate a morbid process on the part of the spirochete, in the sense that the latter otherwise would have remained forever latent and innocuous? Put thus, the question can scarcely be answered in the affirmative; yet who shall say that a direct negative represents the only possibility? It is the sort of question difficult either to prove or to disprove. Take a recent case:

A guard on one of our English railways was apparently in normal health, so far as ability to perform his duties was concerned, when his train, standing on the line, was run into by a second train and he was knocked from one end of his van to the other. There were no visible signs of injury of any kind when he was examined the same evening, complaining of "shock." He resumed his duties very shortly after, yet within a month was found to be making mistakes, to be waving his flag wrongly, and to be getting confused and incapable of explaining his erratic behavior. Further precise investigation revealed the early symptoms of general paralysis, and within six weeks of the "shock" he was under certificate in an asylum.

I submit that in this case we cannot say that the injury did anything whatever by way of aggravation of an already existing but unrecognized condition, or by way of "lighting up" a morbid process which was in abeyance. In view of the innumerable instances of the development of general paralysis without any trauma, we cannot suppose the speculation to have any degree of likelihood. In view, further, of the known remissions and exacerbations of the malady, the onus should rest on those representing the patient to prove, in a compensation case, that the condition was not due to an ordinary exacerbation from within. The modifications arising in the course of general paralysis are the result of intrinsic, not extrinsic, factors.

The so-called time factor is doubtless a somewhat elastic element in an alleged traumatic case. My contention is that unless it can be proved that a commencement of the symptoms of general paralysis, or of tabes, actually arises within forty-eight hours, say, of an accident, or that they are augmented within the same period, on the evidence of the same physician that has seen the patient on previous occasions, it is illegitimate to argue for a causal relation between accident and symptoms. In genuine trauma of the nervous system, do we not agree that the symptoms arise practically at once? Even in the case of delayed traumatic apoplexy, on which so much has been written of a contentious nature, is it not agreed that there is continuity of symptoms, however slight they be, from the very time of the injury? Since there must be some limit to the interval of time elapsing, after an alleged injury, ere symptoms appear, I suggest that in the case of organic nervous disease it should be restricted at the widest to one week. The neuropathologist is well aware that morbid histologic processes make their appearance at a much shorter interval after a genuine trauma than one week.

4. *Other Organic Nervous Diseases.*—Time will not allow me to deal with other organic nervous conditions, such as syringomyelia, progressive muscular atrophy, and ascending neuritis, in various clinical examples of which it has at one or other time been claimed that trauma has originated the process. The same claim has been made during the war in respect of traumatic dementia praecox and other forms of mental disease.

My general standpoint is that I am unable to understand how a single trauma can cause a progressive neural degeneration or abiotrophy; still less, of course, a progressive neural toxidegeneration. The former appears to me a physical impossibility. We are ignorant, it is true, of what the "span of life" of a neuronic system is in terms of biochemistry; we do not know under what circumstances the spinal degeneration of a Friedreich's case makes its appearance. But I am convinced that we should seek the solution in the biochemical field of intrinsic neural "life and death," and not glibly assign progressive degenerative processes to the action of a "shock"; even assuming a concussion so bad as to produce, on a small scale, fragmentation of myelin, we know, as a histologic fact, that scavengering takes place very promptly and that neural regeneration is equally sure. This being so, the view that trauma may on occasion cause neural abiotrophy of a progressive character is in my opinion opposed to the facts of neuropathology.

TRAUMA IN EPILEPSY

It has been asserted almost universally that trauma may cause epilepsy; I have never been able to understand why. Nothing is more common than for the physician to be told that the epilepsy of his patient is the result of a fall from a perambulator or of some other blow on the head. Were this, in actual fact, the real sequence of events, then every child should be epileptic, for which of them has not at one time or another had a knock on the head? The persistence with which epilepsy is attributed by parents to a fall or blow on the head—often trifling enough, too—is amazing, in face, it may be, of an overwhelming history of family nervous instability.

War is the great experimenter. In a recent communication, Dr. Aldren Turner has given figures derived from the ministry of pensions in England. Of 18,000 cases of gunshot wounds or other injuries of the head, occurring in warfare, some 800 patients have subsequently developed epilepsy; i. e., rather less than 5 per cent. The extreme importance of these figures will at once strike the reader. The percentage is approximately the same, according to Turner, as was observed in the Franco-Prussian war. Another set of figures is given by Holmes and Sargent: Of 610 cases of gunshot wound of the head, observed from two to eighteen months after the injury, thirty-seven, or 6 per cent., developed epilepsy. This percentage, without doubt, is much less than might have been expected if trauma, per se, has in reality the effect too readily attributed to it by parents and, indeed, by many medical men.

By way of amplification, it should be remembered that thousands of individuals with severe war injuries to the head—with fractures of the skull, laceration of brain tissue, paralysis, and all the rest of it—have not developed epilepsy in any shape or form. I associate myself entirely with Turner when he insists that "it is difficult to avoid the conclusion that something more than local tissue alterations is requisite for the production of the seizures of traumatic epilepsy, and the determining agent, in my opinion, is an inherited or inborn constitutional predisposition to nervous instability and epilepsy."

It seems difficult to come by statistics as to the family history and individual make-up of those soldiers who have suffered from traumatic epilepsy the result of war injuries; R. G. Gordon has obtained evidence of a neuropathic predisposition in 75 per cent. of his cases; in a series of my own, from the Pensioners' Clinic at the National Hospital, Queen Square, I have found similar evidence in 80 per cent.

We are not, therefore, justified in admitting more than that in a small minority of war cases of traumatic epilepsy the injury seems to have initiated the disorder in individuals previously healthy and unimpaired by heredity; in the great majority, the existence of the constitutional factor cannot be ignored or explained away; finally, the percentage of epileptic production among the head-wound cases is itself so small that it is abundantly evident that the predisposition is much more important than the head injury. So clear is this that we should be chary of certifying that a head injury has "caused" traumatic epilepsy in any single case; if the predisposition is obvious, its importance should be emphasized; and only when we have exhaustively scrutinized the family record with a negative result can we allow trauma per se to be the causa causans of the condition. In this respect I wish to direct attention to the frequency with which asthma is reported in family histories otherwise supposedly normal.

A young officer in the army consulted me recently because of three "attacks" he had had in the last six months. From the description given it seemed certain that they were epileptiform in character. I found no sign of organic nervous disorder or of rise of intracranial tension. The "attacks" were attributed by the parents to two tosses the patient had taken when steeplechasing; in the first instance he had fallen on the back of the head and been unconscious for two or three minutes. A roentgen-ray examination showed no definite changes in the cranial vault. I was assured confidently that the family history was in every way normal, but on further questioning I elicited the fact that the patient's father had suffered from asthma for years, and so had a paternal uncle.

To my way of thinking, this strain of neurosis was much more significant than the trauma, such as it was, and I cannot say that the latter caused anything at all. The interval between the second "toss" and the first fit was several months. While it would be equally difficult to prove that the head injury had no connection with the subsequent fits, the conclusion is that the experiences of war cases must lead us to attach prime causative significance to the constitutional make-up of the individual.

TRAUMA IN FUNCTIONAL NERVOUS DISEASE

When we approach the subject of the rôle played by trauma in neurosis formation, we enter at once on thorny ground. We find ourselves lost in the confines of a vast and inchoate group of morbid affections variously described as traumatic neurasthenia, traumatic neurosis, traumatic hysteria, etc. There appears to be neither etiologic, symptomatologic nor even terminologic agreement in respect of this class.

As a single illustration, we may select the question of spinal concussion. In a fairly long experience, I have seen all sorts of conditions classed as spinal concussion, or, alternatively, as "spinal irritation," whatever the

term may mean. It is well that those who give certificates to state that their patient has sustained spinal concussion should have a real idea of what the symptoms are and to what extent, once more, the war has assisted us in this connection. Concussion cannot heighten function; it must reduce or inhibit it. In cases of genuine spinal concussion, we find diminution or loss of power in the legs, with diminution or loss of the deep reflexes, involvement in greater or less degree of the organic reflexes (rectal, vesical, sexual), but with little or no impairment of sensory conduction. The plantar reflexes may be also abolished pro tem, or may be either in flexion or in extension.

Corroboration of this clinical picture has been obtained experimentally by various workers, notably by Alan Newton, who made a series of experiments with Sir Victor Horsley, in 1913, on cats and apes. The spinal theca was exposed by preliminary laminectomy, and on it were dropped, from different heights, various weights. So sensitive is the spinal cord when no longer protected by the vertebrae that the effect of the dropping of a 50-gm. weight from a height of only 1 cm. was sufficient to abolish conduction in the cord. It produced no visible effect on the surface of the cord, yet, pathologically, small hemorrhages were to be found usually in the basal region of the posterior horns or in the posterior gray commissure, with scattered swellings of axis cylinders and disintegration of myelin sheaths. Newton was able to show experimentally that sensory conduction may remain after concussion that has quite abolished motor conduction. Compression for short periods, (two minutes or more), produced by gently placing a 50-gm. weight on the cord of a cat, brought about the same clinical and pathologic result.

When, therefore, we speak of spinal concussion in connection with accident cases, we can use the term advisedly only if the clinical picture is approximately as described above. I venture to say that in many of the traumatic cases of civilian life, facilely certified as spinal concussion, the diagnosis is erroneous.

A young man fell down an elevator shaft, 15 or 20 feet. He was badly dazed but not unconscious, and by good luck no bones were broken. Taken to a hospital, he was not detained; his reflexes there were noted as being present. He complained of pain in the back, at about the level of the last two dorsal vertebrae. When examined the same evening by his own physician, and again the next day, his chief complaint was of this pain. Eventually he claimed compensation and was duly certified to have had spinal concussion and to be suffering from the effects of it—this was not less than about four or five months after the fall. When I examined him subsequently, my questionnaire was directed to the points of importance outlined above, and I ascertained that there had been no reduction or abolition of power in the legs originally and no impairment of the rectal, vesical or sexual mechanisms. It was known, further, that the deep reflexes were active within an hour of the fall. In these circumstances I gave it as my opinion that there had been no spinal concussion and that therefore the patient could not be suffering from the effects of it.

If the injury is of so mild a character as not to give rise to recognizable signs of this kind, we have at present no certain means of detecting minimal degrees of commotio objectively. We do not know that they give rise to symptoms of a pathognomonic kind; we cannot point to any one, unequivocal, objective sign as of constant value. As far as my experience goes, I cannot distinguish an organic basis slight or minimal in degree from a nonorganic basis in respect of motor weakness and changes in the reflexes, though it is usually simple enough to determine the hysterical or neurasthenic factors otherwise. Thus, the statement that the knee-jerks, for instance, are "exaggerated" is valueless if it is thought to aid in differentiating between organic and functional cases.

There is, however, another aspect of the question that deserves fuller consideration than it commonly receives. Assuming a slight degree of spinal concussion or commotio, a moderate amount of myelin fragmentation, even minute hemorrhages, we must not forget that within a comparatively short time this tissue débris is scavengered away, while active regeneration is a normal reparative process. It follows as a perfectly definite histologic fact that, in slight or minimal degrees of spinal commotio, any tissue change in the organic sense that has occurred will vanish in due course and the cord be histologically normal again. But what of the patient's symptoms? What of the subjective complaints?

It stands to reason that, the presumed effects of the spinal trauma having been countered by reparative processes, the cause of the symptoms is no longer in existence. Yet every clinician knows how, months and years after a slight "spinal shock," the patient will still complain of the same old pains, weakness, shakiness and what not. It is obvious, then, that in many instances the condition changes definitely in the course of time; it is perpetuated by other pathologic mechanisms altogether than those originally implicated. If, to give the patient the "benefit of the doubt," we admit the possibility of mild spinal shock not amounting to concussion, we are clearly prevented from allowing its effect to continue quite indefinitely. It is, in fact, actually the case that in innumerable instances the accident is recovered from, yet the symptoms remain. In Sir John Collie's words, such "claimants do not suffer from the accident but from the memory of it." It is the bounden duty of the medical examiner to insist that there is, in the cases of which I am now speaking, a time limit for the duration of any symptoms presumably due directly to minor spinal commotio. The conclusion to which consideration of all the circumstances drives us is that a neurosis supervenes and that in the great majority of cases this is prolonged by (1) conscious and (2) unconscious motives.

That a process of this description usually occurs has long been recognized; the Germans speak of a *Rentenkampfneurose*—a "fight-for-compensation" neurosis. The war has shown us a thousand times how the genuine effects of concussion, cranial or spinal, pass off eventually, with a complete return to the normal; but if they persist, in the absence of evidence of objective change, it may be taken as an infallible rule that the condition has ceased to be one of concussion.

1. *Conscious Motives.*—Possibly some have a natural hesitation in admitting that human nature is so constituted as to be prone to make financial profit out of personal trouble; yet the fact remains. Every experience points in this direction. Let me give the figures of three recent railway accidents on one of our biggest English railway systems.

Accident, January, 1915. Number of passengers traveling in the two trains that collided, 693. Number of deaths, 14. Number who actually received visible and obvious injuries, e. g., wounds, fractures, true concussions, 54. Number claim-

ing compensation for "shock," "neurasthenia," etc., who were medically examined, 275. Number who claimed similarly on account of "shock," and whose claims were settled without medical examination, 180. Total claims, 523, out of 693 passengers; total claims for "nerve shock," almost 66 per cent.

Accident, October, 1922. Number of passengers traveling in train, 73. Number of deaths, none. Number of actual and visible injuries, 3. Number who claimed compensation for "shock," "neurasthenia," etc., 41. Total claims for "nerve shock," over 56 per cent.

Accident, November, 1922. Number of passengers traveling in the two trains involved, 183. Number of deaths, none. Number of cases of visible and obvious injury, 27. Number of claims for "shock," "neurasthenia," etc., 87. Total claims for "nerve shock," over 42 per cent.

Taking these together, the average of three railway accidents, only one of which was severe, gives a percentage of 55 of those involved claiming damages for "neurasthenia"; i. e., one in every two passengers apparently suffered from traumatic functional nervous disease. Can we seriously believe that every other individual taken at random is neurotic? During the war, millions of soldiers were submitted to precisely the same warfare, the same stress and strain, the same shell bursts, the same bombardments; did 55 per cent. of them develop "shell shock"? Every one knows that the percentage was far less than that. The only conclusion we can draw, I submit, is that in many instances conscious motives connected with monetary compensation have a great deal to do with the simulation and exaggeration of symptoms almost invariably noticed among patients reputedly suffering from traumatic neurosis. The question of money to be obtained colors the whole situation, as the railway figures quoted prove up to the hilt.

2. *Unconscious Motives.*—We may take the facts as stated by other observers whose authority will not be questioned. In the matter of miners' nystagmus, the recent report published in England and contributed to by the late Dr. W. H. R. Rivers proves conclusively how potent is the unconscious motive (if it is in reality unconscious). Since the introduction of compensation, we learn that the prevalence of disabilities from miners' nystagmus has vastly increased; monetary considerations (for what other factor is there?) have led to the production and to the prolongation of disability to work.[1] Since the passing of the workmen's compensation acts in England, functional traumatic cases have been ever increasing. The victim of an industrial accident is now provided for by legislation; as Collie says, the accident is often regarded as a valid excuse for living at the expense of the former employer.

I might here cite case after case in which I have been personally concerned and in which simulation and exaggeration of symptoms have been grotesquely obvious. In each of these, medical certificates have been furnished by fellow members of the medical profession, substantiating the impossible claims of the individual concerned. This is the aspect of a serious situation that one must regard with concern. Through ignorance, or from press of work and shortness of time for examination, or because of personal friendliness with the claimant, the physician gives a certificate to which exception may justifiably be taken, or continues to furnish them at intervals, even years after the genuine effects of the trauma have vanished. And let it not be imagined for one moment that I am criticizing the general practitioner; on the contrary, I apply to myself the same comment on the urgent need for scrupulous care and faithful scrutiny of all the facts of every case. A certain individual, in connection with one of the railway accidents referred to above, went to a well known consultant in London and stated that he had been in the train and received a severe nervous shock. A certificate was given to the effect that he was suffering from "traumatic neurasthenia," and on the strength of this certificate he was awarded £200 compensation by the railway company. It subsequently transpired that he had never been in the accident at all. The moral is plain enough.

1. Since this paper was written, we learn from the second report of the Miners' Nystagmus Committee of the Medical Research Council that "not only the number of fresh claims but the average duration of incapacity has risen enormously, facts which . . . have no relation whatever to the actual prevalence of the disease, but solely to the facilities for obtaining compensation" (Lancet 2: 293, 1923).

ABSTRACT OF DISCUSSION

Dr. Walter F. Schaller, San Francisco: Since 1914, we have had an industrial accident compensation law in California, and have been confronted by many of the problems Dr. Wilson mentioned. In almost any textbook on industrial accidents one will find support for the most conflicting medical opinions concerning the organic effects of trauma on the nervous system. The class of functional disorders that Dr. Wilson calls traumatic neurasthenias or traumatic hysterias I always designate as post-traumatic neurasthenias and post-traumatic hysterias. At the time of the earthquake in San Francisco no true hysterias or neurasthenias developed immediately following the shock, but sometime afterward, in the period of meditation and of suggestion, there were many. As a rule, after improvement from the traumatic symptoms there ensues a period in which suggestion, meditation or the question of compensation determines the course of the neurosis, and the neurotic symptoms increase rather than decrease. The tendency of symptoms due to traumatic organic structural changes in the nervous system is to decrease. In a case of cerebral hemorrhage due to vascular disease there is a spontaneous tendency to betterment; in a case of brain hemorrhage from trauma in which there develops a post-traumatic neurosis there is a tendency to aggravation as soon as the neurosis is established. It has never been proved that a post-traumatic neurosis has any organic basis from a macroscopic or microscopic examination of the nervous system. To quote a case briefly examined for the industrial accident commission of this state: A man had a more or less severe head trauma. After an interval, he showed unmistakable signs of a neurosis, evidenced among other symptoms by a sensory and sensorial hemianesthesia. The man subsequently died of an intercurrent affection. The necropsy showed a hemorrhage in one frontal lobe. Those who had felt that all the symptoms could be explained by the organic lesion felt that a mistake had been made in the diagnosis, but the typical hysterical symptoms could not have been adequately explained by the organic lesion.

Dr. Thomas J. Orbison, Los Angeles: Is it not a fact that it seems to be a universal attribute of the human race to set up a "straw man" in order to explain something that they cannot quite understand? It does sometimes take a war to expose them. We are all taught to judge *a priori.* Is it not much the same as when a parent comes gripped by fears of prenatal influences? A mother confided to me that her daughter, who was born with stumps of fingers on both hands, certainly had come to that terrible tragedy because when she herself was just about to be in labor, she had been out driving and the horses had run away and she had wrapped the reins around her fingers and had received quite a fright. Shortly after that the baby was born without fingers. It was certainly a remarkable coincidence. She was quite crestfallen, and I hurt a family legend when I informed her that those fingers had certainly been absent long before that drive. In these cases I think that there is some element of reason for their attributing an unhappy effect to some recent cause, as to a blow on the head, or a fall, or an accident of some sort as

a contributing cause, in almost every case of epilepsy, and certainly in most cases of multiple sclerosis, is it not remarkable that those falls do not come oftener, and is it any wonder that one of those falls comes shortly before the disease itself is identified, and is, therefore, blamed by the patient and his family? My experience has been that the pathology lies in the money sense and not so much in the common sense of the parties involved.

DR. DAVID S. BOOTH, St. Louis: Having been connected with railroads for thirty-seven years, I have had a great deal to do with these cases. I saw one physician in court who, to prove paralysis, said that the third, fourth, fifth, sixth and seventh nerves all came out on the temporal region of the head somewhere, he didn't know exactly where, and yet that testimony had more weight with the jury than that of the experts. This is a serious matter. We not only have that kind of people to fight, but also something else. I once had quoted to me from one of our leading textbooks—ordinarily they do not get before the court, but if a lawyer is smart, he often manages it—that the traumatic neuroses are "serious and disabling conditions." I not only disagreed with that, but I wrote the author in regard to the matter and he explained it by stating that the book had been written for physicians with judgment and not for courts. Nevertheless, courts were using it, and yet that has never been corrected in later editions of the work. When these things appear in textbooks, and when the lawyers can use them in court, we see what a small chance we have in doing anything in these cases in which we know that the "gold cure" is often the only thing that will act—will completely cure some of our most disabling cases. A case of that kind was that of a man in a distant state who was unable (?) to turn in bed and who, I think, I was able to show was not paralyzed. He was unable (?) to hold his urine, for which he wore an empty urinal. I catheterized him and obtained 2 or 3 ounces of urine. The muscles grasped the catheter (rubber) so that I was fearful I would break it in withdrawing it. Nevertheless, the railroad acknowledged liability, and rather than have a case of that kind go into court, they settled with him. A local physician wrote me a few weeks afterward that the claimant had gone into the cigar business. When the physician visited his store, "there he was, walking around in the image of God just as though nothing had happened." When one gets such cases repeatedly, one certainly becomes skeptical.

DR. C. E. REYNOLDS, Los Angeles: This sort of paper has a particular function in giving us a sense of proportion. But I think, on the other hand, with lesser diagnosticians, there is an element of danger in the bias that is strongly toward regarding most of these cases as functional. I was interested in Dr. Wilson's case of the girl who had a blow on the top of the head, because I had a precisely similar case with a different ending. A girl had a blow on the top of her head from a heavy screen falling. The case was diagnosed as hysteria by the corporation physicians in spite of the fact that she had a bulging eyeball and some haziness of the nasal margins of the disks. She had some anesthesia which was rather suggestive of hysteria, but she went rapidly down hill for several months. In consultation with Dr. Charles Lewis Allen and Dr. E. H. Jacobs of Los Angeles, I turned down a bilateral flap across the top of the head and found a well marked arachnoid cyst. She promptly recovered. What would have been the eventual result if she had been allowed to drift, I do not know; but it probably would have led to some degeneration. And so, whereas this paper gives us a broad view of the subject, I think that, unless men are such expert diagnosticians as Dr. Wilson, there is a certain element of danger of erring on the functional side.

DR. S. A. KINNIER WILSON, London, England: We know well how large a field this is, and how can one touch only the fringe of it? I should have spoken in vain if I had given any one the impression that I was seeking to be dogmatic. I am only seeking light in the matter, not dogmatism, and therefore I entirely associate myself with the remarks of Dr. Reynolds. It is just as great a mistake to suppose that trauma does nothing as to suppose that trauma does everything. Nevertheless, one has to endeavor to get some general principles on which to go, and, above all, as has been said, to take a broad view of the very difficult and very thorny subject. I am not to be regarded as speaking pontifically in regard to the question of paralysis agitans and trauma. I do not want to be quoted in any sort of excathedra way. But obviously, I cannot suppose for a moment that paralysis agitans—a notoriously degenerative progressive organic nervous disease—can be caused by any trauma whatever; that it is logically impossible that a progressive disease should be caused by a trauma. The trauma acts once and no more. Trauma is a question of seconds or minutes, but how that can act for years is entirely beyond me. I would say, therefore, that I should certainly take the position that I could not associate trauma and paralysis agitans in any etiologic connection whatever.

MÉNIÈRE'S SYNDROME CAUSED BY ALLERGY

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The symptom complex known as Ménière's syndrome has been correctly attributed, I believe, to a lesion involving the vestibular nerve apparatus. To produce this syndrome, the lesion may involve either the labyrinth or peripheral end-organ, the primary neuron or vestibular nerve proper or its tracts, or the central nuclei in the medulla or midbrain.

Several different primary causes, such as acute infectious diseases, syphilis, hemorrhage into the labyrinth, tumors and abscesses, and traumatic injuries, may result in a lesion that can have this effect. I have observed the syndrome in two patients with severe allergy in whom no other adequate cause for the illness was found. Since, in each case, relief was obtained both by the use of epinephrin and by avoidance of substances to which the patients were sensitive, and since the symptoms were reproduced during well periods by the use of foods to which they were hypersensitive, it seemed justifiable to include allergy among the primary causes of the symptom complex known as Ménière's syndrome.

REPORT OF CASES

CASE 1.—An unmarried woman, aged 35, came to me complaining of attacks of dizziness, nausea and fainting. The family history was negative for allergy so far as the patient knew. Her past history was uninteresting, except for the fact that the patient had been subject to hives during the summer months for the last fifteen years, and to persistent, frequent and painful urination for several months which led her to report for examination one year ago. She was found sensitive at that time to a number of fruits and vegetables. No local cause for bladder disturbance was found, and the condition was diagnosed bladder allergy. She was treated with epinephrin and put on a diet, and after a short time the bladder symptoms disappeared.

The present illness started several years ago with slight dizziness, which the patient had noticed off and on in slight degree since. Several weeks before coming to me she began to have more frequent attacks of dizziness associated with tinnitus and nausea. In the more severe attacks she would fall to the floor and be unable to walk. During this period she would feel as if she were rolling over and over. After a period of from one-half hour to three hours she would recover and feel relatively well except for slight dizziness, which would persist. Severe attacks such as these would appear once every day or two.

Physical examination, including the nose, ears, throat, chest, abdomen and pelvis, showed nothing abnormal except tenderness with slight muscle spasm on pressure over the appendix. This was noticed on several examinations, and a diagnosis of chronic appendicitis seemed justified.

Laboratory examinations, including Wassermann tests with cholesterinized antigen and one unit of complement, were negative.

Roentgen-ray examinations, including the nasal sinuses, mastoids and gastro-intestinal tract, were negative. Roentgenograms of the teeth showed one small granuloma.

Functional tests of the ear, including Bárány's, made by Dr. Sam E. Roberts, were negative except as follows: The vestibular tracts were all open, but responses both for nystagmus and past pointing were subnormal. Cochlear tests showed a reduction of about one fifth for bone conduction and for high tones.

Intracutaneous tests with many of the fruits and vegetables gave very marked delayed reactions. The most marked tests were obtained with peas and beans. Intracutaneous group tests with extracts of all the common meats, fish, fowl, eggs, dairy products, nuts, condiments, grains, pollen, animal hair and feathers were negative. The tests were followed after several hours by a very severe attack of Ménière's symptoms.

The patient, during an attack, was given 1 c.c. of epinephrin subcutaneously, with marked immediate improvement in the symptoms. She was given 0.75 c.c. of epinephrin subcutaneously each morning and evening for two weeks thereafter, with the result that she had no more severe attacks and fewer mild attacks. She was put on a diet free of fruits and vegetables for a period of two weeks, and epinephrin was omitted. The result was a period of almost complete freedom from symptoms except very slight dizziness occasionally.

She was then allowed a meal with vegetables, to which she had given positive skin tests. After six hours a very severe attack of dizziness, associated with hives, recurred.

A diet almost free of protein, but containing a few vegetables, gave no relief whatever; in fact, it was discontinued at the patient's request after two days.

Case 2.—A man, aged 43, came to me complaining of seasonal hay-fever and asthma, and attacks of dizziness and vomiting. His father was subject to hay-fever. A brother was subject to seasonal hay-fever and asthma. A sister was subject to perennial asthma. The past history was negative except for earache in childhood. The patient had been subject to autumnal hay-fever for about twenty years. For the last fifteen years this had been associated with severe autumnal asthma, which at times confined him to bed for several weeks at a time unless he left this climate. For five years he had been subject to attacks (Ménière's syndrome) which would start by profuse sweating, followed after about one minute by roaring in the left ear, followed in about three minutes by dizziness and vomiting. Objects would seem to whirl around during this period. The patient was made worse by the least movement of the head. During these spells he was forced to keep absolutely motionless for periods of from one-half hour to four hours, when the attacks would gradually subside. Very slight dizziness would persist for about one week after the attack, after which he would be relatively well for a time. The attacks occurred regardless of time of the year, time of day or night, and regardless of geographic locality. In all, he had had about fifty severe attacks, and for the past several months he had had slight dizziness and uncertainty in his feelings almost constantly.

The severe attacks had borne no marked relationship apparently to the seasonal hay-fever and asthma. On careful questioning and careful observation for one month, it was found that he could bring on severe attacks by the eating of spinach, vinegar and certain fruits, especially prunes. He remembered then that his most prolonged and severe attacks occurred when eating prunes for the relief of constipation.

The physical examination was negative except for deviation of the nasal septum to the right and partial deafness, with increased bone conduction in the right ear. Other examinations, including the eyes, throat, chest, abdomen and prostate, were negative or of no interest in this connection.

Laboratory examinations, including Wassermann tests with cholesterinized antigen and one unit of complement, were negative.

Roentgen-ray examinations, including the nasal sinuses, mastoids, teeth, chest and gastro-intestinal tract, were negative.

Functional tests of the ear, including Bárány's, made by Dr. Roberts, were negative except for reduced hearing with increased bone conduction on the right side and subnormal responses for nystagmus and past pointing. The vestibular tracts were all open.

Intracutaneous tests made with all the common foods and air-borne allergens showed the following: Group tests with the common vegetables, fruits and nuts, gave very strong positive reactions. Most marked was the reaction obtained with an extract from spinach; tests with the common air-borne allergens were positive for some of the furs, dusts, and spring and fall pollens; positive ophthalmic tests were obtained only with the pollen of marsh elder, Spanish needle, pigweed and small ragweed; intracutaneous tests and ophthalmic tests made with other air-borne allergens were negative. Intracutaneous group tests made with extracts of all the commonly eaten meats, fish, fowl, eggs, dairy products, grains and with bacterial extracts gave negative or only slightly positive reactions.

On two different occasions the patient had a severe attack of dizziness and nausea, which started about six hours after the use of intracutaneous tests with extracts to which he reacted positively. The attacks lasted about twelve hours, and were then markedly relieved by epinephrin. This result was later obtained with the use of spinach extract alone.

At an earlier date, severe spontaneous attacks had also been relieved within fifteen minutes by the subcutaneous injection of 1 c.c. of epinephrin (1:1,000 solution). The asthmatic attacks were likewise relieved by epinephrin, but a little more time was required.

The patient was put on a diet free of all fruits, vegetables and nuts; that is, on a meat, dairy, egg and wheat diet. During a period of thirty days he was practically free of attacks, although he felt a slight dizziness at times. He was steadier on his feet at all times, however, and noticed a very marked reduction in tinnitus and in the subjective feelings, which formerly were very disagreeable and were often followed by the symptoms described as Ménière's syndrome.

At the end of one month he ate spinach with vinegar as a test. It was followed within six hours by dizziness, which required epinephrin for relief.

At the end of this study, the pollen season began and during the season and during the pollen treatment that was given he was subject to attacks of asthma and one slight attack of Ménière's syndrome even when on a diet free from vegetables and fruit. The attack was believed due to a treatment with pollen extract which he had received.

COMMENT

In the two case histories reported here, these facts are of interest:

1. In each case the patient had the classical symptom complex known as Ménière's syndrome.
2. In each case the patient had a marked case of allergy.
3. In each case the Ménière complex was relieved by epinephrin.
4. In each case the Ménière complex was partly or wholly relieved over several weeks' trial by the avoidance of foods to which the patients gave positive intracutaneous tests.
5. In each case Ménière's syndrome was reproduced during a well period by the intracutaneous injection of extracts of the foods to which the patients showed skin hypersensitiveness and by the eating of such foods.

This, it seems to me, is convincing evidence that allergy is one of the several causes of the symptom complex known as Ménière's syndrome.

Reactions of allergy may be divided roughly into two classes: (1) contact allergy, that is, reactions which occur as a result of direct contact between an allergen and a surface to which it is hypersensitive; and (2) general allergy; that is, symptoms which occur

as a part of a general reaction after an allergen has been absorbed and distributed by the blood.

In both of the cases reported, the reaction with symptoms that were characteristic of Ménière's syndrome occurred as part of general reaction to foods which were either eaten or injected intracutaneously. That these symptoms could occur as a result of a contact reaction would seem theoretically improbable, since in this type of allergy it is rare that an offending allergen is absorbed in quantity sufficient to give rise to a general reaction. In these patients, symptoms occurred apparently only after the eating of foods which could be absorbed in quantities sufficient to give rise to general symptoms.

SUMMARY AND CONCLUSIONS

In this paper I have reported the history of two patients subject to repeated acute attacks of dizziness, tinnitus, nausea and vomiting, which were classical examples of the symptom complex known as Ménière's syndrome.

Each patient had a chronic history of allergy, each was proved hypersensitive to foods, each was relieved both by the use of epinephrin and by the avoidance of the foods to which they had skin hypersensitiveness, and in each the symptom complex was reproduced during a well period both by the intracutaneous injection of extracts of the foods to which they showed skin hypersensitiveness and by the eating of such foods.

It is suggested that allergy is one of several important causes of the symptom complex known as Ménière's syndrome.

NOTE.—Since sending this paper for publication, I have observed three additional patients who were subject to attacks of dizziness associated with asthma or hives and were definitely allergy cases. The condition therefore is not extremely rare.

Waldheim Building.

MONGOLIAN IDIOCY IN BOTH TWINS

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CHICAGO

The occurrence of mongolism in twins seems worthy of report not only because of its great rarity but because of its possible bearing on the question of whether an endogenic or exogenic factor is involved in the etiology of this anomaly.

REPORT OF CASE

The parents of the twins affected with mongolian idiocy were healthy, very intelligent and without any inherited taint. Neither of them was syphilitic or alcoholic. The mother at the time of conception was 20 years of age, and the father, 30½. The pregnancy was without any disturbance. The twins were the first born of the family; the three other children, aged 7, 4¾, and 1½ years were perfectly healthy and intelligent.

The twins were born, March 21, 1915, at the end of the eighth month of gestation; the first infant, weighing 5 pounds, 12 ounces (2.6 kg.), was delivered by forceps; the second infant, weighing 5 pounds, 10 ounces (2.5 kg.), was born spontaneously a few minutes later. They were first seen by me on account of lack of development, when 15 months old, in consultation with Dr. W. G. Lee of the Cook County Hospital and Dr. T. W. Lewis of the Rush Medical College.

The two twins presented the same striking condition, at the first glance recognizable as mongolian idiocy with its characteristic features: slanting eyes; epicanthus, flat nose, flat face, brachycephaly, open fontanel, marbled, flabby skin, very marked hypotonia of the muscles, and extraordinary mobility of the joints. No teeth had erupted. The genitals were small; the left testis of the first twin had not descended. The twins were unable to stand or sit, and manifested a striking lack of mental development. Thyroid therapy was instituted, but despite this and the best care amid hygienic surroundings on the lake front, the development of the twins, who were seen by me repeatedly throughout the following years, was very slow physically as well as mentally. The tongues became fissured (lingua scrotalis); the teeth erupted slowly and irregularly. At the age of about 4 years they learned to walk and could utter a few indistinct words. Later they were refused admittance to the public school. While formerly apathetic, they became lively in the last years. In April, 1922, they had scarlatina and recovered. Soon afterward, the first twin suffered from infected tonsils and adenoids with chronic fever, which continued for months after the removal of the tonsils and adenoids, with short intervals. May 1, 1923, he succumbed to bronchopneumonia. No postmortem examination was permitted. This boy was never able to speak, but uttered a number of sound combinations intelligible only to his parents.

The other twin developed physically and mentally better. In June, 1923, he was able to speak a number of words, even some short sentences, though they were intelligible perhaps only to his parents and to the other children of the family. He loves music. He still wets the bed at night, and he is small for his age, measuring in height 45 inches (114 cm.), his 7 year old sister being half a head taller and much stronger; the 4¾ year old brother being only 1 inch (2.5 cm.) smaller than he. The right half of the face is conspicuously smaller than the left. The circumference of the head measures 19½ inches (48.7 cm.). The fissured tongue tends to protrude between the lips. The set of milk teeth is perfect; the two permanent lower incisors had erupted behind those of the temporary set. He is about to be sent to a private institution for mentally subnormal children in Minnesota.

INCIDENCE OF MONGOLIAN IDIOCY AMONG TWINS

A search in the literature reveals the extremely rare incidence of mongolism in both of twins, only two instances being described, that of Hjorth,[1] the twins being "of the same sex"; and that reported by de Bruin,[2] the twins being boys, as in my own observation.

Halbertsma[3] tabulates nine instances published of the occurrence of mongolism in only one of twins, and adds five new cases. With the instances of Clay,[4] McLean[5] and McKee,[6] the total in this group is brought up to seventeen.

Very striking is the fact that among all the twins positively known to be double ovum twins, either by their difference of sex or by direct inspection of the placenta and membranes, only one is affected with mongolism, and in no instance known so far were both affected. It would seem improbable that in all these (twelve) cases an exogenic factor should have affected only one of the double ovum twins and allowed the other to escape uniformly, since most probably both would have suffered to some extent. Yet double mongoloids are extremely rare; and in the three cases recorded the patients were of the same sex, which is perhaps not merely accidental but simply the expression of the fact that they are one ovum twins. The extreme rarity of such single ovum twin mongoloids would not be surprising were we to recall that the frequency of

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2. De Bruin, quoted by Halbertsma (Footnote 3).
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single ovum twins in comparison to double ovum twins is 1 to 7.16, according to Ahlfeld.

We may readily comprehend that an intrinsically abnormal ovum or a normal ovum fertilized by an abnormal spermatozoon by division should result in both twins being mongoloids; these, of course, being of the same sex. And again it would appear improbable that of two independent ova fertilized, both should yield a mongoloid from endogenic causes; though this extremely remote possibility must be admitted in consideration of a rare familial occurrence of mongolism, as the cases cited by Comby[7] and Pardee.[8] Under such conditions the twin mongoloid could of course be also of different sex; but such an occurrence, as accentuated by Halbertsma, has not yet been seen. The observations here recorded seem to point to an endogenic factor existing in one of the gametes in the etiology of mongolism. I wish to invite the interest of the obstetricians to these problems, the solution of which may be further advanced by the determination at birth of the monozygotic or dizygotic nature of twins under discussion.

SUMMARY

Mongolian idiocy occurred in twins, the first born of young, healthy parents.

The occurrence of a mongolian idiot with a normal twin has been observed only in double ovum twins, as far as known. Mongolism in both twins has been described only in twins of the same sex. They are probably single ovum twins.

The conception of mongolism being due to an endogenic factor seems to find support in these observations.

4557 Broadway.

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8. Pardee, I. H.: Two Cases of Mongolian Idiocy in the Same Family, J. A. M. A. **74**: 94 (Jan. 10) 1920.

A NEW ALKALINE SOLUTION OF IODIN FOR USE IN THE GRAM STAIN

ROBERT A. KILDUFFE, M.A., M.D.
LOS ANGELES

The method of differential staining first described by Gram in 1884 has become an important means of classifying bacteria and, as in the case of the gonococcus, forms an important factor in their morphologic recognition.

The exact reaction or conditions governing the retention or loss of the violet dye, as a result of which bacteria are classed as gram positive or gram negative, is not entirely clear, nor is it definitely known whether the bacterial protein (protoplasm) or the bacterial cell wall is mainly concerned in the retention of the dye.

According to Wells,[1] the gram positive reaction is due to the formation of an iodin-pararosanilic-protein compound not easily dissociated by water, and he suggests that the cell wall of gram positive organisms is impermeable to the action of decolorizing agents.

The fact that the disintegration of gram positive organisms renders them gram negative, as shown by Benians, and that extraction by lipoid solvents has the same effect, as shown by Eisenberg, seems to indicate that the character and integrity of the cell wall is an important factor in determining the reaction to the stain.

Be that as it may, the fact remains that the method forms a routine part of the study and identification of bacteria and, as in the clinical identification of certain organisms, such as the gonococcus in the stained smear, is extensively used.

Unfortunately for the simplification of an often complex problem, it is now known that variations of technic, such as the length of time the solutions are allowed to act, variations in the age of the culture and the viability of its individual components, and other factors, may all combine to produce anomalous results with this stain; and while the bacteriologist depends on other factors combined with or independent of the reaction to Gram's stain for his identification of bacteria, the same is not true to the same extent for those using the stain as an infrequent clinical procedure. Anomalous reactions, therefore, may be responsible for annoying errors of misinterpretation.

The confusing reactions generally encountered during the World War, when supplies of foreign dyes were interdicted, led to a study of dyes and reagents produced in America and the subsequent evolution of various modifications of technic.

Undoubtedly, some of the earlier American made dyes were not quite suitable for the purpose; this difficulty, however, has now been overcome, and American dyes are now the equal of any foreign products.

One of the significant modifications of the technic of Gram staining devised to eliminate confusing and anomalous reactions was that described by Burke,[2] who demonstrated that the addition of a small amount of sodium bicarbonate to the slide before the application of the iodin solution resulted in clear cut pictures without discordant results, and who proposed this as an additional step in the technic, based on the assumption that the alkali probably neutralized any acid in smears made of secretions, or else that it increased the penetration or concentration of the gentian violet.

He was unable, however, to explain definitely the reason for the effect of the alkali, but this now appears to be brought out by the work of Sheppe and Constable,[3] who demonstrated that, when exposed to light and heat, the iodin solution used in the stain may become acid, owing to the formation of small amounts of hydriodic acid, and that acid exercised a decolorizing effect on normally gram positive bacteria. They therefore recommend that the iodin solution be kept in dark bottles in the cold.

Following the description of Burke's method, I endeavored to combine the sodium bicarbonate with the gentian violet solution in order to lessen the number of steps in the technic, but found that a somewhat troublesome granular precipitate was apt to form on the slide as a result. I then modified the iodin solution by the addition of sodium bicarbonate and found that this alkalin solution gave satisfactory results and, seemingly, remained stable, showing no deterioration after some months.

The effect is due, apparently, in the light of Sheppe and Constable's work, to the neutralization of the acid formed in the iodin solution and, perhaps, to any that may be present in smears made from acid secretions.

The modified formula for the iodin solution is: iodin, 1 gm., and potassium iodid, 2 gm., dissolved in distilled water, 240 c.c.; after the iodin and potassium iodid are dissolved, 60 c.c. of 5 per cent. aqueous solution of sodium bicarbonate is added.

1010 Hollingsworth Building.

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CHEST DEPTH AS AN INDEX OF BODY WEIGHT

HORACE GRAY, M.D.
AND
D. C. PARMENTER, M.D.
BOSTON

When a physician wishes to tell a person what his weight should be, he should measure not only the height (length of body frame) but obviously also some depth (width of bony frame). As to the place of measurement, one naturally thinks of the pelvis and thorax. The pelvis we have not considered. The chest girth we became inclined to discard,[1] and instead began to collect measurements of body weight and several chest diameters.

The subjects for our new evidence were 100 candidates for the varsity football team remaining on the squad after the preliminary cut. As in our prior series, these men were of the usual college age group of from 18 to 22 years, all of better than average physique, and organically sound. The athletic character of this group may theoretically have to be considered in interpreting the observations. The technic is as follows: The weight was taken stripped, as also the caliper diameters, three in number.[2] The shoulder width (here abbreviated as S) was taken, with the subject erect, between the outermost edges of the acromial processes, not between the heads of the humeri with their interfering deltoids. The transverse diameter (T) between the outermost edges of the ribs at the level of the base of the ensiform cartilage was recorded as the mean between the measurements at extreme inspiration and expiration. The depth anteroposteriorly (D) was taken in the same plane, horizontally, and in the same phases of respiration. The xiphoid level we preferred to the nipple level (1) in pursuance of the Geneva Anthropological Agreement, and (2) because we found lesser interference by muscles. Each hundred measurements were plotted against the weights corresponding, and then, as a more definite matter of record, we calculated the coefficients of correlation. The resulting constants are shown in the accompanying table.

Statistical Constants

Measurements, Net	Symbols	N	Means (Averages) M ± p. e.	Standard Deviations σ ± p. e.	Coefficients of Variation C. V.	Coefficients of Correlation Between Weight and Body Measurements r_{WX} ± p. e.
Weight, pounds	W	100	168.245 ± 1.2046	17.859 ± 0.8517	10.61	.....
Shoulder width, biacromial, cm.	S	100	32.487 ± 0.1694	2.511 ± 0.1197	7.72	+0.0194 ± 0.0674
Transverse chest diameter, base xiphoid, midrespiration, cm.	T	100	20.834 ± 0.1535	2.276 ± 0.1085	7.63	+0.1109 ± 0.0666
Depth of chest, anteroposterior diameter, base xiphoid, midrespiration, cm.	D	100	21.937 ± 0.1509	2.237 ± 0.1067	10.20	+0.5537 ± 0.0467
	D	90	21.373 ± 0.0934	1.313 ± 0.0660	6.14	+0.6536 ± 0.0407
	D	10	27.010 ± 0.5226	2.450 ± 0.3695	9.07	+0.9289 ± 0.0292
	W	90	167.517 ± 1.2030	16.92 ± 0.8506	10.10	.....
	W	10	174.800 ± 5.0443	23.65 ± 3.5669	13.53	.....

CONCLUSIONS

1. Shoulder breadth and transverse chest width do not parallel body weight.

2. Dorsoventral depth of chest (D), a nearly bony measurement, exhibits a considerable correlation with a person's weight (W). This is indicated by Pearson's coefficient r_{WD} which is 0.55 (absolutely perfect parallelism would yield 1.00).

3. A plot of D against W for the hundred subjects revealed ten exceptions distinctly apart from the swarm of the remaining ninety. A trend line drawn through these ten variants, however, looks about parallel to the trend of the main swarm. The plot is striking, but is not reproduced at present, because the series is too small as yet to explain whether the phenomenon is accidental or significant. Rough averaging of the various measurements on these ten persons indicates these group peculiarities: unusually deep chest; unusually heavy weight for height, i. e., relatively short stature for weight; likewise, relatively short stem length (sitting height, trunk) and relatively short transverse chest diameter. These peculiarities suggest that the deep chest is a compensation for certain deficiencies, to afford the ample chest capacity which would be expected in conformity with the high vital capacity of the lungs known to be characteristic of physically vigorous persons. Whether this variant group merits special study can be better determined later with additional evidence, as also the precise slope of a diagram to predict weight from chest depth. In any case, the cardinal conclusion from the evidence in hand is that the chest depth may be a real accessory to the height in predicting what a man ought to weigh; these diameters also may be useful in studying shape of the chest or trunk in relation to constitutional medicine such as the action of the diaphragm or the differential diagnosis between disease of gallbladder and stomach.

4. Since D and T tend to vary inversely, perhaps as a physiologic counterpoise, as noted in the preceding paragraph, their product D × T has been plotted against W. The distribution of the points is more regular than in any of our other plots, both as regards solidity of the swarm and as regards scarcity of extreme variants. (A plot Height × Depth × Transverse against W looks equally satisfactory, but, being more complicated, may be dropped from consideration.) The coefficient between W and D × T, however, we have postponed computing until evidence shall be available to show whether these diameters remain fairly constant with gain or loss in body weight. Such evidence is being analyzed by H. F. Root and W. R. Miles.

These conclusions make us cautious about the practical usefulness of the results until we shall have assembled further data.

32 the Fenway.

* From the Department of Hygiene, Harvard University.

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2. International Agreement (Geneva, 1912) for the Unification of Anthropometic Measurements, reported by Duckworth, W. L. H.: Am. J. Physical Anthropology **2**: 61 (Jan.-March) 1919, and Hrdlicka, Ales: Anthropometry, Philadelphia, 1920, p. 29.

Rural Health Campaigns.—Mental hygiene is important in rural communities, and sanitation work and malaria control are entitled to all of the militant enthusiasm of the various other campaigns.—W. S. Draper: *Public Health Rep.* **38**:2715 (Nov. 16) 1923.

GENTIAN VIOLET IN STAPHYLOCOCCUS SEPTICEMIA *

DAVID T. SMITH, M.D.
AND
HORTON CASPARIS, M.D.
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Churchman [1] has demonstrated that gentian violet will inhibit the growth of most gram-positive bacteria. This fact has been applied to the treatment of infected joints,[2] empyema,[3] open wounds,[4] otitis media,[5] skin infections [6] and other conditions. It has been found [7] that gentian violet in 1 : 1,000,000 dilution will inhibit the growth of staphylococci. A dilution of 1 : 50,000 has no deleterious effect on white blood cells that have been exposed to it for two hours.[8] A 1 : 20,000 dilution has no effect on growing tissues.[9] We have given 10 mg. per kilogram of body weight intravenously to rabbits (calculated dilution in the body fluids of 1 : 70,000), with no effect except instant staining of the mucous membranes and sclerae. The staining later disappeared.

We therefore felt justified in injecting gentian violet intravenously into an infant, aged 15 months, suffering from staphylococcus septicemia. This patient had been admitted to the wards three weeks previously suffering from severe bacillary dysentery and otitis media, and had later developed multiple large staphylococcus abscesses and staphylococcus septicemia. His condition had gradually grown worse, his temperature, which had ranged from 101 to 103 F., had finally reached 106, and he was apparently moribund. *Staphylococcus aureus* had been demonstrated in two blood cultures made during the three days preceding the first injection. There were about ten colonies per cubic centimeter of blood. Three injections of a 0.25 per cent. aqueous solution of gentian violet [10] were given at twenty-four hour intervals. The first dose was 5 mg. per kilogram of body weight. The calculated resulting concentration of the dye in the body fluid was 1 : 140,000, assuming the fluid content of the body to be 70 per cent. of the body weight.

The white blood cell count, which was 22,000 at the time of injection, was reduced to 10,000 twelve hours later, but returned almost to the original count during the next twelve hours. Because of the possibility that the reduction in the white blood cell count was due to the effect of the dye in that concentration, the amount was reduced, and the second and third doses consisted of 3 mg. per kilogram of body weight. Blood cultures made immediately preceding the second and third injections were sterile. After the third injection the patient's appearance had improved, his fever was reduced, and the white blood count had decreased. We therefore discontinued the administration of gentian violet.

The child, whose condition was wretched at the time the injection of gentian violet was begun, gradually improved. He gained weight, the abscesses healed, and he was discharged from the hospital two months later, entirely well.

* From the Harriet Lane Home and the Department of Pediatrics, the Johns Hopkins University.

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10. Coleman and Bell gentian violet was used.

Clinical Notes, Suggestions, and New Instruments

ACUTE APPENDICITIS AND INTUSSUSCEPTION IN INFANCY *

LEWIS D. HOPPE, M.D., ATLANTA, GA.

Ileocecal intussusception is not an unusual condition in infancy, but the occurrence of acute appendicitis complicating this is worthy of note.

REPORT OF CASE

History.—M. O., a white girl, aged 8 months, referred to me, April 29, 1923, was an only child; she was born at full term and had never been sick until the present time. She had been breast fed since birth at irregular intervals, and for the last months had been allowed to have fruits and cereals. On the morning of April 27, the infant was given a small piece of uncooked apple. The next morning at 8 o'clock she vomited a large amount of milk taken shortly before. About one hour later she vomited again and was then given an enema. Only a small amount of fecal matter was returned. During the day she was irritable and restless, but did not appear to be acutely ill. At no time did she show any signs of acute pain. Vomiting continued and became progressively worse, resisting all the household remedies tried by the mother. Toward night she became drowsy, refused all food, and was aroused only by emesis. I saw her next morning.

Physical Examination.—The infant was well developed and slightly undernourished. The eyes were sunken, and there was a moderate amount of dehydration of the skin. A toxic state or condition of shock was manifested by the drowsy, stuporous condition.

A routine examination of the various organs presented nothing abnormal except for the abdomen. This was slightly sunken. There was no rigidity or tenderness. The percussion note was tympanitic throughout. Just to the right and at the level of the umbilicus and extending toward the flank and then upward toward the liver was a hard, sausage-shaped mass, about 1 inch in diameter and 4 inches long. This mass could not be felt distinctly by rectum.

A warm soap-suds enema was given, care being taken not to exert any hydrostatic pressure, because of fear that gangrenous changes might have taken place. A small quantity of mucohemorrhagic fluid was expelled, together with two small pieces of apple peel. The rectal temperature was 100.2 F.

The diagnosis of ileocecal intussusception was made, and immediate operation was advised. It was not considered wise to wait for examination of the blood and urine.

Operation and Result.—The operation was performed one hour later by Dr. B. H. Wagnon. Under ether anesthesia, the abdomen was opened through a right rectus incision. When the peritoneum was opened a few cubic centimeters of straw colored fluid was seen to escape. The cecum was delivered after packing off the intestine and with it the appendix. Much to our surprise, the appendix was greatly inflamed and swollen. The tip was much larger than the remainder of the organ, and was dark bluish green. The appendix was removed and the ileocecal region palpated. About 4 inches of ileum was found invaginated into the cecum. This was easily reduced, and the invaginated portion of the intestine was found to be in good condition. The abdomen was closed in the usual manner.

The temperature after operation was 102 on the following day, but returned to normal in two days. Except for this, an uneventful recovery took place. The infant was allowed to return home on the seventh day.

* Read before the Fulton County Medical Society, June 7, 1923.

The postoperative diagnosis was: acute appendicitis; ileocecal intussusception.

COMMENT

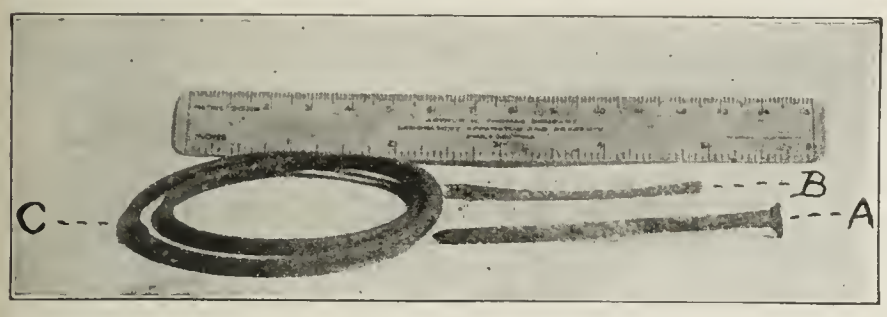
The case is of interest chiefly on account of the finding of acute appendicitis in an infant under 1 year of age.

79 Forrest Avenue.

KELLY CYSTOSCOPY IN THE MALE

JOHN H. NEFF, M.D., UNIVERSITY, VA.

Direct cystoscopy in men with air distention of the bladder is seldom employed in this country, if one may judge from the infrequent reference to such examinations in the urologic literature. This procedure, with the patient in the knee-chest posture, has been used with such definite advantage in four



Objects removed.

or five instances that a brief report of these cases seems warranted. Certainly, in the first case operation could hardly have been avoided by any other method.

REPORT OF CASES

CASE 1.—A well developed young man was admitted to the University of Virginia Hospital on his statement that he had a nail in the bladder. About ten days prior to admission the nail had gotten away from him during urethral masturbation, and the resultant vesical irritation finally forced him to seek attention. Palpation along the urethra was negative. A sound elicited a metallic click in the bladder. Indirect cystoscopy revealed a large nail, partially coated with urinary salts, lying transversely in the bladder and with the point apparently embedded in edematous mucous membrane. The bladder was emptied, a Young's urethroscope passed, and the patient then carefully turned to the genupectoral position. After considerable effort, the sharp end of the nail was freed, turned, brought down into the endoscope, and the two withdrawn together, as the nail head was too large to come through the tube. The nail was 8 cm. long and the head slightly more than 8 mm. in diameter (*A* in the illustration).

CASE 2.—A boy, aged about 12, had trimmed down a Christmas tree candle and forced it into the bladder two days before admission. Through a small Young's urethroscope, with the patient in the knee-chest posture, the wick of the candle was pulled out and numerous wax fragments were removed. The remainder was thoroughly broken up and was all passed during the next few days (*B*).

CASE 3.—A man had passed a rubber catheter on himself as a form of sexual perversion about twenty-four hours before admission. The catheter had apparently completely entered the bladder. The patient was first placed in the marked Trendelenburg posture, but the bladder was too spastic to open up in this position. In the knee-chest posture, the bladder distended readily and the catheter was easily grasped and removed. The catheter was a No. 12 F., 40 cm. in length (*C*).

CASE 4.—A young man presented a quite tight stricture of the left ureteral orifice. This had previously been widened by incision with cystoscopic scissors and later by fulguration. There was some tendency, however, to recontraction of the orifice. With a wax spindle built up to 15 F. on a No. 8 Kelly ureteral catheter, the ureteral orifice was quite readily dilated to this degree on several occasions through a Young's urethroscope and with the patient in the knee-jest posture. Technically, the dilation was more easily done than by using bulbs through an indirect operating cystoscope.

COMMENT

It will be noted that a Young's urethroscope was used in these cases. In fact, it may be of interest that, since 1916, we have used this instrument entirely in many hundred examinations after the Kelly method in women. In our hands this endoscope has proved eminently convenient and satisfactory for this purpose. Its appeal, quite frankly, has been in the excellent, steady illumination given without recourse to a head mirror and reflected light.

A SPOON IN THE ESOPHAGUS

HENRY BOYLAN ORTON, M.D., NEWARK, N. J.

E. D., a white woman, aged 47, admitted to the New Jersey State Hospital for the Insane, at Morris Plains, because she was depressed and had suicidal tendencies, visited her home, on leave. On her return to the hospital, she had had difficulty in swallowing solid foods, with regurgitation and vomiting. A roentgenogram revealed a teaspoon in the esophagus, the bowl resting on the diaphragm. Further questioning of the patient by physicians elicited the information that she had swallowed the spoon four weeks prior to my visit, Sept. 25, 1922, and three weeks before going on leave.

September 25, I was called to the state hospital to attempt to remove the foreign body. An esophagoscopy was done, without anesthesia other than ¼ grain of morphin and 1/150 grain of atropin given hypodermically one hour before esophagoscopy. An extra long Jackson esophageal speculum was used, which was passed down the esophagus until the handle of the spoon was seen. With special, unusually long alligator forceps, passed through the esophagoscope, the

Position of spoon in the esophagus.

handle of the spoon was grasped, and all was withdrawn together. There was no mechanical solution to solve in its removal, which was accomplished in six minutes from the time the tube was inserted until the spoon was on the table.

As the patient was insane, some doubt was expressed as to the advisability of removing a foreign body without anesthesia; but she was perfectly calm, and the whole procedure was accomplished without any disturbance or any untoward effects.

671 Broad Street.

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SATURDAY, DECEMBER 29, 1923

THE FILTRABLE VIRUSES

Discovery in the etiology of infectious disease has been limited largely to bacteria that are microscopically visible. Many years ago, however, certain disease-producing agents were recognized that were invisible and so small that they would pass fine earthenware filters. These were termed ultramicroscopic. Now, it seems, some of the organisms heretofore listed as ultramicroscopic can be made visible and so the whole group has come to be classed as the filtrable viruses.

In a recent review, Simon [1] refers to a list of forty-one diseases affecting man and various animals published by Lipschütz [2] in 1913, in which the filtrable nature of the causative agent had been established with some certainty. Among these were the important epidemic diseases smallpox, yellow fever, measles, scarlet fever, poliomyelitis, dengue and trachoma, to which might be added now influenza, herpes and possibly epidemic encephalitis.

It is a curious fact, says Twort,[3] that no worker has ever succeeded in obtaining a culture on artificial mediums of a single "wild" variety of this presumably huge group of viruses. Some special substance may be necessary to their cultivation, but anything so special as to be essential for every member of the group, says Twort, would point to a fundamental difference in their nature. As a matter of fact, the nature of the filtrable viruses is not understood, and it is possible that they represent a distinct form of life heretofore unknown. From the standpoint of evolution, Twort considers it almost inconceivable that life on the earth should have started as a bacterium or an ameba, in which case a lower, precellular form of life must have existed. It is reasonable to assume that such forms of life still exist, and the possibility that the filtrable viruses are included among them deserves consideration. Beijerinck [4] believed that a certain virus which he studied was not corpuscular, but was a contagium vivum fluidum. This conclusion has not been substantiated, for, by using fine agar filters, viruses have been held back and their size has actually been determined.

The d'Herelle phenomenon is of great interest in considering the nature of filtrable viruses. D'Herelle [5] discovered, it will be recalled, a filter-passing substance in the stools of dysentery patients which would dissolve dysentery bacilli. By transferring a loopful of this substance from one emulsion of dysentery bacilli to another, the dissolution process could be kept up indefinitely, and the activity seemed to undergo an actual increase on transfer. D'Herelle's discovery was promptly confirmed, and "lytic bodies" corresponding to other bacteria were found. D'Herelle considered this entire group living organisms as well as filtrable viruses, and named it Bacteriophagum. Twort, Bordet,[6] Gratia [7] and others believe that the bacteriophagia are inanimate, and constitute an acute infectious disease of the corresponding bacteria. If this is true, our definition of infectious disease must be revised, for it implies the presence of a living agent, and certain ailments now classed as metabolic, as well as the malignant tumors, might with better reason be considered infectious.

Granting that available evidence favors classifying most filtrable viruses as animate, are they bacteria or protozoa? To assume to answer this question on the basis of present knowledge is, as Simon states, unwarrantable. It is of interest to consider, however, the possibility that certain low forms of animal and vegetable life, while becoming differentiated to higher forms, may retain the power to return temporarily to a more primitive state, so reduced in size as to make them filtrable. Such possibility seems to have already been demonstrated. Novy and MacNeal observed that *Trypanosoma lewisi*, which is not usually filtrable, may assume a filtrable state; and Reich and Beckwith [8] have substantiated this observation by infecting guinea-pigs with filtrates of the blood of animals infected with *Trypanosoma brucei*. There is some reason to believe also that bacteria endowed with this property exist, for Olitsky and Gates [9] have shown that the peculiar *Bacterium pneumosintes* may assume a filter-passing size and at other times be 1 micron in length. There can be no objection, therefore, to the hypothesis that disease-producing agents of corpuscular nature may exist which in part belong to low forms of life, which are neither bacteria nor protozoa, and in part to the higher

1. Simon, C. E.: The Filterable Viruses, Physiol. Rev. **3**: 483 (Oct.) 1923.
2. Lipschütz, B.: Filtrierbare Infektionserreger, Kolle and Wassermann's Handbuch der pathogenen Mikroorganismen **8**, 1913.
3. Twort, F. W.: The Ultramicroscopic Viruses, J. State Med. **31**: 351 (Aug.) 1923.
4. Beijerinck, M. W.: Ueber ein Kontagium vivum fluidum als Ursache der Fleckenkrankheit der Tabaksblaetter, Centralbl. f. Bakteriol., Orig. **5**: 27, 1899.
5. D'Herelle, F.: Sur un microbe invisible antagoniste des bacilles dysentériques, Compt. rend. Acad. d. sc. **165**: 373, 1917.
6. Bordet, J., and Ciuca, M.: Le bacteriophage de d'Herelle, Compt. rend. Soc. de biol. **133**: 1296, 1920.
7. Gratia, A.: Studies on the d'Herelle phenomenon, J. Exper. Med. **34**: 115 (July) 1921.
8. Reich, W. W., and Beckwith, T. D.: Trypanosoma Brucei as a Filterable Virus, J. Parasitology **9**: 93 (Dec.) 1922
9. Olitsky, P. K., and Gates, F. L.: Experimental Studies of the Nasopharyngeal Secretions from Influenza Patients, VIII, Further Observations on the Cultural and Morphological Characters of Bacterium Pneumosintes, J. Exper. Med. **35**: 1 (Jan.) 1922.

forms of ferments, and that the main group of filtrable viruses may be properly classified here.

Research in the etiology of infectious disease was started in a new direction in 1907, when von Prowazek determined the significance of certain "cell inclusions" that had been noted long before filtrable viruses were known to exist. The conclusion that cell inclusions are actually virus granules surrounded by a mantle of reaction products has in most part been abundantly demonstrated. Cell inclusions now suggest the activity of a filtrable virus, and this gives the Negri bodies in rabies, and the cell inclusions in smallpox, trachoma and certain other infectious diseases, a new importance. The absence of cell inclusions in specific lesions of a disease does not, of course, imply the absence of a filtrable virus as a causative agent, nor does it follow that, not being noted, they are not present. Did not Lipschütz [10] recently demonstrate cell inclusions in the three types of herpes—herpes simplex, herpes genitalis and herpes zoster—which prominent investigators in the past had failed to recognize? It seems, as Simon believes, that a great deal of reinvestigation must be done in the infectious diseases in which the cause is unknown, before the activity of a filtrable virus can be definitely excluded.

SILICOSIS AND TUBERCULOSIS

The inhalation of dust is widely recognized as a menace to health. Pneumonoconiosis, the designation applied to various forms of disease attributable to dust, indicates the fact that pulmonary lesions represent the immediate pathologic factor to be dealt with. Dust, like dirt, has been defined as a form of matter out of place. As there are many kinds of matter, so there will be many sorts of dust—a fact that has been all too little recognized in the consideration of dust diseases. The physician who has occasion to deal with occupational diseases in which dust figures in an etiologic way has long been impressed by the fact that coal dust is far less harmful than are silicious dusts, for example. The health of coal miners throughout the civilized world is, in fact, pronounced by no less an authority than Sir Thomas Oliver as satisfactory.

It is important to understand the immediate fate of inhaled dust. Most of it is expelled from the air passages. Some of the minute particles pass to the alveoli and are carried thence into the lung tissue, where they undergo a "pleural drift." The foremost pathologic aspect of pneumonoconiosis is fibrosis, or the replacement of the elastic tissue of the lung by an unyielding fibroconnective tissue whereby the aerating function of the pulmonary structures is impeded because of the solidity of the new masses. Coal dust promptly produces a catarrhal reaction, which is helpful in eliminating the irritant. Other mineral dusts, particularly those arising from quarrying, mining and cutting certain stones having a high content of the insoluble silica, are less readily eliminated, and therefore promptly start the formation of pulmonary fibrosis, with a train of symptoms often confused with those of pulmonary tuberculosis, yet distinguishable clinically from them.

The comparatively low incidence of pulmonary tuberculosis among coal miners has often been remarked. Silicosis has in the past been regarded as a tuberculous disease in its general outcome. Oliver [1] has pointed out that in a considerable number of persons dying from silicosis no sign of tuberculosis is found in the lungs or in the body generally; consequently silicosis must be regarded as a nontuberculous disease, in its early stages at least. Nicholson [2] has lately given emphasis to similar considerations, pointing out that fibroid phthisis is a distinct entity and in no sense a true form of tuberculosis. It is not even clear that fibrosis predisposes to tuberculosis, the disease associated with the bacillus of Koch, though the latter may, of course, become a complication of silicosis. The low infectivity that Nicholson attributes to cases of pulmonary fibrosis may be due to the fact that many cases are never tuberculous at all. Tuberculosis is already charged with enough damage, without having an independent disease entity sharing its fateful statistics.

THE SUPPLEMENTARY SCHOOL LUNCH

"Malnutrition is a very old subject, and the ideas and theories held about it have frequently emanated from men working behind desks rather than from those in direct contact with the children needing help." This stricture, written by Emerson [3] not long ago, will scarcely be applicable to conditions in the United States in the near future. Child welfare is at length receiving a liberal share of consideration in the plans for national health betterment. Progress is on the way, although the needs, the methods of meeting them, and the correct evaluation of the results attained still awaken considerable discussion. We may be said to be living today in an era of program making, with the possibilities of accomplishment still too uncertain or ill defined to justify any final judgment. It has been said that the laboratory field, in which results can be measured by chemical reactions and the microscope, has been more alluring to the research worker than has clinical work, with such a difficult and uncertain factor as the children themselves. One must remember, however, that the laboratory worker often has the satisfaction of dealing with phenomena susceptible of relatively exact measurement. Accuracy and precision satisfy

10. Lipschütz, B.: Untersuchungen über die Aetiologie der Krankheiten der Herpesgruppe, Arch. f. Dermat. u. Syph. **126**: 428, 1921.

1. Oliver, Thomas, in Kober and Hanson's Diseases of Occupation and Vocational Hygiene, Philadelphia, P. Blakiston's Son & Co., 1916, p. 229.
2. Nicholson, B. S.: The Dusted Lung, with Special Reference to the Inhalation of Silica Dust (SiO_2) and Its Relation to Pulmonary Tuberculosis, J. Indust. Hyg. **5**: 220 (Oct.) 1923.
3. Emerson, W. R. P.: Nutrition and Growth in Children, New York, D. Appleton & Co., 1922.

the human mind more readily than do vague generalities such as the discussion of malnutrition has heretofore involved.

Today our adolescent Johns and Marys are being weighed and measured and tested in various ways, as never before; so that presently more adequate statistical information will become available regarding the problems of nutrition and growth. Presently the easily repeated slogans of the passing decade will be called on to justify themselves. We read, for example, of the need of "a quart of milk a day for every child." This advice has frequently been upheld in THE JOURNAL, and we still regard it as entirely wholesome. Milk is, however, a highly complex food, valued especially for its excellent protein, its peculiar carbohydrate lactose, its unique richness in calcium and phosphorus, and its content of the indispensable vitamins. Some of these features give milk an unrivaled value as a school lunch. Consequently, one of the most common methods of overcoming undernutrition among school children is the introduction of a supplementary lunch, consisting usually of milk and crackers. Many data have been published in recent times demonstrating in striking ways how efficacious such provision may be for the underweight child.

Parents have repeatedly noted the satiating effect of milk given as a midmorning lunch. Chaney [4] has reminded us that in many instances a glass of milk taken between meals or at the beginning of the meal will cause lack of appetite; and, as the undernourished child already has a tendency to diminish his food intake, this may be a more serious consideration than it appears on the surface. In an extensive series of observations, Chaney has consequently made a comparison of growth variation in underweight children in Oakland, Calif., schools, with respect to different types of supplementary lunches. The children were free to gain, as far as could be determined by physical and dental examination. The economic status of the majority of the homes permitted provision of adequate food. The results seem to demonstrate that a midmorning lunch is of value in overcoming a condition of underweight in children.

It is interesting to learn, however, that milk, though it produces a favorable increase in weight, is not the only food valuable for the midmorning lunch. Oranges and orange juice also were strikingly efficacious in producing the desired gains. The virtues of this fruit have long been recognized, so far as its palatability and antiscorbutic properties are concerned. It is not so generally appreciated that oranges contain vitamins A and B as well as the scurvy-preventing vitamin C. The secret of their nutritive success may lie in a promotion of appetite for other foods—a property ascribed to vitamin B. In the California children studied, the growth following the use of oranges in the supplementary lunches averaged more than 100 per cent. above the expected gains, even surpassing in these cases the gains promoted by milk. Whatever the explanation may be, it is fortunate to learn that nutritive advantages may be secured in other ways when milk, for some reason, becomes unsuitable or unavailable. There should be more than one way leading to successful nutrition.

4. Chaney, Margaret S.: A Comparison of the Value of Milk and Oranges as Supplementary Lunch for Underweight Children, Am. J. Dis. Child. **26**: 337 (Oct.) 1923.

Current Comment

THE ANEMIA CAUSED BY THE BROAD TAPEWORM

Infestation with the broad tapeworm, *Dibothriocephalus latus,* has not attained any conspicuous importance among the zooparasitic diseases of man. This tapeworm gains entrance to the body when raw or underdone fresh water fish that harbor the larval stage of the cestode are eaten. The few cases reported in this country have occurred mostly among foreigners; but Stiles of the U. S. Public Health Service believes it likely that immigrants will infect the fish of some of our lake regions, so that the distribution promises to become almost cosmopolitan following the fresh water fish diet. The special medical significance of infestation with the broad tapeworm is the tendency to the development of a severe anemia resembling pernicious anemia. Retinal hemorrhages have been reported in many cases. The erythrocyte count may fall below 2,000,000 per cubic millimeter in a large number of the cases, and some elevation of temperature may occur. It has long seemed probable that the symptoms noted are attributable to some hemolytic agent liberated by the parasite. Anemia has been developed experimentally in animals by administration of digestion products of the broad tapeworm, thus suggesting that some chemical component may be liberated at times and give rise to the untoward symptoms, which are by no means of omnipresent occurrence. Haden [1] of the University of Kansas School of Medicine has reported an unusually significant case in which the patient had probably harbored the parasite for six years without showing any symptoms. There was an anemia of sudden onset, which quickly disappeared after the worm was expelled. When recovered, a large part of the worm was in a state of decomposition. These findings lend support to the idea expressed by Faust and Tallqvist that the anemia of bothriocephalus infestation is due to the absorption of hemolytic substances from the dead worm. The subject is of more than passing importance because there is a large probability that more cases will be recognized in the United States in the coming years and because, in a considerable percentage of cases, confusion with true idiopathic pernicious anemia is likely to occur clinically. There should be little or no difficulty in diagnosing the cases. As the uterus has a special uterine pore, eggs are con-

1. Haden, R. L.: The Cause of Bothriocephalus Anemia (Report of a Case), Am. J. M. Sc. **166**: 338 (Sept.) 1923.

stantly discharged from gravid segments, and may be found in the feces by microscopic examination. The segments show a tendency to be passed in small chains, and ought not to be confused with those of the other tapeworms found in man. Feces of persons harboring this worm should be cared for in such a way that the eggs contained therein do not gain access to fresh-water streams or lakes. Thorough cooking of fish will protect man from infestation.

LIPEMIA RETINALIS

Intra-ocular lipemia, or lipemia retinalis, as it is now most frequently termed, was first described as a symptom of diabetes mellitus by Heyl of Philadelphia in 1880. The diagnosis is based on the ophthalmoscopic aspect of the vascular net of the eyeground. A recent review of the subject in THE JOURNAL [1] has served to direct attention to this significant manifestation of the retina, which seems to have been recognized only rarely, despite the large incidence of diabetes and the growing prominence of lipemia. An added contribution by McCann [2] from the Johns Hopkins Hospital supports the belief that, although only thirty cases have been noted in accessible journals, the condition is much more common than one would suppose from the infrequency of the case reports. There was a time when retinal lipemia was regarded as a terminal symptom of juvenile diabetes. Modern methods of treatment are destined to remove the justification for this assumption. Heretofore it has been supposed that the altered appearance of the retina is due to an excess of fat in the blood—a condition not uncommon in patients with diabetes. McCann's analyses have made it clear, however, that the total fat content of the circulating medium cannot be the sole factor in the retinal manifestations, for the two features do not always parallel each other. Lipemia may persist after the retina has assumed a normal appearance. McCann believes that when the vessels appear whitish, fat may become deposited in their adventitia, or they may become surrounded by a lymph rich in fat so that light is abnormally reflected or refracted. Possibly, too, the state of aggregation of the fats and lipoids in the blood may have more to do with the appearance of the retina than does the total lipoid content. With a growing realization of the presumable frequency with which retinal lipemia occurs, a correct interpretation of its genesis may soon be expected.

THE LOCALIZATION OF IODIDS IN THE BODY

For the physician, iodin and its compounds possess a manifold interest. Outside the body they are employed as antiseptics. The most familiar preparations for such use are iodoform and the tincture of iodin, the latter being one of the most popular of the useful remedies that the practitioner has occasion to employ. For internal administration, the iodids have long had a vogue in medicine. Recent years have brought a host of iodin-yielding competitors in the form of organic compounds of the element; but in all cases in which iodin is used internally the effective therapeutic agent seems to be the iodid ion. In addition to the varied uses in which distinctly medicinal effects are sought, iodin has become recognized as an essential constituent of the organism since its discovery in the thyroid gland by Baumann in 1895. The quantities there concerned are small in any event, involving, at most, milligrams. The estimation of the occurrence of the element under normal conditions and its distribution in the bodily changes has taxed the ingenuity of the analytic chemist, so that relatively few dependable data are available. They deal, at most, with the gross quantities of iodin in masses of blood or tissues. A distinct step in advance, therefore, has been taken by Stieglitz [1] in perfecting a method whereby iodids can be specifically identified, even in minute amounts, in the tissue cells. His studies by means of this technic at the Johns Hopkins Hospital have elicited the highly significant fact that, when iodids are administered, they have a characteristic distribution. The iodin is present chiefly in parenchymatous secreting cells such as those of the kidney and liver, as well as in the epithelium of the trachea and bronchi. With reference to the concentration of the element at the free border of the epithelial cells of the air passages, Stieglitz reminds us that, since iodids are used to increase the flow of mucus—to make a cough "productive," as it were—the histologic findings referred to may possibly be interpreted to suggest that iodids are being secreted there, concentrated at the secretory pole, much as the droplets of mucus in goblet cells. A useful method of investigation is always likely to enrich our knowledge. We shall therefore expect presently to learn much more about the deportment of iodin in the organism.

THE ALLEGED CONVERSION OF ONE PROTEIN INTO ANOTHER

The modern development of immunology has furnished numerous observations indicating that some of the biologic properties of the blood and tissue fluids are closely associated with the proteins therein. If the latter are not actually responsible for the reactions involved, they may at least be assumed to act as carriers of the potent products. An illustrative instance is furnished by the antitoxin of diphtheria, which is in some way associated with the globulin fraction of blood serum. Certain investigators have expressed the belief that globulins may be formed directly from albumins. Twenty years ago, Joachim, for example, asserted that the globulin content of horse serum increases at the expense of its albumin fraction as a consequence of immunizing the animal to diphtheria toxin. Shortly afterward it was announced by Moll [2] that a comparable conversion of albumin into globulin can be brought about in vitro by the simple scheme of heating albumin solutions in an alkaline medium. The judgment as to the occurrence of an actual conversion of one protein into another in this way was based on altered solubilities and other

1. Gray, Horace, and Root, H. F.: Lipemia Retinalis, J. A. M. A. **80**: 995 (April 7) 1923.
2. McCann, W.: Lipemia Retinalis, Bull. Johns Hopkins Hosp. **34**: 302 (Sept.) 1923.

1. Stieglitz, E. J.: The Histologic Detection of Iodids, J. Pharmacol. & Exper. Therap. **22**: 89 (Sept.) 1923.
2. Moll: Beitr. z. chem. Phys. u. Path. **4**: 563, 1904.

physical properties of the new product. There have, however, been repeated protests against this. Albumins and globulins differ not only in their unlike behavior to solvents but also in respect to their chemical make-up; accordingly, biochemists have pointed out the incongruities involved in the alleged conversion. Of late, the serologists who are wont to develop highly specific biologic tests for proteins have protested against the theory of the ready conversion of albumins to globulins. The latest of the critics, Fanconi,[3] has pointed out anew that the so-called artificial globulins differ even in their physical properties from naturally occurring proteins of the globulin type; furthermore, their behavior in anaphylactic tests and other comparable biologic reactions speaks against the assumption that true globulins can be formed as asserted. Thus, the native proteins still remain as examples of unique products that the chemist can as yet neither synthesize nor transmute into each other—nor is the probability of such a remarkable chemical performance near at hand.

Association News

MEETING OF JUDICIAL COUNCIL

A meeting of the Judicial Council, with all members of the Council present, was held at Chicago, December 17. Two appeals were before the Council, both of which were set for final hearing at a later date. A large number of communications were considered by the Council, most of which were referred to state associations for proper disposition, since they concerned matters that come within the jurisdiction of state councils or county medical societies. Opinions and decisions arrived at by the Council will be submitted to those concerned through correspondence and through the *American Medical Association Bulletin* and The Journal.

MEETING OF THE COUNCIL ON SCIENTIFIC ASSEMBLY—CONFERENCE OF SECTION SECRETARIES WITH THE COUNCIL

A meeting of the Council on Scientific Assembly was held at Chicago, December 21-22. All members of the Council were in attendance, and many matters pertaining to the scientific work of the Association were given consideration. Requests were submitted to the Council for the creation of at least two new sections. It was decided that two sessions on radiology and one session on anesthesia shall be held in the Section on Miscellaneous Topics at the Chicago Session, June 9-13, 1924. For the sessions on radiology the following officers were chosen: chairman, W. F. Manges, Philadelphia; vice chairman, Albert Soiland, Los Angeles; secretary, M. J. Hubeny, Chicago. For the session on anesthesia: chairman, J. T. Gwathmey, New York; vice chairman, E. I. McKesson, Toledo; secretary, Isabella Herb, Chicago.

A number of communications suggesting the creation of a new section on physiotherapy were before the Council. It was the opinion of the members of the Council that papers on subjects pertaining to physiotherapy should be presented before the proper sections of the Scientific Assembly already in existence. It was apparent in the discussion of the matter that the Council considers it important that papers which will properly present physiotherapeutic measures and methods of proved efficiency shall be so presented, and that what has been established in this field should be forcefully brought to the attention of the general profession.

On December 22, the regular annual conference of the section secretaries with the Council on Scientific Assembly was held. All sections but two were represented by their secretaries. Unforeseen emergencies prevented the attendance of officers of these two. Reports submitted indicate that the program of the Scientific Assembly at the Chicago Session will be of a high order and of a wideness of scope that will attract and interest a large attendance from all ranks of the profession of the country.

3. Fanconi, G.: Zur Frage des sogenannten künstlichen Globulins, Biochem. Ztschr. **139**: 321 (July) 1923.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CONNECTICUT

The Diploma Inquiry Continued.—The grand jury investigation of fake medical diplomas has been discontinued until January 2. Seventy-five new subpoenas have been prepared for witnesses. It is said that subpoenas have been served on Dr. Francis J. Harper of Norwich and the Rev. Dr. George F. Coggswell, a magnetic healer, and that a search has been made for Dr. William Apostolon Roody, a native of Turkey, who until recently had an office in New Britain. New York is cooperating with Connecticut and a conference between officials of the two states will be held before the grand jury reconvenes on evidence already adduced. It is said that an exodus of quacks from Connecticut to New York has occurred since the inquiry started and that New York officials have brought to the attention of the grand jury the case of Dr. John Hraba, said to be a graduate of the Middlesex College of Medicine and Surgery and of Carnegie University. Hraba when licensed in Connecticut in 1920 gave New York as his address, saying he was born in Vienna, and had the degrees of B.A., Ph.D. and D.O. Herman Shelf of New York City has written to the Connecticut Department of Health recommending that his own license be revoked and returning his license by letter. Shelf had not yet been under suspicion as far as known. Investigators have found, it is said, that Dr. Julius P. Karp, an eclectic of Hartford, failed five times to pass the state board examination in Connecticut, then, after attending the Kansas City College of Medicine and Surgery, passed the Arkansas eclectic board, and returned to Connecticut and passed the examination there.

DISTRICT OF COLUMBIA

Funds for Health Department.—The budget submitted to Congress, December 10, calls for an appropriation of $245,340 for the department of health of the district. The largest item was $130,640 for employees. Fourteen thousand five hundred dollars was requested for a dispensary for indigent persons affected with tuberculosis and venereal disease.

FLORIDA

Personal.—Dr. Henry O. Snow, Tampa, has resigned as county physician. Dr. Allen F. Higgins has been appointed to succeed him for the unexpired term which closes Jan. 1, 1924.

Hillsborough County Election.—The following officers were elected by the Hillsborough County Medical Society at Tampa, recently: president, Dr. John H. Mills to succeed Dr. Joshua C. Dickinson; Dr. H. Mason Smith, vice president, and Dr. Charles R. Marney, secretary.

State Public Health Conference.—At the annual meeting of the Florida Public Health Association in Jacksonville, November 26-27, Rabbi Israel L. Kaplan, Jacksonville, was elected president; Prof. R. M. Seeley, Tallahassee, vice president, and Dr. Turner Z. Cason to the board of directors. It was arranged to form a state department of health education as a branch of the state department of public instruction.

GEORGIA

Personal.—Dr. Warren A. Harrison, Sycamore, has been appointed full-time health commissioner of DeKalb County. ——Dr. Charles L. Ridley has been appointed health officer for Macon and Bibb County.

ILLINOIS

Chiropractor Convicted.—Max Walder, chiropractor of Danville, was found guilty by a jury in a Danville court of "treating human ailments without the use of medicine or surgery and without a state license," it is reported. Walder appealed the case maintaining that the law is invalid.

Personal.—Dr. Lewis T. Gregory has resigned as physician at the county hospital, home and jail of Urbana. He is succeeded by Dr. George F. Way.——Dr. Charles H. Chetwood, New York City, has been appointed attending urologist to the French Hospital, New York City.——Thomas G. Hull, Ph.D., chief of the division of laboratories, state department of health, represented the department at the annual meeting of the Society of American Bacteriologists at New Haven, Conn., December 27-29.——Dr. Albert E. Campbell has resigned as city superintendent of Springfield.

Chicago

"Doctor" Locked Up.—It is reported that "Dr." K. S. Ramasauskas, Chicago, was locked up at the detective bureau recently accused of causing the death of an infant for which he prescribed.

Personal.—William A. Hoffman, Chicago, has recently been elected secretary of the Chicago Eye, Ear, Nose and Throat College, to succeed the late John Raymond Hoffman.——Dr. Loyal E. Davis, Chicago, has been granted a professorship in surgery at the University of Chicago Medical School for three years.

INDIANA

Hospital News.—Bids will be opened, December 10, for the new Lake County Hospital which will be erected in East Chicago at a cost of $400,000.——A new hospital building will be erected for Howard County at Kokomo at a cost of $250,000.

Typhoid Epidemic.—The epidemic of typhoid fever at Fort Wayne, noted in last week's JOURNAL, comprised 111 cases and nine deaths on December 12, at which time Dr. Arthur L. Oilar, of the state board of health, said the epidemic was about over.

License Restored.—It is reported that Judge E. M. Norton, Lake County Circuit Court, has ordered that the license of Dr. Adolph M. Teixler, Indiana Harbor, be restored. The court ruled, it is said, there was no evidence to sustain the charges entered against Dr. Teixler.

Personal.—Dr. Herman L. Kretschmer, Chicago, was the principal speaker at a dinner of the Indianapolis Medical Society, December 11. His subject was "Problems of Diagnosis in Kidney Surgery."——Dr. Max A. Bahr has been appointed superintendent of the Central Hospital for the Insane, Indianapolis, to succeed the late Dr. George F. Edenharter, who died last week.

KANSAS

Reciprocity Abandoned.—That form of reciprocity between Kansas and Arkansas by which physicians licensed to practice medicine in one state might obtain a license to practice in the other has been abandoned due to the exposure of the Missouri diploma mills.

KENTUCKY

Hospital News.—The Jackson City Hospital, Jackson, was opened to the public, November 1. The staff comprises Drs. C. Hardin Hurst, Overton H. Swango, Daniel H. Kash, Myrvin E. Hoge and Arthur H. Davis.

Personal.—Dr. Richard A. Bolt, medical director of the American Child Health Association, delivered a series of lectures during the week, December 17-22, before the students of the University of Louisville Medical Department, the state board of health and other organizations.

LOUISIANA

Personal.—Dr. Harvey F. Garrison has resigned as physician to Mississippi College, Clinton, and will practice at Jackson.

Parish Schools Closed.—Dr. Oscar Dowling, president of the state board of health, has ordered the closing of the Ouachita Parish schools. It is reported that the Ouachita Parish Board of Education and the head of the parish schools "neglected, failed or refused to cooperate for the protection of the public health" with regard to obeying that part of the sanitary code which concerns smallpox vaccination.

MAINE

Illegal Practitioner Held.—It is reported that Raymond E. Cunningham of Lagrange was held in the municipal court at Bangor recently for the January grand jury charged with practicing medicine without a license. Cunningham gave bail.

Personal.—Governor Baxter recently nominated Dr. George L. Pratt of Farmington as medical examiner for Franklin County.——Dr. Silas Blaisdell, formerly of Brooklyn, N. Y., has been appointed a member of the Waldo County General Hospital staff at Waldo.

MASSACHUSETTS

Chiropractors Fined.—It is reported that William E. McDougal and Joseph E. Jasper, Boston chiropractors, were each fined $200 in the municipal court for practising medicine without a license.

Dr. Swope Out Under Bond.—Dr. Dalva H. Swope, Boston, indicted as accessory to the crime for which William M. Robb is now serving sentence (THE JOURNAL, Dec. 22, 1923) has been released on $5,000 bail. The accessory to murder indictments were nolle prossed against Dr. Swope, but he was rearrested on a capias in order to hold him on a new indictment for lesser crimes.

MICHIGAN

Smallpox.—Ten cases of smallpox were recently discovered at Augusta recently by the local health officer, who made an investigation by request of the state board of health.

Dr. Olin Reappointed.—Dr. Richard M. Olin, Lansing, state health commissioner, has been reappointed to that position and the appointment has been confirmed by the senate.

MINNESOTA

Chiropractor Sentenced.—Bernard Lee, chiropractor, St. Paul, charged and convicted by a jury in district court of practicing chiropractic without a state license was sentenced to six months in jail and to pay a fine of $100, it is reported.

Society News.—The Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association met at Minneapolis for its annual meeting, December 11-12. Dr. John V. R. Lyman, Eau Claire, Wis., presided. Dr. Frank Gregory Connell, Oshkosh, Wis., was elected president; Dr. George G. Eitel, Minneapolis, vice president, and Dr. John H. Rishmiller, Minneapolis, secretary-treasurer.

Personal.—Dr. Anthony A. Meyer was elected mayor of Melrose at the recent election.——Dr. Lysander P. Foster, known as Minneapolis' oldest physician, celebrated his eighty-seventh birthday, November 4.——Drs. John B. Robertson, Cottonwood, and Harper M. Workman, Tracy, were elected president and secretary-treasurer, respectively, of the Lyon-Lincoln County Medical Society, recently.

MISSOURI

Chiropractor Guilty.—H. L. Gordon, Princeton, a chiropractor, who was indicted about three months ago for practicing medicine without a license, was found guilty, December 14, and assessed a fine of $50.

Personal.—Dr. D. D. Campbell, superintendent of state hospital No. 3, Nevada, has resigned. Dr. James H. Parker, superintendent of state hospital No. 4, Farmington, has been transferred to the state hospital at Nevada.

NEW JERSEY

Antiquack Legislation Proposed.—The State Board of Medical Examiners of New Jersey announced, December 18, that legislation to weed out the quacks from among the medical practitioners of the state would be proposed to the 1924 legislature. The board will recommend measures that will prevent persons unable to meet the state requirements from obtaining a license, that will force medical institutions to get the approval of the state board before obtaining charters, and that will require interns to pass an entrance examination.

Personal.—A testimonial banquet was given to Dr. Arthur Leland Smith, New Brunswick, November 14, at Rutgers College, in recognition of his twelve years' service to the public schools of the city. Dr. Smith was presented with a gold

watch.——Dr. Julia C. Mutchler, Dover, has been elected a member of the Dover board of aldermen.——Dr. Thomas S. Dedrick, Washington, who was a member of Admiral Peary's arctic expedition, addressed the Clinton Woman's Club, recently.——Drs. Samuel F. Ashcraft, Mullica Hill, and Dr. George E. Reading, were elected president and secretary-treasurer, respectively, of the Gloucester County Medical Society, November 15.

NEW YORK

University News.—Columbia University College of Physicians and Surgeons is offering a course in laryngology and otology, January 7, and also a course in diseases of children on January 14. The latter course will be repeated, March 10, for another eight weeks. Among the instructors will be Professors Kernan, Gallaudet, Elwyn, Hawkins, Dunning and Rosen.

Society News.—The subject for discussion at the meeting of the Medical Association of the Greater City of New York, at the Academy of Medicine, December 17, was "Pneumonia." Dr. Russell L. Cecil read a paper on "The Serum Treatment of Pneumonia"; Dr. Tasker Howard on "Some Points on the Early Diagnosis of Pneumonia"; Dr. William Benham Snow on "Diathermy in the Treatment of Pneumonia" and Dr. Harlow Brooks on "The Management of the Heart in Pneumonia."——The Williamsburg Medical Society, at its annual meeting, December 10, elected the following officers: president, Dr. Max Lederer; vice presidents, Drs. Herman Shann and Aaron Rokeach; treasurer, Dr. Joseph F. Morris; secretary, Dr. Bernard B. Berkowitz.

New York City

Opium Raid.—Dr. Carleton Simon, special deputy police commissioner in charge of the narcotic division led a raiding party aboard the British ship *Fort St. George* of the Furness Burmuda line, December 18. As a result nineteen Chinese were locked up in the police station charged with smoking opium and with having opium in their possession illegally. The twentieth victim was unconscious and was left aboard a prisoner.

Dr. Emerson Visits Germany.—Dr. Haven Emerson, of Columbia University, sailed, December 15, for Berlin, Germany, to obtain first-hand information concerning the situation there. Dr. Emerson went at the invitation of the American Friends Service Committee. He will visit Breslau, Chemnitz, Düsseldorf, Cologne and parts of the Ruhr region to observe the condition especially of children in the hospitals and schools.

Rockefeller Institute.—The hospital of the Rockefeller Institute for Medical Research announces that the following conditions are being studied in this hospital and that patients suffering from these diseases will be admitted to the extent of the hospital facilities: (1) Chronic cardiac disease, patients showing a completely irregular pulse and fibrillation of the auricles are especially desired; (2) rheumatic fever, patients should be referred early in the course of the disease; (3) chicken-pox; (4) acute pulmonary infections, including acute lobar pneumonia; (5) nephritis, particularly in young persons. Cases showing edema are especially desired.

Chiropractor's Case Probed.—District Attorney Dodd of Brooklyn began an investigation, December 19, of circumstances surrounding the death of a 6 year old child who died of diphtheria after being treated by a chiropractor by the name of Ernest Meyer, it is reported. A physician was called to see the patient forty-five minutes before she died. Dr. Gerhard L. Moench, medical examiner of Brooklyn, who assisted at the necropsy, said, according to reports reaching his office the child had not only failed to receive proper medical attention before it was too late, but that the chiropractor who had been treating the child for some time had also failed to report the case to the health department as required by law.

Kings County Medical Society.—At the one hundred and third annual meeting of the Kings County Medical Society in Brooklyn, December 18, a resolution was unanimously adopted to support the state and city officials in exposing and eliminating quackery in the medical profession. The resolution was as follows: "Whereas there has been a conference of the District Attorney of Kings County, representatives of the police and health departments, and the Medical Society of Kings County looking to ways and means of ascertaining the number of fraudulent practitioners of medicine in this county and of determining steps to be taken to rid the county of the same, therefore be it resolved that the Medical Society of the County of Kings do hereby pledge itself to aid the above named public officials in any and all ways possible toward the consummation of that purpose as it always has." A motion to the effect that identification cards be issued to all members in good standing was adopted after some opposition. The following officers were elected: Charles A. Gordon, president; John E. Jennings, vice president; Lewis P. Addoms, secretary; Charles H. Goodrich, treasurer; Eliot Bishop, associate treasurer; William Browning, directing librarian; Jacques C. Rushmore associate directing librarian and curator; Charles E. Scofield, the retiring president, trustee.

OHIO

Seven Chiropractors Tried.—In Squire Schuler's court at Sevenmile recently, chiropractors Barlow, Craig, Heim and Heim, Thomas and Thomas of Middletown and Zierfle of Oxford were tried and found guilty of practicing medicine without a state license, it is reported.

PENNSYLVANIA

Board of Health Elects Officers.—At the annual meeting of the Jersey Shore Board of Health, December 7, Dr. Warren N. Shuman was elected president; Dr. J. O. Karicher was reelected secretary and Dr. M. R. Derk was reelected health officer of Jersey Shore for one year.

More Diploma Mills.—The state board of medical and dental examiners has requested an investigation of five alleged diploma mills incorporated in Delaware, and said to be operating, from New York. Complaint has already been filed against one of them, the so-called "Lincoln University, Inc." The others are the "Lincoln College of Chiropractic, Inc.," "The Cosmopolitan University, Inc.," "Lafayette University, Inc.," and the so-called "Rockefeller Institute," which was chartered last September, two of the officers being David Rockefeller and Catherine Rockefeller. These organizations are permitted, it is said, to grant degrees by correspondence courses. Dr. William Hellegas, of the Pennsylvania state board of medical examiners, said, it is reported, that for $100 any sort of a diploma would be given.

Philadelphia

Gifts to the University of Pennsylvania.—The board of trustees of the University of Pennsylvania announced, December 17, that two gifts, totaling $500,000 had been received by the university toward the erection of a $1,000,000 laboratory of anatomy and physiological chemistry. One gift of $250,000 was from the Rockefeller Foundation and the other was from the General Medical Education Board. Both are offered with the understanding that the university will raise at least an additional $500,000 for the laboratory building. President Penniman placed before the trustees a comprehensive scheme for the launching of the university's long deferred endowment campaign. President Penniman said last spring that an endowment of $25,000,000 would not be more than adequate for the university. The trustees have set no definite date for the opening of the endowment drive.

RHODE ISLAND

Personal.—Dr. Alfred M. Merriman, Providence, has been re-elected medical inspector of the public schools of Bristol.

SOUTH DAKOTA

Health in Minnehaha County.—If Minnehaha County will provide funds for an extended health program, both the Rockefeller Foundation and the state department of health will each give $2,500. The new work would include instruction and care in maternity and infant cases, examination and care of tuberculosis and general and school nursing.

TENNESSEE

Personal.—Lieut. Robert W. Wimberly, M. C., U. S. Navy, gave an address on the United States Navy from the Revolutionary War to the present time, before the senior class of Vanderbilt University Medical Department, December 5.——Dr. Henry M. Bracken, Minneapolis, conferred with health officials in Nashville, December 5, to secure the cooperation of state health agencies concerning an educational campaign for the treatment and prevention of venereal disease. Dr. Bracken, who is working under the auspices of the American Social Hygiene Association, will also visit Georgia, Louisiana, Alabama, North Carolina and South Carolina.——Dr. Olin W. Rogers, Knoxville, was elected president recently of the Southern Association of Anesthetists, at Washington, D. C.

TEXAS

Crippled Children's Hospital Opened.—The Shriner's Hospital for Crippled Children at Dallas was formally dedicated, November 15. The new institution, which was erected at a cost of $300,000, will receive only charity patients.

Professor Chandler Resigns.—Asa C. Chandler, Ph.D., professor of biology, Rice Institute, Houston, has resigned to accept a position as head of the department of helminthology in the School of Tropical Medicine, Calcutta, India. Professor Chandler will leave for India early in January.

Clinic at Army Hospital.—At the ninth annual convention of the Medical and Surgical Association of the Southwest held at El Paso, December 11-13, an evening was devoted to a clinical demonstration at the U. S. Army William Beaumont General Hospital, Fort Bliss, at which Majors Frederick S. Wright, Thomas E. Scott, Chester R. Haig, Thomas D. Hurley and Captains Charles F. Davis, William W. McCaw and James A. Orbison took part in the discussion. Supper was served at the hospital at the close of the clinic.

UTAH

Society Election.—At the annual meeting of the Salt Lake County Medical Society, December 10, the following officers were elected for the ensuing year: president, Dr. Archibald A. Kerr; Dr. John Z. Brown, vice president; Dr. Maurice M. Critchlow, secretary, and Dr. Joseph E. Jack, treasurer.

WEST VIRGINIA

Personal.—Dr. George M. Lyon, Huntington, was acclaimed champion golfer of the Southern Medical Association at the annual meeting in Washington, recently. He was awarded the McLean Post cup.——Dr. Alfred Friedlander of the University of Cincinnati College of Medicine, read a paper before a joint meeting of the Cabell and Kanawha county medical societies at Huntington, November 8.

WISCONSIN

Personal.—Dr. A. Elmer Myers, Superior, has been elected president; Dr. Joseph R. Kuth, vice president, and Dr. George H. Conklin, secretary-treasurer of the Interurban Academy of Medicine of Duluth and Superior.——Dr. Clesson C. Atherton, Kankakee, has been appointed superintendent of the Southern Wisconsin Colony and Training School, to succeed Dr. Henry G. Werner, resigned.

Package Libraries.—The extension division of the University of Wisconsin through the cooperation of the state medical society has established a package library whereby any physician in the state will be loaned a "package" for two weeks on his application. Although established but one month, several packages on the following subjects are now ready for distribution: Cancer, diphtheria, vaccination, periodical physical examination, insulin, fractures of the long bones, treatment of infection and sensitizational disease with foreign proteins, and control of communicable diseases.

"Health Institute" Examinations "Searching."—It appears that the Milwaukee Health Institute, which recently closed following the arrest of "four doctors and employees" advertised, "Our Examinations are Searching." The Milwaukee *Journal* commenting on this part of the advertisement said: "The patient is received in an outer office by a young 'doctor' who gets the history of the patient and makes the first casual examination. The patient is then told to strip and to step into an adjoining room where another 'expert' will examine him. The man does this, leaving all of his clothes in the office with the first doctor, who promptly goes through the pockets to find out how much money the patient has on his person and how much the down payment for treatment will be." Dr. Wallace A. Reinhardt, arrested in connection with the exposé of the institute, is said to have been involved also in the prosecution of the "Wisconsin Medical Institute" in 1908 when he is said to have signed an agreement not to practice in Wisconsin "under the names of any medical institute or corporation."

CANADA

Memorial Entrance for McGill.—Lady Roddick has donated $50,000 for the erection of an imposing entrance to the grounds of McGill University in memory of her husband, the late Sir Thomas Roddick.

Society News.—The annual meeting of the Manitoba Medical Association was held recently in Brandon, under the presidency of Dr. S. J. S. Pearce. The following officers were elected for the ensuing year: president, Dr. Gordon S. Fahrni, Winnipeg; Dr. William J. Elliott, Brandon, and Dr. Ross Mitchell, Winnipeg, vice presidents, and Dr. Norman W. Warner, secretary.——At the annual meeting of the Victoria (B. C.) Medical Society, Dr. Morton J. Keys was elected president and Dr. Gordon C. Kenning, secretary.

Special Convocation for Banting and Macleod.—At a special convocation of Toronto University, November 26, the honorary degree of Doctor of Science was conferred on Professors Frederick G. Banting and John J. R. Macleod. The governors of the University gave a banquet in the evening to celebrate the award to their compatriots of the Nobel prize. About four hundred graduates of the university and representatives of various public bodies attended. Among those at the head table were: the chancellor, Sir Edmund M. Walker; the president, Sir Robert A. Falconer, LL.D., Prof. Lewellys F. Barker, Johns Hopkins University Medical School, Baltimore, Prof. Archibald B. Macallum of McGill University, the attorney general of Ontario, Mr. W. J. Nickel, the two guests of honor, and Mr. Charles H. Best. On rising to speak, Banting and Macleod were given ovations.

GENERAL

Honorary Fraternity.—Two new chapters of the Alpha Omega Alpha Honorary Fraternity have just been installed at the University of Oregon and New York University, making a total of twenty-nine chapters, all of which, except two which are at Canadian universities, are in the United States.

Railway Association Formed.—The surgeons of the Great Northern Railway formed an association in November. Dr. Portus Baxter, Libby, Mont., was elected president; Drs. R. Simpson, Winnipeg, Man., Canada; John G. Cunningham, Spokane, Wash., and Roscoe C. Webb, Minneapolis, vice presidents, and Dr. Harold E. Hullsiek, St. Paul, secretary-treasurer. The association will be known as the Great Northern Railway Surgeons Association and the next meeting will be held in Spokane in June, 1924.

Test Case for Medical Beer.—The government filed a brief, December 21, with the supreme court which denied the right of physicians to prescribe beer. Defending the constitutionality of the Willis-Campbell antibeer law, the brief signed by Solicitor General Beck and Mrs. Mabel Walker Willebrandt, in charge of prohibition prosecutions, declared that beer has no medicinal value and that its prohibition under physicians' prescriptions was necessary to enforce national prohibition. The case which is an appeal is expected to be also a test case that will result in a final determination of the legal right to prescribe beer as medicine.

Motorists Warned Again.—With the coming of winter, the Department of the Interior has issued a warning to motorists who permit their engines to run in closed garages. It is a common practice, on cold days, to allow the engine to run for five or ten minutes before leaving the garage, in order to warm up the oil and water. This is an extremely dangerous practice and cases are reported frequently where the driver is found dead at the wheel. If it is desired to warm up the engine, all windows and doors should be opened, or better still, the car should be driven into the open air where the toxic exhaust gases are quickly dissipated. Four tenths of 1 per cent. of carbon monoxide, that is, 4 parts per thousand, will kill an ordinary man in one hour, it is said, and a higher concentration will prove fatal in a much shorter time. Automobile tests made at the Pittsburgh experiment station of the Bureau of Mines show that the amount of carbon monoxide present in the exhaust gases varies from 2.4 to 9.5 per cent. The air in a closed garage will reach the danger point in a very few minutes.

Government Hospital Report.—The report of St. Elizabeth's Hospital, Washington, D. C., for the year ending June 30, 1923, reveals a total population on that date of 4,108, an increase of 208 since the corresponding date of 1922. Admissions during the year have increased by 176 to 1,027; the deaths numbered 282, a decrease of two. The ratio of colored to white men is 1:4, the corresponding ratio for women being 1:1.6. It is interesting to note that the ratios for cases of general paralysis were 1:8 for the men and 1:1.2 for the women, suggesting that this disease was twice as prevalent in white men as in colored men, but less prevalent in white women than colored women. During the year the hospital has initiated treatment of general paralysis by inoculation with the malarial plasmodia as recommended by von Jauregg of Vienna. No results are given in the report. Another feature of the year has been the inauguration of

a psychiatric training school for physicians, nurses and social workers connected with the U. S. Veterans' Bureau.

National Immigration Conference.—The National Immigration Conference, which met, December 13 and 14, in New York, resolved itself into a constructive means of placing on record recommendations for an orderly and broad revision of the immigration laws. More than 500 persons attended the sessions of the conference. The conference took no formal notes and entertained no formal motions. The sessions indicated that industrialists favor a sound immigration policy which extends the present Per Centum Limit act for a few years. The admission of the wife and minor children arriving with an admissible alien or subsequently joining him in the United States without being charged to quotas if otherwise admissible was favored in order to promote family unity. The policy of encouraging quality immigration rather than quantity was also favored, and a proper system of selection was urged but no definite plan of selection was put forward. The appointment of an advisory commission by President Coolidge under a resolution of Congress, to report to Congress through him was discussed. A complete stenographic transcript of the conference is being published by the National Industrial Conference Board, and will soon be available for distribution on request.

Society News.—The annual meeting of the American Association for the Study of Goiter will be held at Bloomington, Ill., Jan. 23-25, 1924, under the presidency of Dr. E. P. Sloan of Bloomington. Commander William S. Bainbridge, U. S. Navy; Dr. Wayne Babcock, Philadelphia; Dr. George Van Amber Brown, Detroit; Dr. William Englebach, St. Louis; Dr. Andre Crotti, Columbus, among others will give addresses. Operative clinics will be held at the St. Joseph and the Mennonite hospitals. The general sessions, exhibits and registration will take place at the Unitarian Church.——The next annual meeting of the American Urological Association will be held at Atlantic City, N. J., May 26-28, 1924.——The annual meeting of the American Students Health Association will be held in Cincinnati, Jan. 1-2, 1924, under the presidency of Dr. Joseph E. Raycroft of Princeton University. Among the speakers will be Dr. William G. Donald of the University of California; Dr. Wade MacMillan, Miami University; Dr. Robert J. Cook, Yale University, and Dr. Charles W. Goddard of the University of Texas.——The next annual meeting of the Western Electro-Therapeutic Association will be held in Kansas City in April under the presidency of Dr. Harry H. Bowing, Rochester, Minn.

Columbian Institution for the Deaf.—The sixty-sixth annual report of the Columbian Institution for the Deaf, to the Secretary of the Interior, states that in the advanced department of the institution known as Gallaudet College, there were eighty-two men and fifty-two women under instruction, representing the District of Columbia, Canada, and thirty-three states. This is a total increase of twenty students compared with the preceding year. In the primary and grammar department, known as the Kendall School, there were eighteen boys and twenty-six girls under instruction, which is a total decrease of four compared with the preceding year. There were discharged from the institution, thirty males and twenty-six females, and thirty males and twenty-three females admitted. The most pressing need of the institution, the president states, is a larger appropriation to assure the retention of experienced teachers and employees to care for the larger student body. It has been necessary for the last three years to maintain a waiting list of desirable candidates because of lack of housing facilities in the advanced department. All deaf mutes of teachable age, of good mental capacity, and belonging properly to the District of Columbia are received without charge. The charge for pay pupils is $500 per annum. To students from the states, who have not the means to defray all expenses, the board of directors renders such assistance as circumstances seem to require, so far as the means at its disposal will allow.

Rockefeller Foundation.—At the regular December meeting, the Rockefeller Foundation elected to membership in its China Medical Board, Prof. Paul Monroe, Teachers College, Columbia University, and to membership in its International Health Board, Dr. John G. FitzGerald, professor of hygiene and preventive medicine, and director of the Connaught Antitoxin Laboratories, at the University of Toronto. Professor Monroe has been connected with Teachers College of Columbia University since 1897. He is professor of education and director of the International Institute recently created by the Teachers College with the object of giving special attention to foreign students and conducting investigations and research into education in foreign countries. Dr. FitzGerald received his medical education at Toronto University and did graduate work in medicine at the Harvard Medical School, Pasteur Institute, Paris, and the University of Freiburg. From 1911 to 1913 he was associate professor of bacteriology in the University of California.

Carrying out pledges previously made, the sum of $1,000,000 was appropriated to the medical school of the University of Chicago, $1,000,000 to the medical school of the University of Toronto, and $225,000 to the medical school of the University of Iowa. In addition, $500,000 was appropriated for endowment of the medical school of the University of Alberta, Canada. Appropriations were made to continue fellowships in physics, chemistry, medicine, and the biologic sciences in the United States under the auspices of the National Research Council. An estimate of the expenditures of the foundation for the year 1924 shows commitments of $10,500,000, leaving a balance of less than $1,000,000 still available for appropriation in 1924 from the regular income of the year and balances carried forward from the previous year.

FOREIGN

Centennial of Lisbon Medical Society.—The Sociedade das Sciencias Medicas de Lisboa celebrates this month the centennial of its foundation, with an historical exhibition and addresses.

Memorial to Physician.—A new pathologic department and roentgen-ray laboratory has been erected at the Cambridgeshire (England) Tuberculosis Colony, as a memorial to the late Prof. Sir German Sims Woodhead. It was formally opened November 22.

The Atkin Committee.—Dissatisfaction with the mitigation of legal penalties in the case of insane persons who commit crime in England led to the appointment of a committee presided over by Lord Justice Atkin to determine what should be the reaction of society toward mentally abnormal persons in such cases. The committee which has just issued its report, was entirely a legal one but it took medical evidence furnished in part by two medical committees, one appointed by the British Medical Association, the other by the Medico-Psychological Association. The British Medical Association committee practically recommended that the present rules should remain unaltered with a modification as to lack of control. The Medico-Psychological Association committee recommended that an insane person who committed a crime should not be held responsible unless it was proved that the mental disorder was not calculated to influence the commission of the act. The Atkin committee rejected the suggestion made by the Medico-Psychological Association committee and recommended the retention of the "McNaughton rules" which have been the foundation on which the law has been administered for many years. The committee advises however that a person should be held irresponsible for a criminal act "when the act is committed under an impulse which the prisoner was by mental disease in substance deprived of any power to resist." The interpretation of the word "substance" in this connection will, in the opinion of the *Medical Officer*, lead to "acrimonious disputes" if this is made the rule on which courts of law are to act.

Deaths in Other Countries

Dr. **Paul Oudin,** Paris, one of the pioneers in electroradiology, aged 72. He made the first roentgenogram in France, and introduced therapeutic cataphoresis. The Oudin resonator is used in wireless telegraphy as well as in medicine. ——Dr. **A. C. Faartoft** of Nykøbing, Denmark, a leader in the organization of the profession and in public health work, aged 80.——Dr. **G. Linossier,** of the medical faculty at Lyon and member of the editorial staff of the *Paris médical*.——Dr. **Guillaud,** emeritus professor of materia medica at Bordeaux. ——Drs. **C. Matthey** and **H. de Montmollin,** Neufchâtel, aged 64 and 81, respectively.——Dr. **A. Rist,** Versailles, the father of Dr. E. Rist, Paris.——Dr. **P. Michaux,** Paris, founder of the Fédération gymnastique et sportive, after retiring from the surgical service of the Paris hospitals on reaching the age limit, aged 69.——Sir **Lambert Hepenstal Ormsby,** former president of the Royal College of Surgeons of Ireland, and a member of the Irish senate, at his home in Dublin, December 21, aged 73.——Dr. **Zacharias de Azevedo,** S. Paulo, Brazil. ——Dr. **Enrique Herraiz,** Buenos Aires.

CORRECTION

Peculiar Reactions Between the Fifth and Seventh Cranial Nerves.—In the article by W. T. Coughlin on this subject, in THE JOURNAL for December 15, page 2019, in the fourth paragraph the word "nerve" appears three times, instead of the word "artery." This is also clear from the context.

Foreign Letters

BERLIN

(From Our Regular Correspondent)

Dec. 1, 1923.

Protests Against the Health Insurance Decrees

As a protest against the governmental decrees introducing modifications in the social insurance law, to which reference has been made in recent letters, an indignation meeting of physicians was held here, November 20, at which the representatives of medical societies, and Geheimrat Kraus representing the medical faculty and the Berlin scientific societies, called attention in vehement terms to the bad effects that the decrees are bound to have, not only on medical practice but also on scientific medical work. The following resolution was passed unanimously:

The medical profession in Berlin has learned with deep indignation of the recent decrees promulgated by the federal ministry of labor. It wishes to emphasize that the representatives of the medical profession were at no time given an opportunity to express themselves on the subject. It feels that such an unusual attitude on the part of a federal board, toward a profession on whose willing and sacrificing cooperation the proper functioning of social insurance depends, is evidence of disrespect and lack of consideration, and shows plainly that the content of the decrees was not decided on with the unbiased and impartial judgment which should at all times characterize the legislative acts of a federal board. The decrees are a menace to harmonious relations between the health insurance societies and the physicians. They leave the physician almost defenseless and subject to the caprice of the executive committees of the health insurance societies; they deprive him of his professional independence; they are of such a nature as to awaken struggles with conscience in the minds of physicians; they undermine the solid foundation of the contracts on which most German physicians depend for their livelihood and which are indispensable for preserving peace between the physicians and the health insurance administrators. They hamper the much needed introduction of new blood into the panel, and thus constitute a menace to scientific research and training. The medical societies declare the decrees, as a whole, intolerable. They will never permit such attempts on the part of the health insurance societies to break down the personal or professional independence of their members, and, if necessary, will not hesitate to resort to severe retaliatory measures. For any and all consequences that may arise from such eventualities, the blame would lie first and foremost at the door of the body responsible for these decrees.

In many other places simultaneously, protests were raised by the medical profession. Fortunately, these protests have not fallen on deaf ears but have received the endorsement of several political parties. In fact, the legislature of Prussia passed a resolution, November 30, requesting the federal government to nullify the decrees of the federal minister of labor. In the meantime, however, the executive committee of the Leipzig League has passed a resolution canceling the contracts with the health insurance societies, and consequently not only the panel physicians in Berlin, but presumably in most parts of the country, have served notice of cancelation on the health insurance societies, so that with the first of December begins a period in which the relations of the health insurance societies and the panel physicians are no longer governed by contract. Patients insured in the health insurance societies will not be treated by the panel physicians in return for capitation fees but, if at all, only as private patients. The federal government, with a view to lessening the objections to the decrees, has issued several orders during the last few days, and there is scarcely a doubt that it will take further steps to meet the demands of the physicians. Doubtless, either the decrees will be rescinded or their most objectional features will be eliminated.

Marked Decrease of Births in Berlin

The birth rate for the third quarter of 1923 is only 9 per thousand of population, or, reducing it to a yearly basis, only one third of the birth rate of the prewar period; it is without doubt the lowest birth rate ever recorded in a city. The number of births for the year 1922 was about 8,000 less than the deaths. It is estimated that the loss in population for the year 1923 will amount to 12,000. The causes for the decrease in births are various. The main cause is to be sought in the general poverty of the people, which makes an addition to the family a luxury, so to speak. Next in importance come the bad housing situation, with the unspeakably crowded quarters, and the extremely high cost of medical attendance, medicines, bandages, etc. To these conditions may be ascribed the fact that an increasingly large percentage of confinements take place in institutions. In Greater Berlin, in 1919, 5,600 women (10 per cent. of all confinements) were delivered in institutions; in 1920, 7,700 women, or 12 per cent. of all confinements; in 1921, 9,100 women, or 16 per cent. of all confinements. This rate of increase has continued approximately in 1922 and 1923. A separate delivery ward was established in the Moabit Hospital, October 17. The funds for changing the old operating ward into a modern delivery ward were derived from private subscriptions. The municipality made no contributions whatever. The ward has been named, in honor of the chief contributor, the Moritz Griess Pavilion.

Personal

November 26, Sudhoff, professor of the history of medicine in the University of Leipzig, celebrated his seventieth birthday. Like many other eminent investigators, he was formerly a general practitioner. He graduated in medicine in 1876, and in 1878 settled in Frankfort as a general practitioner. From 1883 to 1905, he enjoyed an extensive practice in Hochdahl. A good share of his income was used for the purchase of books; particularly, original sources of the history of medicine. On the material thus collected was based his well known work, "The History of Paracelsus of Hohenheim," published in 1887, the appearance of which gained for him recognition as a good historian of medicine. Sudhoff has devoted much time and study to Paracelsus and has made extensive investigations into medical literature and the natural sciences of the Occident, particularly during the renaissance period. He has visited Italy, England, France, Holland, Belgium and the Scandinavian countries. The reputation that Sudhoff has acquired among students of the history of medicine, by reason of his biographic studies on the life and works of the hitherto little appreciated Paracelsus, found its expression when, in 1905, he was called to assume the direction of the newly founded institute of research for the history of medicine, the establishment of which was made possible through funds furnished by the Puschmann Foundation. In this institute he has produced a number of important works, among others, "Medical Allusions in Papyrus Documents," "Contribution to the Study of Surgery of the Middle Ages," "Medical Therapeutics in the Middle Ages," and a large treatise on the epidemics of the middle ages—plague, leprosy and syphilis. On the occasion of the Goethe celebration in Düsseldorf, he arranged an interesting exhibit, and an even more important one on the history of medicine at the international hygiene exposition in Dresden. Some of his leading textbooks are an "Introduction to the History of Medicine," and his short "Handbook of the History of Medicine." He is also the founder of the Deutsche Gesellschaft für Geschichte der Medizin und Naturwissenschaften, of which he has been thus far the president. In the Gesellschaft der Deutschen Naturforscher he succeeded in establishing a special section of history of medicine.

November 30, Professor Gluck reached the age of 70. His first name, Themistocles, is explained by the fact that he was born in Roumania. In 1877, he was director of a garrison during the Russo-Turkish War, and later, that same year, he became an assistant in the surgical department of the Berlin Municipal Hospital at Friedrichshain. He afterward accepted a post in the university surgical clinic under Langenbeck and Bergmann. In 1882 he became an instructor in the

University of Berlin, and was later appointed director of the surgical department of the Kaiser Friedrich Hospital in Berlin. Gluck early acquired a reputation in the field of plastic surgery. His practical and theoretical studies on bone and joint transplantation did not, for many years, receive much recognition; only in recent years have his researches been confirmed by others. His work in the field of resection and extirpation of the larynx, with the substitution of an artificial larynx, has been more generally recognized. His work on nerves, particularly neuroplasty, has had considerable influence on this field of investigation. In 1883, Gluck gave the first description of a sterilizable, metal instrument case. His articles on gunshot wounds of the heart and on surgery of the lungs are worthy of note.

December 8, Professor Stadelmann will celebrate his seventieth birthday. Soon after his admission to practice, he became, in 1878, an assistant in the medical department of the university clinic in Königsberg. In 1881, he accepted a position as instructor in the University of Königsberg, and in 1884 he went to the University of Heidelberg, where he filled a similar post in the medical department of the university clinic. In 1888 he was given the chair of clinical propedeutics in Dorpat. Owing to the widening use of the Russian language and the growth of Russian influence at this university, he was obliged, in 1894, to give up his position, and, in 1895, he became medical director of the Urban municipal hospital in Berlin. In 1903, he succeeded Professor Fürbringer as medical director of the department of internal medicine in the Friedrichshain municipal hospital in Berlin. Stadelmann's chief work has been in the field of the pathology of metabolism, and deals more particularly with diseases of the liver. In 1890, he published a monograph on "The Influence of Alkalis on Metabolism in Man"; in 1891, another on "Icterus and Its Various Forms," and, in 1894, a third on "Peptonuria." In Leyden's Handbook of Dietetics he contributed the article on diseases of the liver and pancreas. Three years ago, pursuant to the provisions of the old age pension law, he was obliged to resign from the municipal hospital.

LONDON

(From Our Regular Correspondent)

Dec. 3, 1923.

An Expert on Fleas

The death of N. C. Rothschild, a member of the family whose eminence is not confined to the sphere of finance, has removed an indefatigable pioneer in a previously unexplored field of entomology that is of considerable medical importance. Like his brother, Lord Rothschild, he showed a love for natural history from childhood. While he was still a school boy, some microscopic slides of fleas aroused his curiosity. He tried to identify the few species he possessed, but found that practically no research on this subject had taken place in Britain since the days of Curtis and Bennet Westwood early in the nineteenth century. The discoveries of Manson and Ross of the part played by blood-sucking insects in the propagation of disease stimulated him, and he made a remarkable collection of various species of fleas. These were arranged and catalogued in the Rothschild Museum at Tring, and Dr. Karl Jordan undertook the drawing of the morphologic parts by which the various species can be recognized, and became a valued collaborator. It was the minute studies of the Rothschild collection that brought to light the fact that in India there are three species of rat flea, of which only one is the carrier of plague, thus explaining the puzzling discrepancy that plague was epidemic only in patches. They also showed that there are several species of bird flea, living on different hosts, though only one had been recognized. As long ago as 1895, Mr. Rothschild began to write on fleas, and altogether published no fewer than 138 articles, mostly in collaboration with Dr. Jordan. The result of their work is that the number of known species of fleas has been extended from 135 to 680. The Tring collection now contains about 600 species. The forms not represented there have mostly been described in Russia and the United States. Only a few months before his death, Mr. Rothschild corresponded with Russian scientists and collectors with a view to obtain some of the species lacking. He had planned a catalogue in which every species would be described and illustrated. The collection contains about 3,550 microscopic slides and 40,000 specimens preserved in alcohol, besides 20,000 duplicates of common species. Forty-six species of flea are known to occur in Great Britain, where these parasites have been studied more thoroughly than in other countries. Two have been introduced—one on the brown rat and the other on the American gray squirrel. Mr. Rothschild did not confine his work to fleas, though this was his great contribution to science, but extended it to other blood-sucking insects. By a deed of gift, executed in 1913, he presented his collection to the British Museum.

The Depopulation of the Pacific

At the recent Pan-Pacific Congress, Dr. R. W. Cilento read a paper on the depopulation of the Pacific. He pointed out the considerable numbers, high state of development and great natural abilities of the inhabitants of the Pacific regions, as emphasized by the early explorers, and their constant and rapid diminution since the entry of the white man. The Tahitians, estimated in 1774 to number 150,000, in 1899 were reduced to 10,000. The Maoris decreased from 120,000 in 1840 to 40,000 in 1891. In the mandated territory of New Guinea, one district of which he had personal knowledge, the excess of births over deaths in a population of 9,600 was only 268. Dr. Cilento attributed the decrease to three factors—disease, economic and social factors, and psychologic factors. Great numbers fell victims to insect-borne diseases. Tuberculosis and other pulmonary diseases were very common, and malaria caused a large mortality among children. Hookworm disease was universal and reduced the resistance to other diseases. Gonorrhea was very prevalent, and yaws in many districts attacked all the children. Influenza, dysentery and measles had been introduced into one or more of the islands, with appalling results. A German investigator, reporting on the decline of races in German New Guinea, said that the native population was not degenerate but sick. Among the economic and social factors were indisposition of the natives to have families, and consequent abortion and infanticide, unnatural practices, venereal disease, the recruiting of males for labor in other lands, and the cessation of tribal hostilities. The ultimate fate of the Polynesian and Melanesian races would be extinction unless measures to cope with these factors were adopted at once.

In the discussion that followed, Judge Murray, administrator of Papua, said that some influences of a subtle character tended to depopulation. White settlement caused certain moral and material disturbance in the life of the native. The moral disturbance was caused by disappearance of the old native customs and traditions, which had been the refuge and protection of men and women for generations in times of stress. Along with the good factors of sanitation and medical treatment, civilization brought disease, alcoholism and drugs, particularly opium. The use of alcohol and opium by natives was forbidden, and the regulation was rigidly enforced. The suppression of native habits and institutions caused the native to lose interest in life, and if he had nothing to live for he would die. There was difficulty in keeping native institutions alive. Some, such as cannibalism and head hunting, were out of the question. In some islands the latter custom had been the keystone of the social structure. But other customs should be fostered. Contact with the white man inevitably under-

mined the native's ancestral religion and the magic of his tribe, and made them appear absurd. The true policy was to substitute some other interest, such as manual labor, for those which were gone. The native should not be treated as a servant but given the opportunity of rising to something higher. The effect of moral disturbance was beyond government control. A small department of anthropology had been formed in Papua, and it was hoped that it would suggest methods of reconciling the old with the new. Generally speaking, the moral disturbance was a matter for missionary influence. Most people underrated the enormous moral and social force of Christianity. That it was possible to arrest the decline was shown by the fact that in the larger villages of the central division and Gulf of Papua there was an increase of population.

THE PASSING OF THE MAORI

Dr. P. H. Buck showed that among the Maoris there had been a steady increase of population since 1896; but he anticipated that the race would become absorbed into the whites. Anthropology showed that this occurred when a race survived extinction but could not maintain a certain isolation.

Gas-Poisoning Risks

At a meeting arranged by the Institution of Gas Engineers, Mr. Harold E. Bloor read a paper on the "Quality and Composition of Towns' Gas" in which he discussed the question of gas poisoning. He quoted the report of a committee appointed to investigate the subject of the presence of carbon monoxid, which reported that no case had been made out for the limitation of its percentage in gas supplied for domestic purposes. In 1921, the deaths in England and Wales from coal gas poisoning were only 2.4 per million of population, compared with 54.2 from accidents caused by mechanically driven vehicles other than railway trains. Those associated with the gas industry were, however, giving close attention to the subject, and by the introduction of improved appliances were making every effort to reduce the already low death rate from gas. Many complaints about the quality were due to a deposit of naphthalene crystals in mains or service pipes.

The Prevention of Industrial Accidents

A conference arranged by the British Industrial "Safety First" Association has been held. Mr. Edward Shortt, K.C., delivered the opening address. He said that safety first should be preached on every conceivable occasion. He preached it to his children and he bade them remember these two commands when crossing roads and at other times: "Eyes open, mouth shut." When he was home secretary he found that the department, with its responsibility in connection with industrial accidents, quickly appreciated the importance of this movement, and he did everything in his power to assist it. With the present home secretary expressing himself also in its favor, it was certain that the movement would receive continued support.

Mr. H. E. Blain, assistant managing director of the London electric railways, dealt with the history and origin of the safety first movement. Among other activities, they had issued more than a million arresting posters; induced more than 20,000 London omnibus drivers to enter the "No accident for which they were responsible" competition, and promoted with great success an essay competition on safety first principles among the elder children in London schools. The movement had spread from London to the provincial industrial towns. During the last five years more than 100,000 people had been injured in the streets of London, more than 3,000 fatally. During a single year there had been paid in workmen's compensation a sum of approximately $30,000,000 in respect of 380,000 accidents, of which 3,500 were fatal. Any movement for the minimizing of these figures and the suffering involved should command general support. In the general discussion, it was suggested that whenever a machinery accident happened in a workshop the machinery should be immediately inspected and the workmen called together to hear an explanation of the exact cause of the accident.

Research for the Benefit of the Deaf

The senate of the University of London announces important extensions of its research work for the benefit of the deaf. It has accepted a gift of $50,000 to found a chair of otology, and the donor, Mr. G. E. Duveen, intends to allocate a further $75,000 for the provision of the most complete and modern treatment for the deaf. Mr. Duveen is an art dealer who has suffered from ear trouble for many years, and thus has been moved to these benefactions.

BELGIUM

(From Our Regular Correspondent)

Nov. 21, 1923.

Congress of Pediatrics

In a previous letter, I reported that the second congress of French-speaking pediatricians had invited the Belgian pediatricians to organize the third congress. Under this stimulus, the Belgian Pediatric Society was founded and undertook the task of organizing the congress. In addition to the scientific discussions, an account of which is given below, numerous demonstrations were given at the medico-pedagogic institute of the Oeuvre nationale de l'enfance; at the nursery of the Edith Cavell School for infants admitted to the Oeuvre de la preservation de l'enfance contre la tuberculose; at the intercommunal milk depot, and at the Prince Charles sanatorium, the history of which was recounted by Dr. Delcourt. This last institution is designed for boys between the ages of 6 and 15 years who have noncontagious pulmonary tuberculosis; the regimen established consists of semirest, with work in the garden, games that are not too violent, and a restricted diet (2,400 calories daily); but the most important point is that a large part of the time is devoted to systematic heliotherapy. From May until October the patients spend a large part of their time, lightly clad; almost naked, in fact, in the sun and fresh air.

PROLONGED PNEUMONIA IN CHILDREN

According to Dr. Gardère, pneumococcus lobar pneumonia may evolve slowly in children, defervescence persisting after the eleventh day. The main interest in these prolonged types of pneumonia lies in the difficulties of differential diagnosis. They may be confounded with metapneumonic pleurisy, pulmonary congestion, bronchopneumonia or tuberculous pneumonia. The similarity between tuberculous pneumonia and prolonged pulmonary tuberculosis is especially great. Tuberculosis must be ruled out in any child presenting an atypical pneumonia. If it is of typhoid type, the diagnosis must be made by blood culture. In the so-called silent types, a diagnosis can usually be reached by roentgenoscopy. If the prolonged types of pneumonia are compared with the various forms of prolonged pneumococcus infections, it must be recognized that the manifestations are those of a benign pneumococcus infection, which produces immunity slowly. The prognosis of prolonged pneumonia is favorable, and there are consequently no special indications for treatment.

ARTIFICIAL PNEUMOTHORAX IN TUBERCULOSIS IN CHILDREN

Dr. P. F. Armand-Delille reported his observations in fifty-five cases of artificial pneumothorax in his service for tuberculous children at the Debrousse Hospital; in eight cases the operation had been performed before his arrival by Dr. Babonneix, and in forty-seven cases he had operated himself. The rapid evolution and the usually fatal outcome of pulmonary tuberculosis in children are well known. In the children treated by pneumothorax there have been only two

deaths thus far, although thirty were apparently moribund. The ages of the children ranged from 3 to 15, but most of them were between 12 and 14 years of age. As in the adult, the indications are strict unilaterality of the parenchymatous lesions; adenopathy is always bilateral.

MANAGEMENT OF ABNORMAL CHILDREN

The problem of abnormal children was the subject of an extensive study by Dr. Decroly. The discussion took place at the medicopedagogic institute of Rixensart, organized by the Oeuvre nationale de l'enfance, and illustrated the methods advocated by Decroly. The two essential factors to be considered are heredity and environment. The treatment presents two aspects: the medical, which is concerned with the physical side, and the educative, which addresses itself rather to the social and mental side. The medical treatment comprises general hygiene, proper feeding, and various measures to build up the organism, and combat bodily disorders and anomalies (organotherapy, orthopedic treatment, etc.). The educative management may be subdivided into: (1) sensory education; (2) education of the emotions; (3) general intellectual training; (4) speech culture; (5) vocational guidance and vocational preparation.

Most abnormal children when quite young may be brought up in the family circle, as all they require is some one to look after their material welfare and provide the physical necessities of life. The family should, however, be counseled in regard to the treatment of the child to avoid causing harm by blundering, negligence, weakness or by violent measures. When the child reaches school age, it is necessary to determine whether he can be admitted to the ordinary classes. In some cases, however, the family circle is incapable of providing the necessary education. The child may be so abnormal that its education cannot be carried on at home without injury to the normal children. Hence the necessity of organizing several types of institution for abnormal children. The various modes of assistance depend on the age, the character, the anomalies, the future prospects and the possible initiative of the children. Dr. Decroly stated that good results had been secured at the institute, which justify the efforts of the Oeuvre de l'enfance. He pointed out that (1) children had become capable of living in the family and taking part in the family life, and (2) many of the children had been trained to support themselves.

INTUSSUSCEPTION

Dr. Massart emphasized the need of early diagnosis in intussusception, stating that this was the only chance of successful treatment in infants. For any hope of success, operation must be performed within twenty hours. An early diagnosis should be based on (1) the appearance of melena; (2) pain, which becomes especially significant when it appears suddenly, is severe and disappears suddenly (sudden disappearance of the pain may allay the initial fears); (3) vomiting, which usually accompanies the sudden and intense pain and points to the urgent need of surgical intervention, and (4) the sausage-shaped swelling that comes later and is almost superfluous as a sign, since it appears after the diagnosis is established. No matter how skilful the surgeon or how slight the operative shock, operation after the twentieth hour means a doubtful outcome. In children the symptoms vary greatly. When acute, the affection often simulates chronic appendicitis; one type resembles tuberculous peritonitis, owing to the slow evolution of either constipation or diarrhea, often accompanied by cachexia.

In discussing Massart's paper, Dr. Veau made some pertinent comments on the part played by physicians and surgeons, respectively. Intussusception is of prime interest only to the physician; the duty of making the diagnosis is his, and, secondly, he must urge the need of surgical intervention. Veau regards operation in these cases as more urgent than in hemorrhage.

DIABETES IN CHILDREN

Infantile diabetes was the subject of an interesting communication by Drs. B. Weill-Halle and H. Chabanier. The effectiveness of treatment with insulin prepared according to the method of Chabanier, Lobo-Onell and Lebert was manifest. Glycosuria dropped in a few days from nearly 100 gm. to zero, while acetonuria of 100 mg. disappeared after the first day of treatment. The writers emphasized the harmlessness of the large doses they use, which are adapted to a diet rich in carbohydrates.

BUENOS AIRES

(From Our Regular Correspondent)

Nov. 1, 1923.

Insulin

Insulin is being manufactured in the bacteriologic laboratory of the national health department, according to a method suggested by Dr. A. Sordelli. A pancreas extract prepared by the methods of Somiogy, Doisy and Shaffer is precipitated with picric acid; the picric acid is then extracted from the precipitate with acetone or adsorbed with silk. The resulting product is purified by iso-electric precipitation. The national health department has appointed a commission consisting of M. R. Castex and P. Escudero, clinicians, A. Bachmann, bacteriologist, B. A. Housseay, physiologist, and A. Sordelli, biologic chemist, to study insulin, train physicians in its administration, and suggest standards for its manufacture, standardization and use. The commission has already studied many cases and carried out a number of experimental investigations. Its report is about to be written. Dr. Sordelli has been asked to present a paper on insulin at the annual congress to be held by the Argentine Medical Association, November 6.

University Conditions

In 1918, the government, changing the plan submitted by the university authorities, ordered that the directing boards, deans and supreme university board be selected at an assembly, at which professors, assistant professors and students would have equal representation. As the students always voted as a unit, they always won by securing a few professorial votes. When they did not succeed, they filed a protest and went on strike. From the beginning, most professors refused to attend such elections, as they considered this mixing of professors and students detrimental to discipline. The recent disturbances at Rosario and Cordoba caused Dr. Marco, the secretary of education, to put in force vigorous measures and to require the three groups to hold separate elections. Since then there has been no trouble at either school.

At Buenos Aires, in accordance with a plan submitted by Dr. A. Lanari, the university put the matter up to the different faculties. Most of them asked for a similar division, a change also supported by the majority of professors—four fifths of those in the medical school. The supreme board, however, under the influence of the students, adopted a halfway plan, and provided for separate elections when selecting members of the directing boards, but joint elections for the selection of deans or members of the supreme board. When this scheme was submitted to the secretary of education, almost all the professors of the law school and the majority (109) of those in the medical school asked for a complete separation of professors and students in order to put an end to mutual concessions and compromises. This action initiated a campaign of opposition on the part of some incumbents, and caused threats from students that if the original plan was not approved they would go on strike. It was claimed that the

government was bound to respect the self-governing powers of universities, although the fact that such powers had already been tampered with in 1918, when the present trouble started, was overlooked. The secretary sided with the professors. Student pressure, political influence, the proximity of elections and the president's avowed purpose of respecting the universities' self-governing powers brought about the rejection of the secretary's plan, and incidentally caused him to resign. Dr. Sagarna has been appointed to his place.

In the Buenos Aires medical school, elections were held under the new law. The professors elected, as members of the board, A. Peralta Ramos, B. A. Houssay, M. Aberastury, C. Durante Avellanal, P. Belou and E. Segura, and the students, Rophille and F. Basalvilbaso.

Infant Mortality

According to the records of the national health department, mortality among infants under 2 years of age is still very high all over the country, 13.2 per hundred. At Mendoza it is 22 per hundred; San Juan, 24; Tucuman, 24; Salta, 25, and Jujuy, 29. In the federal capital (Buenos Aires), it is only 10.3 per hundred, and in Buenos Aires province, 10. There is, however, an improvement of 9 per hundred over 1911. In those provinces showing the highest figures, either malaria or alcoholism is prevalent, there are many illegitimate births, and "healers" are much in favor. The national health department has recommended the organization of a bureau of eugenics and child welfare, to coordinate the activities of present institutions and agencies. A number of infant welfare stations have been opened in several provinces.

Leprosy Prevention

A division has been organized for the control of leprosy. Its duties will include a survey of existing cases, hospitalization or home isolation, and continued surveillance of patients, detection and deportation of infected immigrants. A bill on this subject, prepared by M. Aberastury, has been introduced in congress by the government.

Foreign Visitors

Profs. J. J. Abel of Johns Hopkins University, H. Roger, dean of the Paris medical school, S. Recasens, dean of the Madrid medical school, and Lustig of Florence have been visiting in Buenos Aires. Professors Abel and Roger were appointed honorary members of the biologic society, and Professor Roger and Recasens were made members of the academy of medicine. At this time a special session was held by the academy as a tribute to Cajal. Dr. Abel remained here only a short time, but his visit was much enjoyed. After these visitors, Professor Alessandrini of Rome arrived to give several lectures.

Municipal Health Services

During the year 1922, 57,508 patients were attended in the Buenos Aires municipal hospitals; 59,589 operations were performed; 7,051 cases of labor were attended, and 102,493 dental examinations were made. In addition, there were 956,525 dispensary calls and 136,459 first aid cases. There are nine maternity hospitals with 544 beds, forty-four physicians, fifteen midwives and seventy-four nurses; and twenty-three infant homes and dispensaries with twenty-eight physicians, twenty-one special nurses (practicantes) and 118 employees. A total of 20,000 children were cared for and 3,291,315 rations distributed. The Jenner Institute, with eighteen physicians, sixty special nurses and thirty-four nurses, has vaccinated 59,256 persons and revaccinated 180,727. The Pasteur Institute, with four physicians, two veterinarians and eight employees, attended 7,282 patients, gave antirabic treatment to 2,680, and examined 4,997 animals. At the tuberculosis dispensaries, 6,500 patients were treated and 14,000 kg. (30,837 pounds) of bread, 8,000 kg. (17,951 pounds) of meat, 15,000 quarts of milk and 2,200 dozen eggs were distributed. In the fifteen venereal dispensaries, twenty-one physicians and seventy employees attended 152,100 patients.

HOLLAND

(From Our Regular Correspondent)

Nov. 21, 1923.

Hot Weather and Mortality

The central bureau of statistics has published some figures concerning the effect of the heat wave of last July on public health. In July, 1922, and in June, 1923, the mortality per thousand inhabitants was 8 and 9, respectively; in July, 1923, it reached 10.8 per thousand. The heat wave lasted only a week, but the mortality for this single week was more than a third of the total mortality, 6,564, for the month of July. Cerebral hemorrhage caused 484 deaths, almost 200 of which occurred during the week of great heat. The total number of deaths from heart affections was 617, of which 221 occurred during the hot wave. Infants less than 1 month old did not suffer from the excessive heat, but the effect on children between 1 and 4 years of age was marked. There were 275 deaths from sunstroke or heatstroke. Towns of less than 20,000 inhabitants appeared to suffer more than the larger cities.

Tuberculosis at Amsterdam

In a comprehensive report presented to the Société pour l'avancement des sciences médicales at Amsterdam, Dr. Stumpff discussed and illustrated with a series of charts the changes in mortality from tuberculosis at Amsterdam during the last twenty years, and compared them with conditions in the rest of Holland. It may be said in general that both curves show a continuous though not a regular descent. The mortality dropped from 21 per 10,000 inhabitants to 12.5. This decrease was progressive, in the main, but was interrupted by a sharp increase between 1915 and 1919, reaching the peak of 23 per 10,000 in 1918. This sudden increase was ascribed to defective nutrition, to bad housing conditions, and to the nervous tension from which the people suffered during the war. In the rapid fall from the mortality rate for 1918 (23) to that for 1921 (12.5), it is evident that improvement in the food supply and the suppression of fear played an important part, for the bad housing situation still remains unsolved. In a table covering the records for the years 1920 and 1921, the author compares the frequency of pulmonary localizations with localizations in other organs for the different age groups. The highest percentage of tuberculosis other than pulmonary is found in infants under 1 year of age; on the other hand, pulmonary tuberculosis occurs most frequently in persons between 50 and 65 years of age. Finally, one of the most practical findings of this investigation concerns the effect of the social status on the liability to contract tuberculosis, a relationship which is brought out most plainly by considering the character of the residence occupied. It may occasion some surprise to learn that the poorest quarters of Amsterdam do not yield the highest percentage of tuberculosis mortality; this is associated rather with quarters in which are the oldest and the least sanitary houses. From the standpoint of urban hygiene, this is a valuable observation.

Transplantation of the Biceps Femoris Muscle

Before the Société clinique of Rotterdam, Dr. Van Assen presented recently a case of total transplantation of the biceps femoris muscle in a case of paralysis of the quadriceps. All nerves and blood vessels were conserved. The proximal tendon of the long head was attached to the periosteum of the femur opposite the insertion of the gluteus maximus. The distal tendon was sutured to the patellar tendon of the

quadriceps. Six months have elapsed since the operation, and active motility is increasing daily.

Sanitary Conditions in Surinam

In spite of the incessant crusade against leprosy in Surinam, this disease continues a serious menace. In a report giving a survey of health conditions in the colony, Dr. Wolff calls attention to the meager success that has attended the efforts to stamp out leprosy. Three leprosariums have been established, and the number of cases at present may be estimated at upward of 700, a large number for a population of little more than 100,000. The greatest obstacle to the success of the antileprosy campaign is the indifference of the natives toward infection, in which ignorance of the cause and superstition play a big part; for instance, lepers have been found continuing their trade as lye-washers and shoemakers.

Trachoma is also widespread, especially among school children. Of 5,918 children from 5 to 16 years of age in Paramaribo, 983, or 16.6 per cent., were affected. In some districts, the percentage may be as high as 47 per cent. But the campaign against this disease—particularly, active treatment—is producing very encouraging results.

Leukoplakia and Radium

In presenting a case of nonsyphilitic leukoplakia buccalis, Dr. Van Gangelen reported to the Société néerlandaise d'oto-rhino-laryngologie encouraging results with the use of radium. Three applications had caused the leukoplasic lesions to disappear. As it is generally admitted that nonsyphilitic leukoplakia is a precancerous state, the good results of radium treatment are of interest. Early detection of leukoplakia may diminish the mortality rate from cancer of the tongue.

PEKING

(From Our Regular Correspondent)

Nov. 15, 1923.

Visiting Professors

The following distinguished men have been appointed temporarily to the staff of the Peking Union Medical College: Dr. L. Emmett Holt, clinical professor of the diseases of children, Columbia University College of Physicians and Surgeons, New York; Dr. C. U. Ariëns Kappers, director of the Central Dutch Institute of Brain Research in Amsterdam, Holland; Dr. William T. Councilman, Shattuck professor of pathologic anatomy, Medical School of Harvard University, Boston; Dr. Adelbert Fuchs, clinical professor of ophthalmology at the University of Vienna, Austria, and Dr. William W. Cort, associate professor of helminthology, Johns Hopkins University School of Hygiene and Public Health, Baltimore.

Hookworm Survey in China

During the past summer a project for the investigation of hookworm disease in China was launched under the joint auspices of the department of pathology of the Peking Union Medical College and the International Health Board of the Rockefeller Foundation. Dr. W. W. Cort and Dr. J. B. Grant are cooperating in the direction of this work. Dr. Cort has been carrying on similar investigations in the West Indies for the last three years. Dr. N. R. Stoll, who was recently appointed associate in parasitology on the staff of the Peking Union Medical College and who took part in the West Indian expeditions, will devote his entire time to the work. In addition, two Chinese physicians and several technicians have been employed. A field laboratory has been established at Soochow Hospital, where both laboratory and field work were started, July 1. Early in August, Dr. Cort and Dr. Grant proceeded to Chefoo, where a survey was made with headquarters at the Temple Hill Hospital. Later in the year, work will be undertaken at Canton in cooperation with the Canton Christian College. It is planned to carry on this work in China until about October, 1924. The investigations center about the problem of the relation of the various methods employed in fertilizing the soil to the spread of hookworm disease. In connection with this problem, epidemiologic studies are being made in country districts for the purpose of determining the extent and severity of hookworm disease and the factors influencing its spread. In the laboratory phase of the work, the attempt is being made to follow the life of the hookworm eggs and larvae in night soil stored under various conditions, with the object of devising methods to prevent the spread of hookworm disease by the use of this material in fertilizing the crops.

Japanese Investigators

The great earthquake and fire in Japan destroyed many of the laboratories of medical research in Tokyo. Valuable apparatus and records were destroyed, and a large number of Japanese scientists were deprived of all facilities for work. Among the units of the Imperial University which were completely destroyed were the buildings which housed the departments of physiology, pharmacology and biochemistry. Accordingly, an invitation was extended to a group of these men by the Rockefeller Foundation to come to Peking to continue their investigations in the laboratories of the Peking Union Medical College. Eight men from the Imperial University and the Imperial Institute for Infectious Diseases were appointed by the authorities of the university in Tokyo, and they have now begun their work in the laboratories of pharmacology, physiologic chemistry and bacteriology. The party is headed by Dr. Nukada, professor of pharmacology of the Imperial University of Tokyo.

The Third Asiatic Expedition

Dr. Henry Fairfield Osborn, director of the American Museum of Natural History, has recently returned from Mongolia, where he joined the third Asiatic expedition for a short period to observe its activities in paleontologic research in the Gobi Desert. Evidence has been obtained that the Mongolian plains were the original sources of mammalian life, a theory presented some years ago by Dr. Osborn, and now believed to be demonstrated conclusively by the fossil findings of this expedition. Apparently, this region has changed little during several million years so that fossils covering that period are found in the comparatively shallow depth of 150 feet. Many fossils of large reptiles and mammals have been found and are being removed and sent to New York. No significant findings of human remains have as yet been reported.

The Fifth Congress of the Far Eastern Association of Tropical Medicine

In September, 172 delegates from all the tropical countries of the Far East as well as China, Japan and Australia came together at Singapore to meet in the congress of the Far Eastern Association of Tropical Medicine. The scientific papers that were delivered were largely on questions relating to public health. The diseases chiefly under discussion were beriberi and malaria. Resolutions were passed urging the governments of the countries that were represented to take official action for the control of beriberi, with particular reference to the standardization of rice, the transportation and storage of rice, and other practical methods of improving the diet of the general population. Discussion of antimalarial measures emphasized the necessity of the preliminary study of the types of anopheles present in any region, and a determination of the types that are acting as the agents of transmission. These vary markedly in different areas, and the habits of the individual types vary to such an extent that measures directed against one type are totally inadequate against another.

Marriages

ARTHUR M. HEBB, Dartmouth, Nova Scotia, to Miss Grace Elizabeth Cruise of Port Dover, Ont., October 1.

JOHN B. LEISURE to Mrs. Edna Kirby, both of Watonga, Okla., at Oklahoma City, in November.

JOHN RICHARD PORTER, Lebanon, Ind., to Miss Ethel Johnson of Terre Haute, November 17.

ARTHUR H. WEILAND, Cedar Rapids, Iowa, to Miss Ruth Clayton of Chicago, November 10.

LAWRENCE D. SMITH, Woodward, Iowa, to Miss Muriel Drake of Des Moines, October 9.

DANIEL COLLIER ELKIN, Boston, to Miss Helen McCarty of Atlanta, Ga., November 3.

WILLIAM A. HOFFMAN to Miss Mary Alice O'Leary, both of Chicago, November 1.

Deaths

William W. Richmond ⊕ Clinton, Ky.; University of Louisville (Ky.) Medical Department, 1874; since 1902 councilor and in 1903 president of the Kentucky State Medical Association; elected delegate from the Kentucky State Medical Association to the American Medical Association continuously since the organization of the House of Delegates; he served in the meetings of the House in 1907, 1908, 1909, 1910, 1911 and 1912, and was a member of important committees of the House of Delegates; member of the state board of health since 1912; for many years county health officer; aged 77; died, December 13.

John McPherson Scott ⊕ Hagerstown, Md.; University of Pennsylvania School of Medicine, Philadelphia, 1873; member and since 1894 secretary of the state board of medical examiners; past president of the Medical and Chirurgical Faculty of Maryland; at one time county health officer; aged 73; died, December 13, of heart disease.

George Frederick Edenharter ⊕ Indianapolis; Medical College of Indiana, Indianapolis, 1886; member of the American Psychiatric Association; aged 66; for two years superintendent of City Hospital and for thirty years superintendent of the Central Indiana Hospital for the Insane, where he died, December 6, of cerebral hemorrhage.

Charles Arthur Sinsel ⊕ Grafton, W. Va.; University of Maryland School of Medicine, 1888; former president of the state senate, and member of House of Delegates; at one time member and president of the school board; aged 59; died, December 8, of heart disease.

Thomas Duke Parke ⊕ Birmingham, Ala.; Louisville (Ky.) Medical College, 1877; Medical Department of the University of the City of New York, 1879; on the staff of the Children's Hospital; aged 65; died, December 4, of cerebral hemorrhage.

Wilmer Christian, Indianapolis; Medical College of Indiana, Indianapolis, 1896; formerly police surgeon; aged 52; died, December 6, of injuries received when the automobile in which he was driving was struck by a train.

Thomas W. Jeffs, Vancouver, B. C., Canada; University of Toronto (Ont.) Faculty of Medicine, 1895; coroner of Vancouver; aged 66; died, October 6, at the Vancouver General Hospital, following an operation.

James Asabel King, Manistee, Mich.; University of Michigan Medical School, Ann Arbor, 1884; member of the Michigan State Medical Society; at one time mayor of Manistee; aged 65; died, December 6.

Edgar Waples Robertson ⊕ Onancock, Va.; University of Maryland School of Medicine, Baltimore, 1866; past president of the Accomack County Medical Society; aged 78; died, December 11, of senility.

Robert W. Mifflin, Baltimore; Hahnemann Medical College of Philadelphia, 1876; formerly professor of the practice of medicine at the Atlantic Medical College, Baltimore; aged 69; died, November 28.

Marion Robert Smith, McGraw, N. Y.; Albany (N. Y.) Medical College, 1889; for nine years county coroner; at one time health officer of Cortlandville; aged 68; died, November 6, of heart disease.

John Madison McBee, Memphis, Tenn.; Jefferson Medical College of Philadelphia, 1897; formerly member of the Arkansas state legislature; aged 54; died suddenly, December 9, of heart disease.

William Harvey Hartzell ⊕ Allentown, Pa.; Jefferson Medical College of Philadelphia, 1873; past president of the Medical Society of the State of Pennsylvania; aged 72; died, December 6.

Thomas Leslie Macdonald, Washington, D. C.; Hahnemann Medical College and Hospital of Philadelphia, 1888; on the staff of the National Homeopathic Hospital; died, December 8.

Charles Leslie Kyner ⊕ Detroit; University of Michigan Medical School, Ann Arbor, 1914; aged 41; died, December 9, in Dearborn, of injuries received in an automobile accident.

James Thomas King, Quitman, Ga.; Georgetown University School of Medicine, Washington, D. C., 1894; aged 57; died, December 6, in a hospital at Atlanta, following a long illness.

Henry C. Vaughn, Shelbina, Mo.; Missouri Medical College, St. Louis, 1880; member of the Missouri State Medical Association; aged 73; died, December 8, of senility.

Edward Doolittle Fitch, Philadelphia; New York Homeopathic Medical College and Hospital, New York, 1887; aged 62; died, December 9, following a long illness.

Charles Edward McMillan, Inverness, Nova Scotia; Dalhousie University Faculty of Medicine, Halifax, 1899; member of the province legislature; died, October 26.

Cornelius G. Schwalbach, Juneau, Wis.; Milwaukee (Wis.) Medical College, 1897; member of the State Medical Society of Wisconsin; aged 49; died, December 8.

Ladislaus Pawlicki, San Francisco; University of St. Vladimira, Kief, Russia, 1855; aged 92; died, December 10, at the Mary's Help Hospital, of senility.

Samuel B. Lyon ⊕ Los Angeles; College of Physicians and Surgeons, Chicago, 1894; member of the Illinois State Medical Society; aged 64; died in November.

Lem Hall Winborn ⊕ Tuttle, Okla.; Louisville and Hospital Medical College, Louisville, Ky., 1908; aged 50; died, December 1, of cerebral hemorrhage.

William Rumbaugh Paules, Danville, Pa.; Jefferson Medical College of Philadelphia, 1890; aged 60; died suddenly, in November, of heart disease.

Orville Snell Haverfield, Hardin, Mont.; St. Louis College of Physicians and Surgeons, St. Louis, 1911; aged 36; died, December 7, of pneumonia.

Joseph Edward Caldwell, Glendale, Calif.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1881; aged 68; died, October 2.

James E. Stevens, Seattle; Physio-Medical College of Indiana, Indianapolis, 1887; aged 59; died, November 17, at the Seattle General Hospital.

John Bernard McMahon ⊕ New York; Medical Department of Columbia College, New York, 1879; aged 67; died, December 11, of pneumonia.

Charles E. Thurmon, Milton, Ill.; Missouri Medical College, St. Louis, 1885; formerly a druggist; aged 70; died, November 28, of heart disease.

Wilson Small, Brooklyn; Medical Department of the University of the City of New York, 1889; aged 76; died, December 6, of pneumonia.

Charles Henry Morris, Middle Musquodoboit, Nova Scotia; Medical School of Harvard University, Boston, 1868; aged 78; died, October 9.

Irving Charles Foster, Oakland, Calif.; College of Physicians and Surgeons, Chicago, 1884; aged 60; was found dead in bed, December 6.

Alexander May Redfern, Charlotte, N. C.; Long Island College Hospital, Brooklyn, 1886; aged 61; died, December 4, of heart disease.

Joseph R. Taylor, St. Joseph, Mo.; Hahnemann Medical College and Hospital, Chicago, 1868; aged 80; died, December 6, of senility.

Theodore Foote, Wildwood Crest, N. J.; New York Homeopathic Medical College, 1874; aged 74; died, December 11, of appendicitis.

James W. Curless, Ursa, Ill.; Louisville (Ky.) Medical College, 1881; aged 73; died, December 3, of senility.

Wood Deering Hill, Choteau, Okla.; Barnes Medical College, St. Louis, 1897; aged 48; died, December 1.

Norman L. Kean, Minneapolis; Chicago Medical College, 1871; aged 77; died, December 4, of senility.

William J. Mathews ⊕ Elberton, Ga.; Atlanta Medical College, 1891; aged 54; died, December 4.

Correspondence

MEDICAL AID IN HASTE

To the Editor:—The latest arrival in the matter of automobile plates, the function of which is to notify traffic officers and others that the driver, or owner, is a medical man—presumably, has just been seen in Boston. It is circular, and a little larger than the caduceus. The upper circle shows the words, Osteopathic Physician; the lower circle, the words, Right of Way. In addition, a foot or so lower, rests the now so much abused green cross. In due time, presumably, will arrive distinctive plates for the chiropractor, the Christian science healer, and the rest of the group.

James Brown Thornton, Boston.

"EXCISION OF A V-SHAPED PIECE OF THE LOWER LIP VERSUS ROENTGEN-RAY OR RADIUM TREATMENT"

To the Editor:—The communication appearing in The Journal, November 24, by Dr. J. C. Bloodgood, with this title is of more than ordinary interest. Dr. Bloodgood divides his cases of lower lip lesions into five classes. For brevity's sake permit me to divide them into three:

1. Lesions primarily and continuously benign.
2. Borderline lesions.
3. Lesions primarily and continuously malignant.

It is, of course, recognized that time and conditions may, in a certain proportion of individuals, transform Class 2 into Class 3.

Dr. Bloodgood cites one specific instance in which a patient presented a submental metastatic node following successful healing of the primary lesion on the lower lip by radium seven months previously. He makes no mention of such a possibility after a surgical removal, but broadly states that the proper treatment in such cases is a sectional removal by the V-shaped incision, and then makes the astonishing assertion that there never has been a local recurrence after such surgical procedure.

In our little clinic in Los Angeles we have seen and treated by irradiation during the last twenty years in the neighborhood of 300 straight recurrences in lesions of the lower lip, in every one of which the classical V-shaped incision has been employed, and in a number, the block dissection of glands had been carefully carried out by excellent surgeons. Some of these recurrent conditions were in or around the line of the incision, but a great number had extended and become metastasized into the contiguous glandular channels. A very creditable number of these patients have remained well over periods ranging from one to ten years, notwithstanding the fact that some had postoperative recurrences as many as three or four times before being submitted to irradiation.

Now as to the classification.

All patients in Class 1 are permanently relieved under treatment, as outlined by Dr. Bloodgood.

Class 2 ditto, except that leukoplakia does not disappear with the discontinuance of the use of tobacco and the removal of local irritants.

In patients in Class 3, the primary lesion may be permanently relieved by any agency that destroys it in toto. Irradiation is the elective agency, but in many cases this may be advantageously combined with surgery, electrocoagulation or cauterization, according to the size, extent or type of lesion. Into this class falls a certain percentage of unfortunates who fail to respond favorably to any treatment within present human knowledge.

In a personal experience with a total of more than 2,000 cases of serious lesions of the lower lip, I am firmly convinced that the best medical science can offer a patient with a cancer of the lower lip today is immediately and thoroughly to irradiate all gland-bearing areas tributary to the lip, and then attack the primary lesion as outlined above.

There is ample evidence in present-day medical literature to substantiate these remarks.

Albert Soiland, M.D., Los Angeles.

[Note.—The letter of Dr. Soiland was referred to Dr. Bloodgood for comment. He replies:]

To the Editor:—Dr. Soiland questions the statement of facts which appear in my communication.

For those interested in this investigation it seems wise to repeat my statement, which was somewhat as follows: In the records of the Surgical Pathological Laboratory of the Johns Hopkins Hospital, among the primary lesions of the lower lip, whether benign or malignant, there never has been a local recurrence when the lesion has been removed by Dr. Halsted or one of his group, and the wound closed without plastic surgery.

In the first place, this statement and all the other statements of fact in my communication to The Journal were previously made in my first communication some years ago in *Surgery, Gynecology and Obstetrics.* I mentioned this in my communication.

The point that I wished to emphasize was, that the cure of cancer of the lip, as of cancer anywhere else, depends on the earliest intervention and the proper intervention. If all patients present themselves within a few days or weeks because of an unhealed lesion of the lower lip, it is practically impossible to make the differential diagnosis between the benign and the malignant in all cases—the earlier and the smaller the lesion, the larger the proportion in which this diagnosis cannot be made. Therefore, the complete excision allows a microscopic study, and if the lesion proves to be cancer, allows the immediate treatment of the lymphatic area by complete removal with or without irradiation before or after operation.

Let us grant that irradiation will cure the local lesion even when it is malignant. I contend that the complete excision of a V-shaped piece under procain is more efficient than any other treatment in requiring less time of the patient and surgeon and less cost in material with an equally good cosmetic result; but—more important than this—it allows the immediate differential diagnosis between the benign and the malignant. When these early primary lesions of the lower lip are treated by irradiation, either one must also irradiate in every case the glandular area, which is unnecessary if the primary lesion is benign, or one must wait until the glands become palpable, when treatment, no matter which, will not yield the same results as the earlier treatment indicated by the microscopic study of the excised lesion.

We have no evidence today that irradiation alone can compete with the early complete removal of the involved glands in the neck associated with cancer of the lower lip.

It is important to remember that I was not discussing the treatment of *late* cancer of the lower lip, or *recurrent* cancer. That is a chapter by itself and a group in which surgery does not offer much. But what offers most in my opinion is not yet settled. I do not blame Dr. Soiland or any one else for being astonished at my statement as to the results in the treatment of early cases. I am rather of the opinion that members of the medical profession in localities where there has not been much education are not familiar with the picture of early cancer.

Dr. Soiland, in his letter, mentions 300 straight recurrences in lesions of the lower lip, in every one of which the classical V incision has been employed. In my experience

this means one of two things or both—late cancer or bad surgery.

The object of my communication to THE JOURNAL is to call attention to the paper which will soon be published, and to demonstrate the splendid results of the educational efforts which has allowed early intervention, and to try, by my evidence, to convince my colleagues in this country that the first early intervention in a lesion of the lower lip is complete excision of a V-shaped piece under procain and the microscopic study; should the lesion prove to be malignant, the immediate removal of the submental and submaxillary areas, again under local anesthesia and with the electric cautery. When cancer is found in the glands, postoperative irradiation can be given. At present my figures offer but 50 per cent. cures with surgery alone. The time is too short and the number of cases too small to estimate as yet whether postoperative irradiation increases the probability of cure.

JOSEPH COLT BLOODGOOD, M.D., Baltimore.

NEED OF REPRINTS AT HONGKONG UNIVERSITY SCHOOL OF MEDICINE

To the Editor:—The Hongkong University School of Medicine has recently been reorganized with the addition of several professors called from England. These men find themselves considerably handicapped in regard to medical literature, and have asked for assistance in securing important reprints covering work in the United States. May I call this need to the attention of the medical profession of this country? The heads of departments are: Dr. J. L. Shellshear, anatomy; Dr. K. H. Digby, surgery; Dr. J. S. Anderson, medicine; Dr. H. G. Earle, physiology; Dr. C. W. Wang, pathology. They can be addressed at University of Hongkong, Hongkong.

RICHARD C. PEARCE, M.D., New York.
Director, Division of Medical Education,
the Rockefeller Foundation.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT FOR COMEDONES AND FOR MILIA

To the Editor:—Please give a method of treatment for blackheads and whiteheads.

———, M.D., Idaho.

ANSWER.—Blackheads, or comedones, are collections of sebaceous or oily matter retained in the openings of the sebaceous glands. They are generally associated with acne or pimples. A good plan of treatment is to wash the face thoroughly every night with soap and water and then apply a lotion consisting of precipitated sulphur, 8 gm.; pulverized camphor, 4 gm.; salicylic acid, 0.66 gm., and lime water, sufficient to make 120 gm. The diet should be regulated, and candy, pastry and rich and greasy foods avoided. Careful attention to the bowels is also important.

Whiteheads, or milia, are not often numerous, and generally the only treatment needed is to shell them out with a sterile needle. In case they show a tendency to recur, the needle point may be dipped into a 50 per cent. solution of chromic acid and inserted into the minute opening.

CARE OF THE SCALP

To the Editor:—What, if anything, will stimulate the growth of the hair, and prevent its falling out in a normal adult of 28.

———, M.D., New York.

ANSWER.—If the scalp is oily, it should be shampooed every week with a good soap. If it is not oily, once every two or three weeks is often enough. After the scalp has been washed, an ointment containing 1 dram of precipitated sulphur to the ounce of hydrous wool fat or petrolatum should be applied. Several good formulas of lotions for use on the scalp every night or three times a week may be found in the textbooks on dermatology or in the Handbook of Therapy.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, January 8. Chairman, Dr. Samuel W. Welch, Montgomery.

COLORADO: Denver, January 8. Sec., Dr. David A. Striekler, 612 Empire Bldg., Denver.

INDIANA: Indianapolis, January 8. Sec., Dr. W. T. Gott, State House, Indianapolis.

NATIONAL BOARD OF MEDICAL EXAMINERS: Written Examinations in Class A Medical Schools. Part I, February 13-15, 1924. Secretary, J. S. Rodman, 1310 Medical Arts Bldg., Philadelphia. Application for this examination must be made on or before January 15, 1924.

NEW YORK: Albany, Buffalo, New York and Syracuse, January 28-31. Assistant, Mr. Herbert J. Hamilton, State Education Building, Albany.

NORTH DAKOTA: Grand Forks, January 1-4. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

OREGON: Portland, January 2-4. Sec., Dr. Urling C. Coe, Stevens Bldg., Portland.

PENNSYLVANIA: Philadelphia, January 29–February 2. Sec., J. George Becht, M.D., State Capitol, Harrisburg.

SOUTH DAKOTA: Pierre, January 15. Dir., Dr. H. R. Kenaston, Bonesteel.

VERMONT: Burlington, February 12. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Olympia, January 8. Sec., Mr. William Melville, Olympia.

WISCONSIN: Madison, January 8-10. Sec., Dr. J. M. Dodd, 220 E. Second St., Ashland.

Nevada May Examination

Dr. Simeon L. Lee, secretary, Nevada Board of Medical Examiners, reports the written examination held at Carson City, May 7-9, 1923. The examination covered 13 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 6 candidates examined, 4 passed and 2 failed. Nine candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago Hospital College of Medicine	(1918)		93.2
Mississippi Medical College	(1911)		75.1
Kansas City College of Medicine and Surgery	(1919)		89.3
Okayama Special Medical School, Japan	(1920)*		78.5

College	FAILED	Year Grad.	Per Cent.
Kumamota Special Medical School, Japan	(1919)*		66.7
Osaka Prefecture Higher Medical School, Japan	(1914)*		45.9

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, San Francisco	(1918)		California
Hahnemann Med. Coll. of the Pacific, San Francisco	(1917)		California
Drake University College of Medicine	(1898)		Iowa
Harvard University	(1920)		Wisconsin
Detroit College of Medicine	(1903)		Michigan
Kansas City College of Medicine and Surgery	(1922, 2)		Arkansas
St. Louis College of Physicians and Surgeons	(1908)		Illinois
University of Pennsylvania	(1921)		Utah

* Graduation not verified.

Alabama July Examination

Dr. Samuel W. Welch, chairman, Alabama Board of Medical Examiners, reports the written examination, held in Montgomery, July 10-14, 1923. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 29 candidates examined, 26 passed and 3 failed, including 1 chiropractor. Five candidates were licensed by reciprocity. One candidate was licensed by endorsement. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Emory University	(1922) 82.7, (1923, 5) 77.5, 86.8, 87.9, 89.7,		91.1
Tulane University	(1922, 2) 83.1, 86, (1923, 9) 84.2, 84.3, 84.8, 86.5, 86.9, 87.1, 88.3, 89.2, 89.2		
Harvard University	(1922)		86.8
University of Pennsylvania	(1922)		89.9
Meharry Medical College	(1923)		79.1
University of Tennessee	(1923, 2)		83.1, 89.1
Vanderbilt University	(1923, 3)		82.3, 89.5, 90.2
University of Griefswald, Germany	(1921)*		79.4

College	FAILED	Year Grad.	Per Cent.
University of Arkansas	(1918)		67.8
Chattanooga Medical College	(1909)		31.3
Chiropractor			66.1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University School of Medicine		(1893)	Dist. Colum.
Rush Medical College		(1889)	Wisconsin
Tulane University		(1919)	Mississippi
Lincoln Memorial University Medical Department		(1902)	Tennessee
Chattanooga Medical College		(1908)	Tennessee

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement with
Johns Hopkins University		(1915)	U.S.P.H.S.

* Graduation not verified.

Nebraska June Examination

Dr. J. D. Case, superintendent of the Nebraska Department of Public Welfare, reports the written examination held at Lincoln, June 6-8, 1923. The examination covered 9 subjects and included 90 questions. An average of 70 per cent. was required to pass. Ninety-four candidates were examined, all of whom passed, including 6 osteopaths. Eleven candidates were licensed by reciprocity, and one candidate was licensed by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Harvard University		(1922)	87
Washington University Medical School, St. Louis		(1922)	85
Creighton Medical College		(1923, 34)	80, 81, 81, 82, 82, 83, 83, 83, 83, 83, 83, 83, 83, 84, 84, 84, 84, 84, 84, 85, 85, 85, 85, 85, 85, 85, 85, 85, 86, 86, 86, 88
University of Nebraska College of Medicine		(1922) (1923, 4)*	80, 84, 85, 87, 87, (1923, 47) 81, 82, 82, 83, 83, 83, 84, 84, 84, 84, 84, 84, 84, 84, 84, 85, 85, 85, 85, 85, 85, 85, 85, 87, 86, 86, 86, 86, 86, 86, 86, 86, 87, 87, 87, 87, 87, 87, 87, 87, 87, 88, 90, 91
Osteopaths			85, 88, 88, 89, 91, 91

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery		(1919)	Illinois
Loyola University		(1921) (1922)	Illinois
Northwestern University School of Medicine		(1896) (1922)	Wyoming Illinois
Rush Medical College		(1919)	Illinois
University of Maryland		(1919)	Maryland
Harvard University		(1922)	Ohio
Ensworth Medical College		(1902)	Missouri
University of Cincinnati		(1920)	Ohio
Hahnemann Medical Coll. and Hosp. of Philadelphia		(1920)	Penna.

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Hospital College of Medicine, Louisville		(1883)	U. S. Army

* These candidates have completed their medical course, and will receive their M.D. degree on completion of one year's internship in a hospital.

Oklahoma July Examination

Dr. J. M. Byrum, secretary, Oklahoma Board of Medical Examiners, reports the written examination held in Oklahoma City, July 10-11, 1923. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 24 candidates examined 21 passed and 3 failed. Twenty candidates were licensed by reciprocity. Two candidates were granted reregistration licenses. The following colleges were represented:

College	PASSED	Year Grad.	Number Licensed
Northwestern University Medical School	(1922)	(1923)	2
University of Oklahoma		(1923)	16
Jefferson Medical College		(1923)	1
Meharry Medical College		(1923)	1
University of Tennessee		(1923)	1

College	FAILED	Year Grad.	Per Cent.
St. Louis College of Physicians and Surgeons		(1921)	52
University of Oklahoma		(1923, 2)	72, 73

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Birmingham Medical College		(1910)	Alabama
University of Arkansas		(1904) (1906) (1909)	Arkansas
Chicago College of Medicine and Surgery		(1915)	Illinois
Northwestern University Medical School		(1921)	Tennessee
Keokuk Medical College of Physicians and Surgeons		(1902)	Nebraska
Kansas City Medical College		(1887)	Missouri
Missouri Medical College		(1882)	Missouri
University Medical College of Kansas City		(1911)	Missouri
Washington University Medical School		(1904, 2)	Arkansas, Missouri
Creighton Medical College		(1923)	Nebraska
University of Nebraska		(1920)	Nebraska
Eclectic Medical Institute, Cincinnati		(1894)	Missouri
Chattanooga National Medical College		(1901)	Tennessee
Meharry Medical College		(1908)	Georgia
University of Tennessee		(1920)	Tennessee
Vanderbilt University		(1915) Tennessee, (1916)	Kentucky

Book Notices

OBSTETRICS FOR NURSES. By Charles B. Reed, M.D., Obstetrician to Wesley Memorial Hospital, Chicago. Cloth. Price, $3. Pp. 399, with 144 illustrations. St. Louis: C. V. Mosby Company, 1923.

Six years have elapsed since the appearance of the first edition of this work; during this period new observations in obstetrics, as well as the exhausting of the first edition, have made necessary a new printing. Dr. Reed writes in a simple, direct manner, and has selected with care those facts which can be comprehended by and be of service to the nurse. On such matters as the Abderhalden test or the predetermination of sex, he gives information which will enable the nurse to answer questions, without confusing her with theoretical discussion. Dr. Reed has long been known as an exponent of painless obstetrics, and he devotes a considerable amount of space to analgesic methods. Unfortunately, some of the illustrations in this book are taken from older works, so that the physician is shown in one picture conducting labor without gloves. The author also tends to encourage early rising after labor, although he makes no recommendation as to any routine time: for instance, he says "In general, the woman should not get up until the uterus has gone down into the pelvis and is not palpable. If this is the case on the fifth day, and she feels strong, she may get up." It is questionable whether it is worth while to insert in a textbook for nurses such an extensive therapeutic index as that included in this volume. Some of the drug preparations included, such as cerium oxalate, are not usually included in any list of useful drugs. Other preparations are proprietary combinations which are not generally approved. In any future revision, this list might be greatly abbreviated, if not completely eliminated. On the whole, the book is one of the most satisfactory available for use in the teaching of nurses.

CHIRURGIE VASCULAIRE CONSERVATRICE. Technique — Indications Opératoires et Résultats. Par P. Moure, Chirurgien des Hôpitaux de Paris. Préface de Ch. Lenormant. Paper. Price, 12 francs, net. Pp. 179, with 110 illustrations. Paris: Masson et Cie, 1923.

This consists of a brief manual devoted chiefly to the technic of blood vessel suture. The greater part of the book is given to the application of the various types of arterial and venous suture to the practical problems of aneurysm and injuries. There are numerous line and wash drawings.

OPHTHALMIC SURGERY. A Handbook of the Surgical Operations on the Eyeball and Its Appendages as Practised at the I. Eye Clinic, University of Vienna. By Dr. Josef Meller, Clinical Professor of Ophthalmology, I. Eye Clinic, University of Vienna. Edited by D. William M. Sweet, Clinical Professor of Ophthalmology, Jefferson Medical College. Third edition. Cloth. Price, $5 net. Pp. 365, with 225 illustrations. Philadelphia: P. Blakiston's Son & Co., 1923.

This is a translation of the second edition of Meller's work; it contains a description of the operations on the eye and its adnexa as performed at the University of Vienna by Meller and his associates. It is not an encyclopedia of ophthalmic surgery, but rather presents the operations that have become the practice in that clinic. The description of each operation is simple but clear. The illustrations are numerous but well done, and amplify the text. In the preface, Meller outlines his method of instruction, which consists in demonstrating and explaining technic and then analyzing mistakes made by the students. This edition is dedicated to the Rockefeller Foundation.

TRAITÉ D'OPHTHALMOLOGIE. Par Poulard. Tome I, et II. Cloth. Price, 120 francs. Pp. 1457, with 713 illustrations. Paris: Masson et Cie, 1923.

This rather unusual textbook is based more on the experiences of the author than on the standard technic of authorship, and in consequence provides refreshing reading. To the cognoscenti, the continued misspelling of proper names, particularly those of Teutonic extraction, is a jarring note in otherwise good proofreading. The illustrations are of three main types: excellent semidiagrammatic illustrations of operative procedures; photographs of cases, sufficiently retouched and printed clear enough to show the requisite

details; and rather indifferent photomicrographs of histopathology. The text material follows the usual classification of ophthalmic textbooks so closely that comment is unnecessary. There is one striking and, at the same time, to the American ophthalmologist, sad feature in the emphasis that is laid on the importance of syphilis in considering the etiology of ocular disease; certain it is that in this country, the spirochete plays no such leading part. Again, the excessive use of cocain as a palliative in many of the external and painful diseases of the eye, such as the author advocates, would lead us here into the clutches of the lynx-eyed argus of the Harrison law. Many of the chapters are excellently written; among such may be included those on roentgen-ray localization, plastic surgery about the eye, glaucoma, optic nerve disease, and refraction; but uniformity does not prevail. Witness, for example, the chapter on sympathetic ophthalmia, in which the Elschnig theory of anaphylaxis is not even mentioned. On the other hand, three full pages are devoted to the description and use of the Bailliard dynamometer for measuring the intra-ocular blood pressure, a procedure that so far is only of experimental value and by many is repudiated as inaccurate. The description of changes in the lens is hopelessly antiquated in the light of Vogt's publications; but the half of that chapter that is devoted to surgery of cataract is sound and well written. The chapter on muscles expresses the views that are prevalent in this country, but the darling of American ophthalmologists, heterophoria, is treated much like Cinderella before the advent of the fairy godmother. However, taken by and large, it is a good textbook, well printed and easily read, containing many personal experiences of the author, and full of hints of great practical value.

THE ESSENTIALS OF CHEMICAL PHYSIOLOGY FOR THE USE OF STUDENTS. By W. D. Halliburton, M.D., LL.D., F.R.S., Professor of Physiology in King's College. Eleventh edition. Cloth. Price, $2.50. Pp. 343, with 71 illustrations. New York: Longmans, Green & Co., 1922.

This little book, of British origin, is intended to be a textbook for students in what is more commonly known in this country as physiologic chemistry; the author must have smiled when he explained that chemical physiology was the same as physiologic chemistry. The simple constituents of the body are described and their reactions are discussed in much the same manner as occurs in the usual physiologic chemistry textbook. The method of presentation is direct, and easier to follow than the works of some American authors. This may be accounted for, however, by the fact that Dr. Halliburton makes no effort to be comprehensive. In the discussion of the proteins, the so-called English classification is employed rather than the classification commonly used here. The latter portion of the book is devoted to the "advanced course." This includes details of the newer methods of blood analysis, discussion of colloids and colloidal solutions, and viscosity; also a few experiments on laboratory animals are presented. Altogether, this portion serves as an epitome of clinical chemistry. To teachers of physiologic chemistry, in particular, the book will be of considerable interest.

A PRACTICAL HANDBOOK OF DISEASES OF THE EAR. By William Milligan, M.D., Aurist and Laryngologist to the Royal Infirmary, Manchester, and Wyatt Wingrave, M.D., Pathologist to the Central Throat and Ear Hospital, London. Cloth. Price, $3.50 net. Pp. 191, with 72 illustrations. New York: William Wood & Co., 1923.

This is intended for the use of undergraduate medical students, and is more appropriate for this purpose than are the more extensive treatises published on the ear. In one place where he devotes a dozen pages to descriptions of radical mastoid operations, the author seems to have forgotten that his book is written for the instruction of undergraduate students of medicine; that is, for men preparing for the practice of general medicine. Undergraduate students of medicine and general practitioners are not legitimately interested in operative work in special fields and, above all, in such highly technical work as is called for in diagnosing the indications for and in performing the radical mastoid operation. The chapters on examination and the diseases of the external ear, auricle and meatus are the most satisfactory ones, as they should be in this type of textbook. On page 41, the statement that diplacusis is encountered more frequently in middle ear affections is not correct. Diplacusis is generally accepted as a symptom of internal ear disease. The discussion of clinical problems in connection with the suppurative diseases of the ear is more satisfactory than is that of the nonsuppurative conditions, diseases of the labyrinth and otosclerosis. Why industrial nerve deafness and shell shock deafness are classed as functional disorders is not clear, since characteristic changes in the labyrinth have been demonstrated post mortem, and even produced experimentally by explosions and persisting high pitched whistles.

FASTING AND UNDERNUTRITION. A Biological and Sociological Study of Inanition. By Sergius Morgulis, Professor of Biochemistry, University of Nebraska College of Medicine. Cloth. Price, $5. Pp. 407, with illustrations. New York: E. P. Dutton & Co., 1923.

This is an able and comprehensive review of the entire literature on the physiology of fasting by an author who has done considerable work in the field, especially in the physiology of inanition in lower animals. The author states that "in the preparation of the present volume two definite objectives have been sought: first, to collect and to classify what is known about inanition; secondly, to consider the facts in their proper biological setting." These objectives have been achieved with considerable success, although one might have wished that the author had made clearer distinctions between general principles and the mass of details in some parts of the book. The subject matter is treated under the general heads of hibernation and allied phenomena, metamorphosis, fasting in salmon, acute inanition, partial inanition, chronic inanition, intermittent inanition, and inanition and growth. An excellent bibliography arranged under these headings fills eighty-five pages. The book is also provided with an index of authors and a serviceable subject index. This book can be recommended to every internist who takes the matter of nutrition and restricted diets of his patients seriously.

A TREATISE ON THE DISEASES AND INJURIES OF THE RECTUM, ANUS AND PELVIC COLON. By J. Rawson Pennington, M.D., F.A.C.S., Proctologist to Columbus Hospital. Cloth. Price, $12. Pp. 933, with 677 illustrations. Philadelphia: P. Blakiston's Son & Co., 1923.

In this volume, Dr. Pennington has collected a vast amount of material on proctology. His introductory chapter is historical, and he has preceded each following chapter by a brief historical review of that particular aspect of the subject. The book aims at the practical, special emphasis being placed on the instruments and methods used. It is freely interspersed with case reports from the author's practice, and with numerous illustrations, the large majority of the latter borrowed from other publications. The style of writing is colloquial. It appears to have been the attempt to include everything, rather than to select carefully from the large amount of material available, simply those methods which the author could thoroughly recommend.

OUTLINES OF PSYCHIATRY. By William A. White, M.D. Ninth edition. Leather. Price, $4. Pp. 372, with illustrations. Washington: Nervous and Mental Disease Publishing Company, 1923.

In the preface to this popular work, Dr. White calls attention to additions that have been made along three lines: (1) newer methods in the treatment of general paralysis; (2) the pathology of dementia praecox, and (3) the classifications of the presenile, senile and arteriosclerotic psychoses. As might be expected, Professor White pays special attention to psychanalysis. One of the most valuable features of his book is the section on the principles and methods of examination.

A CLINICAL GUIDE TO BEDSIDE EXAMINATION. By Dr. H. Elias, Dozent and Assistant at the First Medical Clinic of the University of Vienna; Dr. N. Jagic, Extraordinary Professor and Chief Physician to the Sofienspital, Vienna, and Dr. A. Luger, Dozent and Assistant at the Second Medical Clinic of the University of Vienna. Translated by William A. Brams, M.D., Adjunct in Medicine, Michael Reese Hospital, Chicago. Cloth. Price, $1.50. Pp. 135. New York: Rebman Company, 1923.

This concise, little book on physical diagnosis may be recommended for use as a student's manual in medical schools, as well as to physicians who desire to brush up on this important discipline, usually poorly understood and unappreciated by the medical student.

Medicolegal

Construction of Law as to Practice of Podiatry

(Howerton v. District of Columbia (D. C.), 289 Fed. R. 628)

The Court of Appeals of the District of Columbia, in reversing a judgment of conviction of defendant Howerton of having practiced podiatry without having first passed the examination required by law, says that the act of Congress of May 23, 1918, makes it unlawful for any person, for compensation, to practice podiatry in the District of Columbia without first having passed such examination concerning his fitness as the health officer of the district may prescribe; but none of the provisions of this act shall apply to regular practicing physicians or surgeons. Podiatry (or chiropody) is defined by the act to be the surgical or mechanical treatment of any ailment of the human foot, except the amputation of the foot or any of the toes, and, also, except the use of an anesthetic other than a local one. This court is of the opinion that the act was not intended to interfere with the general practice of any recognized branch of medical science; nor that a general practitioner, in any established branch of medical science, shall be limited in the treatment of his patients to all parts of the body except the foot, which, except in cases of surgical ailments involving amputation, shall be reserved for the podiatrist. The defendant, an osteopath, after first treating a sprained foot by simple massage or manipulation with the bare hands, had used on one hand a small device to assist in the manipulation, the device consisting of a rubber nodule held in place in the palm of the hand by means of a leather band; but, if he was practicing podiatry, and not osteopathy, inasmuch as his practice had extended from 1909 he came within the clause of the act excepting from its provisions podiatrists who had been practicing podiatry in the District of Columbia for one year next preceding the approval of this act.

Death After Appendectomy Not Due to Prior Injury

(Upham's Case (Mass.), 139 N. E. R. 433)

The Supreme Judicial Court of Massachusetts, in reversing a decree that approved of an award of compensation to Mrs. Upham for the death of her husband, says that he fell from a stepladder, July 20, 1921, and received an injury to his back which arose out of and in the course of his employment. The injury caused or aggravated an arthritis of the spine, which totally incapacitated him. Feb. 4, 1922, he suffered from severe abdominal pains—diagnosed as appendicitis—and as a result of an operation performed therefor he died ten days later. There was an effort to prove that the injured man contracted the appendicitis by reason of indirect results following the injury and particularly causing constipation and general impairment of vitality, which, it was contended, were directly due to the injury; but there was evidence to support a finding that the theory advanced had not been sustained. However, there was another finding that the physician who had undertaken the treatment of the man had planned to put him into a plaster cast, and before that stage of the treatment had been reached the man had developed symptoms which the physician diagnosed as appendicitis. Then, in order that the course of treatment for the disability should not be interrupted and nullified by a further attack of appendicitis, together with the discomfort which would result and a possible necessity of an operation because of such recurrence, the physician performed the operation for appendicitis. The industrial accident board adopted the view that this testimony that the operation, being a part of the treatment of the man for the benefit of his condition which, in turn, was due to his injury, was so causally connected with the injury as to call for a finding and a ruling that the consequences following and attributable to the operation were for that reason attributable to the injury and that the injury was, therefore, a causal factor in bringing about the results as stated, and the widow's claim for compensation under the workmen's compensation act should be allowed. Still it was found that the appendicitis the operation for which resulted in death, had no relation to the injury. Therefore, it not only appeared that the injury was not the active, efficient and proximate cause of death, but it did not even cause conditions which resulted in the appendicitis. As the appendicitis had no connection between the injury and the death, it could not properly be found that death following the operation resulted from the injury. The appearance of appendicitis, necessitating an operation which resulted in death, constituted a new and intervening cause wholly independent of and without any relation to the injury. As there was no causal connection between the injury and the death the latter could not be found to have resulted from the former. The operation was an independent, intervening agency which broke the chain of causation.

Arbitrary Limitation of How Much Intoxicating Liquor May Be Prescribed

(Lambert v. Yellowley et al. (U. S.), 291 Fed. R. 640)

The United States District Court, Southern District of New York, in granting an injunction pendente lite, or pending litigation in this suit against Yellowley, acting federal prohibition director, and others, says that it has reached the conclusion that the limitations of the Volstead Act and its amendments, which make it lawful to prescribe but one pint of intoxicating liquor for the internal and medicinal use of a person whose known ailment, if it is properly to be treated, requires the administration of a greater quantity, are void.

Whether or not the use of liquor in the treatment of certain known ailments is a valuable therapeutic agent is a controversial subject, with which the court is not, at present, particularly concerned. For the purposes of the defendants' motion to dismiss, it is sufficient to accept the allegations of the complaint and to consider that Congress itself, in the very legislation under attack, has recognized that in certain cases liquor has a legitimate medicinal use, and has specified the circumstances under which it may be prescribed in given instances. The difficulty is that, having done so, Congress, without reference to the quantity of liquor actually required for the proper treatment of a particular ailment from which a patient may be suffering, and irrespective of the good faith, judgment and skill of the physician in attendance, proceeds to limit the amount to be prescribed to not more than a pint within a period of ten days.

If, as the complaint alleged, the administration to a patient of more than the statutory quantity of liquor is necessary for his relief from a certain known ailment, the inability of such patient to have his legitimate needs supplied means that he is subjected to a prohibition that certainly is not within the terms of the Eighteenth Amendment, and that, it easily may be imagined, might subject him to serious consequences, if not death itself. While the exercise of regulatory power in the interest of the public at large frequently brings about individual hardship, it is to be recalled that one of its chief objects is to preserve health—and is not to jeopardize and destroy it. For this reason, the court feels that persons are not to be deprived of the use, when required, of such medicines as are proper and necessary for their relief, unless authority for such deprivation has expressly been conferred.

Under the facts presented by the complaint, the danger that persons bent on a violation of the Volstead law may, through the medicinal use of liquor, be furnished with a means of procuring intoxicants for beverage purposes, is to be overcome through regulations. These may be of the most stringent character, but they must fall short of actual prohibition against the use of liquor to the extent demanded by the reasonable necessities of the proper treatment of known ailments. So far as the court is informed, the legislation complained of does not purport to be based on any finding as to the quantity of liquor that reasonably and properly may be required within a specified period for the treatment of disease. If otherwise, the court would be inclined to dismiss the bill; it being the court's impression that within reasonable limits the quantity to be prescribed may be regulated by Congress. But, accepting the complaint as made, the limitation now imposed seems to be arbitrary and without justification. Should the proof show the contrary to be the fact, the complainant of course cannot prevail.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Internal Medicine, Chicago

32: 647-810 (Nov.) 1923

*General Relation Between Susceptibility and Physiologic Condition. C. M. Child, Chicago.—p. 647.
*Gastric Ulcer and Achlorhydria. J. R. Bell, London, Eng.—p. 663.
*Dynamics of Ventricular Systole. I. Auricular Fibrillation. L. N. Katz and H. S. Feil, Cleveland.—p. 672.
Lamblia (Giardia) Infection Associated with Cholecystitis. Case Treated with Neo-Arsphenamin. J. L. Kantor, New York.—p. 693.
Basal and Nitrogenous Metabolism in Acute Leukemia During Roentgen-Ray Treatment. W. G. Lennox and J. H. Means, Boston.—p. 705.
*Melanuria Without Melanosarcoma. Report of Case. J. P. Peters, New Haven, Conn.—p. 709.
*Value of Electrocardiograph in Prognosis. W. A. Bloedorn and L. J. Roberts, Washington, D. C.—p. 718.
*Experimental Infectious Streptococcus Endocarditis and Its Arsenical Therapy (Sodium Cacodylate). J. A. Bargen, Chicago.—p. 727.
Complications of Staphylococcus Focal Infections. L. M. Morris, San Francisco.—p. 746.
*Biochemistry and Treatment of Chronic Nephrosis (Epstein). I. M. Rabinowitch and M. C. C. Childs, Montreal, Can.—p. 758.
*Blood Oxygen in Diabetes Mellitus. S. B. Grant, Boston.—p. 764.
*Gastric Secretion in Response to Duodenal Feeding. A. L. Garbat, New York.—p. 771.
Digitalis Elimination. H. Gold, New York.—p. 779.
*Effects of Insulin in Treatment of Diabetes Mellitus. I. M. Rabinowitch, Montreal, Can.—p. 796.

Relation Between Susceptibility and Physiologic Condition.—Evidence is presented by Child in support of the conclusion that the susceptibility to action of external agents of the living protoplasms of different individuals of a species and of different regions of the individual depends primarily on quantitative differences in the individuals or regions concerned, and that the rate of oxidative metabolism is in some degree a measure of these differences. The evidence indicates that susceptibility and capacity for acclimatization and recovery vary in general, directly with, though not necessarily proportionally to, the rate of oxidative metabolism.

Gastric Ulcer and Achlorhydria.—Twenty-seven proved cases of chronic gastric ulcer were examined by Bell by means of the fractional test meal. Four (14.8 per cent.) had complete achlorhydria and three (11.1 per cent.) had extremely low acidities. These four cases of gastric ulcer were clinically indistinguishable from those associated with normal acidities. Neither the site nor the duration of the ulcer appeared to predispose to achlorhydria. Bell asserts that the methods in vogue in medical treatment of gastric ulcer, while producing many good results, are not wholly rational, and are based on misconceptions. Recognition of the wide variations of secretory activity occurring in gastric and duodenal ulcer is essential for the efficient treatment of these conditions.

Dynamics of Ventricular Systole.—A study of optically recorded heart sounds and the subclavian pulse was made by Katz and Feil in a series of fifteen normal persons and in a series of fifteen persons with auricular fibrillation. A method is given for determining the duration of systole and its phases from these records. The authors conclude from their observations that in man, as in animals, the changes in the dynamics of ventricular systole occur primarily as a result of changes in two factors: the one physiologic, that is, the condition of the myocardium, and the other physical, that is, the tension and volume of the ventricle at the beginning of systole.

Melanuria Without Melanosarcoma.—In Peters' case there was no evidence during life or postmortem of any abnormal source of production of the pigment. The case is of interest because it indicates that melanuria can occur in the absence of melanotic sarcoma.

Value of Electrocardiography in Prognosis.—A case is reported by Bloedorn and Roberts in which electrocardiograms were obtained illustrating the presence of a prolonged Q R S complex, notching of the S-wave in Lead II and inversion of the T-wave in Leads I and II. A diagnosis of damaged myocardium was made and a bad prognosis given. Sudden death of the patient occurred within four months and postmortem examination of the heart revealed chronic interstitial myocarditis and marked coronary sclerosis, with occlusion of the decreasing branch of the left anterior coronary artery.

Sodium Cacodylate in Experimental Infectious Streptococcus Endocarditis.—Bargen's report suggests possibilities for the specific therapy of valvular endocarditis. While the results obtained with forty-eight rabbits do not establish conclusively the value of sodium cacodylate therapy with chronic infectious endocarditis, yet they afford reasons for believing that it is of some value. In 84 per cent. of a group of patients in whom a chronic infectious endocarditis was suspected, *Streptococcus viridans* was recovered by blood culture. Bargen points out that the essential needs for the isolation of *Streptococcus viridans* from the blood of patients during life seem to be anaerobic conditions, mediums rich in nutrient substances (liquid or solid), careful daily examinations of all mediums used for at least a week, and the withdrawal of a large quantity of blood (from 30 to 40 c.c.) at the proper time. Sodium cacodylate seems to have some beneficial influence on the healing of heart valve infections. Arsenical preparations, such as sodium cacodylate, may have a protective power for the endocardium or the pericardium.

Treatment of Chronic Nephrosis.—A case of chronic nephritis associated with chronic nephrosis is recorded by Rabinowitch and Childs. The usual treatment of chronic nephritis, including restriction of salt, water and nitrogen, caused improvement to a certain stage, which became stabilized; the edema still persisted. Following the institution of a high protein diet there was no evidence of a further increase in the nonprotein nitrogenous elements in the blood and no clinical symptoms suggestive of any harmful effects. The end-result was a marked improvement in the clinical picture, with a complete disappearance of the edema. Improvement was also shown by the chemical state of the blood and renal functional tests.

Blood Oxygen in Diabetes Mellitus.—The average venous oxygen unsaturation of thirty-four diabetic patients was found by Grant to be 59 per cent. greater than the average normal. This increase in the venous oxygen unsaturation would seem to indicate a slow blood flow through the arm in diabetic patients.

Gastric Secretion in Response to Duodenal Feeding.—It is evident from Garbat's observations that one cannot put the stomach at rest from secretion by duodenal alimentation alone. There seems to be a definite cycle of gastric secretion which starts just as soon as food enters the duodenum, and which depends on the type of patient we are dealing with. The greater the response of the secretory mechanism of the stomach to food intake by mouth, as in some cases of achylia, the less gastric secretion in response to duodenal alimentation. The exact physiologic mechanism whereby this reflex is brought about is still to be determined.

Effects of Insulin in Diabetes.—The experience Rabinowitch has had demonstrates that the reaction of a series of patients with diabetes to insulin is not uniform. Its chief value, in the present status of our knowledge of its action, seems to lie in tiding over the diabetic during the critical stage of the disease (precoma), so difficult to control with the usual procedures: fasting, intravenous injections of salines, etc. In emaciated patients with severe diabetes, in whom protein plays a great part in the formation of energy, and who progress best when controlled by a diet on the Woodyatt basis, with the administration of insulin the diet may be increased to the point where the patient gains weight and generally shows clinical improvement. Diet still remains the important means of controlling the disease. The ultimate type of treatment to follow, whether diet alone or diet plus insulin, seems to depend on whether the pancreatic function is completely destroyed as in pancreatic diabetes, or whether the little remnant is only temporarily overstrained, but can recover with rest. The first case recorded here seems to be of the latter type.

Archives of Surgery, Chicago

7: 469-688 (Nov.) 1923

*Clinical and Pathologic Study of Ten Bone Tumors. J. J. Morton and W. C. Duffy, New Haven, Conn.—p. 469.
Five Cases of Paget's Deforming Osteomyelitis. L. W. Ely, San Francisco.—p. 532.
*Fundamental Factor in Recurrence of Inguinal Hernia. M. G. Seelig and K. S. Chouke, St. Louis.—p. 553.
*Experimental Cord Crushes. Mechanical Factors Involved; Consequent Changes in Cord. J. F. McVeigh, Galveston, Tex.—p. 573.
Prognosis and Treatment of Fractures of Leg and Ankle. A. P. C. Ashhurst and E. T. Crossan, Philadelphia.—p. 601.
Treatment of Fractures by Orthopedic Methods. I. J. Landsman and S. W. Boorstein, New York.—p. 633.
*Suppurative Tenosynovitis of Flexor Muscles of Hand. M. Cleveland, New York.—p. 661.

Study of Bone Tumors.—Neither the use of the roentgen ray, examination of a microscopic section, nor the clinical behavior should, according to Morton and Duffy, be relied on of themselves in the diagnosis of bone tumor. However, the clinical behavior, in general, is a most valuable index. In many cases the only true test is that of time. The authors commend highly the collection and study of a group of these neoplasms, such as is planned by the Registry for Bone Sarcoma, and offer suggestions for greater benefit to the surgeon.

Factor in Recurrence of Inguinal Hernia.—Seelig and Chouke consider suturing the abdominal muscles to Poupart's ligament, in hope of buttressing a weak or ruptured abdominal wall, a hopeless procedure. These muscles will not unite with the fascial ligaments unless they have been deliberately and rather extensively traumatized, and even if they did unite, the union would not be permanent on account of the inevitable tension that occurs when these structures are approximated. The authors do not believe that even the conjoined tendon often unites with Poupart's ligament when these two structures are sutured. These structures are both connective tissue, but in addition to the inevitable tension, which pulls against the suture line, there is always present the possibility of the lateral and medial origins of the cremasteric muscle interposing themselves between Poupart's ligament and the conjoined tendon, thus rendering union highly improbable. The authors' experiments showed that when a pedicled flap of fascia lata was made; the underlying muscle was tunneled with a knife, and the fascial strip was laid in the raw muscle tunnel and sutured in situ, without tension, wherever the fascial strip came into contact with intramuscular connective tissue (perimysium), it fused with it, and became firmly anchored. Wherever the perimysial tissue was scanty, the fascial strip lay in its tunnel, with practically no evidences of union to the muscle about it.

Experimental Cord Crushes.—Keiller has contended, from his study of the spinal cords of patients who have died as a result of fracture of the spine, that, since the spinal cord is encased within a fairly firm but apparently slightly elastic tube of pia mater, the cord pulp formed at the site of the lesion in crushes resulting in ribbon-like injuries takes the path of least resistance and tracks up and down the cord pushing aside and destroying cord elements. It was with this theory in mind that experiments were made on dogs, and human cords obtained fresh at necropsy were examined, the purpose being to study the mechanical factors involved in spinal cord crushes both complete and partial, and the subsequent vital changes occurring in such injuries. McVeigh reports the findings in detail. The original article should be consulted, as it does not readily lend itself to abstracting.

Treatment of Suppurative Tenosynovitis of Hand.—Cleveland asserts that to attain optimum results in suppurative tenosynovitis the desiderata are: (*a*) early diagnosis and immediate operation; (*b*) properly placed, adequate incisions, draining all collections of pus; (*c*) avoidance of unnecessary trauma; (*d*) early removal of drains; (*e*) early and continued active motion, and (*f*) prevention of secondary contamination of the infected sheath.

Iowa State Medical Society Journal, Des Moines

8: 441-490 (Nov. 15) 1923

Diagnosis of Some Surgical Conditions. M. L. Harris, Chicago.—p. 441.
Extraperitoneal Cesarean Section. N. Schilling, New Hampton.—p. 445.
Care of Patients Before, During and After Confinement. J. P. Greenhill, Chicago.—p. 456.
Prostatectomy in Poor Surgical Risks. R. J. E. Oden, Chicago.—p. 460.
Narcotic Drug Addiction and Narcotic Laws. E. S. Bishop, New York.—p. 463.
Early Physicians in Iowa. D. S. Fairchild, Clinton.—p. 472.

Journal of General Physiology, Baltimore

6: 131-237 (Nov. 20) 1923

Differentiation of Oxyhemoglobins by Means of Mutual Solubility Tests. K. Landsteiner and M. Heidelberger, New York.—p. 131.
Influence of Light of Very Low Intensity on Phototropic Reactions of Animals. H. K. Hartline, Easton, Pa.—p. 137.
Transport of Carbon Dioxid in Blood of Some Marine Invertebrates. T. R. Parsons and W. Parsons, Naples, Italy.—p. 153.
Toleration of Temperature by Drosophila. H. H. Plough and M. B. Strauss, Amherst, Mass.—p. 167.
Electrophoresis of Bacteria as Influenced by Hydrogen Ion Concentration and Presence of Sodium and Calcium Salts. C. E. A. Winslow, I. S. Falk and M. F. Caulfield, New Haven, Conn.—p. 177.
Conductivity Titration of Gelatin Solutions with Acids. D. I. Hitchcock, New York.—p. 201.
Theory of Regeneration Based on Mass Action. H. J. Loeb, New York.—p. 207.
Influence of Chemical Nature of Solid Particles on Their Cataphoretic P.D. in Aqueous Solutions. J. Loeb, New York.—p. 215.

Kentucky Medical Journal, Bowling Green

21: 585-668 (Nov.) 1923

Intestinal Infarction from Influenza Infection. Case Report. J. G. Sherrill, Louisville.—p. 642.
Subconjunctival Dislocation of Crystalline Lens. Report of Three Cases. T. L. Bailey, Madisonville.—p. 644.
Treatment of Trifacial Neuralgia by Alcohol Injections. L. W. Frank, Louisville.—p. 646.
Initial Bladder Symptoms in Tabes Dorsalis. C. W. Dowden, Louisville.—p. 649.
Roentgen-Ray as Therapeutic Agent in Dermatology. W. J. Young, Louisville.—p. 651.
Bronchial Asthma. W. Z. Jackson, Arlington.—p. 660.
Sinus Thrombosis Complicating Mastoiditis. Case Report. J. J. Wynn, Louisville.—p. 662.
*Renal Calculus. Case Report. J. G. Sherrill, Louisville.—p. 664.

Minnesota Medicine, Minneapolis

6: 569-610 (Oct.) 1923

Surgery in Past Generation. A. W. Abbott, Minneapolis.—p. 569.
Tuberculous Enterocolitis. W. S. Lemon, Rochester.—p. 572.
New System of Feeding. T. L. Birnberg, St. Paul.—p. 579.
Encephalitis Simulating Acute Abdominal Conditions. R. E. Farr, Minneapolis.—p. 585.
*Lethargic Encephalitis. Injection of Sodium Iodid. C. E. Riggs, St. Paul.—p. 588.
Epidemic Encephalitis. L. M. Crafts, Minneapolis.—p. 595.
Case of Acute Intestinal Obstruction Caused by Volvulus in Hernial Sac. W. H. Magie, Duluth.—p. 599.

Sodium Iodid in Parkinson's Disease.—Riggs reports a rather remarkable effect from the intravenous injection of sodium iodid on the Parkinson syndrome and the headache in one case.

Southern Medical Journal, Birmingham, Ala.

16: 825-914 (Nov.) 1923

*Digestive Hemolysis as Test of Liver Function and Influence of Hepatic Extract on It. A. L. Levin, New Orleans.—p. 825.
*Bacillus Acidophilus: Results of Feeding Milk Culture. G. C. Mizell, Atlanta.—p. 835.
*Sectional Feeding. A. J. Waring, Savannah, Ga.—p. 841.
Influence of Obstetrician for Breast Feeding. C. R. Hannah, Dallas.—p. 847.
Fundamental Policies Involved in Public Health Administration. W. S. Leathers, Jackson, Miss.—p. 853.
Acute Osteomyelitis. D. Lewis, Chicago.—p. 861.
*Surgical Renal Tuberculosis. W. D. Haggard and H. L. Douglass, Nashville.—p. 870.
Diagnosis of Stone in Ureter. R. C. Bryan, Richmond, Va.—p. 876.
Combination Sound and Deep Instillator. A. G. Cowles, Ardmore, Okla.—p. 880.
*Pregnancy Following Double Ligation of Both Fallopian Tubes: Second Cesarean Section. H. A. Davidson, Louisville.—p. 881.
Placenta Praevia in Twin Pregnancy. W. G. Ruble, Morristown, Tenn.—p. 883.
Orbital and Ocular Tumors. E. C. Ellett, Memphis.—p. 884.

Digestive Hemolysis as Test of Liver Function.—A study of forty cases has convinced Levin that pathologic changes occurring in the liver can probably be detected early in their course by the test of digestive hemoclasis of Widal. The so-called intestinal toxemias and simple cases of indigestion are probably of hemoclastic origin. Hepatic opotherapy undoubtedly influences the Widal hemoclasis test. A large

percentage of cases of cholecystitis and cholelithiasis give a positive result, and the effects of treatment should probably be checked by the test. Though the test is not conclusive, it invites further observation and study.

Results of Feeding Acidophilus Milk Culture.—Relief from chronic intestinal toxemia of the putrefactive type, and stasis, even in the presence of intestinal adhesions, has been secured by Mizell while feeding *Bacillus acidophilus* milk culture in conjunction with a general diet. Chronic ileocolitis and colon stasis of undetermined origin, as well as secondary to intestinal adhesions, may be relieved by feeding *B. acidophilus* milk. When results are not so secured, additional measures of a nonirritating character, directed to the relief of the constipation, and some modification of diet, may render the treatment effectual.

Sectional Feeding.—One point stressed by Waring is that the Southern pediatrist has his own particular and difficult problems in dietetics to handle, influenced markedly by local conditions.

Surgical Kidney Tuberculosis.—Haggard and Douglass report on sixty-one cases of nephrectomy. Tuberculosis was present in 49 per cent. of the specimens. There was no operative mortality. The late results are not so favorable. One third of the sixty-one patients died in the first five years after operation; 22 per cent. died within a year of the operation; 11.33 per cent. died from one to four years after leaving the hospital. All deaths were attributed to the tuberculosis. Among the patients that survived the operation from two to three years, one-third are well and two-thirds still complain of some cystitis, although the symptoms are greatly improved. Of those surviving from three to five years, 60 per cent. have no frequency of urination and in 40 per cent. mild symptoms of cystitis persist. In no case has the cystitis been treated following operation.

Pregnancy Following Double Ligation of Both Tubes.—In Davidson's case, after closing the uterus with three layers of catgut suture, both tubes were ligated with Pagenstecher thread. Each tube was tied twice, and the ligatures were one inch apart (four ligatures in all). About twenty months later the patient again presented herself pregnant. A living male child, weight 7 pounds 10½ ounces (3,500 gm.), was delivered by section. Following delivery and closing of the uterus both tubes were resected at the cornua of the uterus. The old scars in the tubes (two in each tube, one inch apart) were evident. Remains of the old ligatures were present. Scars and fine ends of linen thread showed where the tubes had been tied with Pagenstecher thread at the operation two years previously. No adhesions were found except slight adhesions of the broad ligament. This case proves that simple tying of the tubes even in two places on both sides with nonabsorbable sutures will not necessarily prevent the occurrence of a future pregnancy.

U. S. Naval Medical Bulletin, Washington, D. C.

19: 651-734 (Nov.) 1923

Analysis of 360 Cases of Valvular Heart Disease Discharged from Naval Service. W. A. Bloedorn and L. J. Roberts.—p. 651.
Complement Fixation Test and Other Findings in Malaria. J. H. Chambers.—p. 661.
Illumination of Dental Offices Ashore and Afloat. H. E. Harvey.—p. 667.
Open Operation for Extraction of Teeth. S. H. Reed.—p. 671.
Deep Roentgen-Ray Therapy. G. U. Pillmore.—p. 675.
*Case of Subphrenic Abscess. G. F. Cottle.—p. 683.

Subphrenic Abscess Following Appendectomy.—In Cottle's case the abscess developed after removal of the appendix and excision of duodenal ulcer. For three and one half months there was lack of unanimity of opinion as to the diagnosis. The roentgenologist was persistent in his original statement that the fluid was probably in the abdomen, but the physical signs and other clinical evidence failed to bring agreement. About four months after the abdominal operation, aspiration was performed and this showed that the pus was in the abdomen, not in the chest. Operation confirmed the diagnosis of subphrenic abscess.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 907-954 (Nov. 17) 1923

*Melanosis (Melanin: Melanoma: Melanotic Cancer). W. G. Spencer.—p. 907.
Difficult Midwifery in General Practice. S. G. Luker.—p. 913.
*Acute Lumbago Treated by Injection of Quinin and Urea. H. S. Souttar.—p. 915.
*Effect of Parathyroid on Blood Sugar Curve After Insulin. W. D. Forrest.—p. 916.
Surgery in Royal Navy. D. W. Hewitt.—p. 920.
Estimation of Physical Efficiency. M. Flack.—p. 921.
Normality; Selections of Recruits. C. R. Sylvester-Bradley.—p. 923.
Aeroplane Accidents. H. G. Anderson.—p. 927.
*Acute Intestinal Obstruction Due to an Unusual Foreign Body. S. B. Chambers.—p. 928.
Melena Neonatorum: Injection of Hemoplastin; Recovery. W. G. Nash.—p. 928.
*Treatment of Tetanus. H. K. Corkill.—p. 928.

Melanosis.—A very complete survey of melanosis is made by Spencer. He takes up the origin of melanin pigmented cells from epidermis; the formation of melanin pigment in the cytoplasm of the epithelial cells lining the ink sac of a cuttlefish; the presence of scattered foci of melanin pigmented cells in deep tissues of the skin, the eyeball, the central nervous system, in the course of nerves, in nerve ganglions, in the wall of the heart and large blood vessels, in retroperitoneal and mesenteric connective tissue; the formation of melanin from a colorless mother substance, melanogen. Spencer also reports the results of clinical observations on the pathologic formation of melanin. Experience incident to the removal of a large number of melanomas is similar to that in connection with other varieties of new growths. Free and early excision is not followed by recurrence in situ except in malignant cases in which the disease has already spread widely. Simultaneously with the change from melanoma to melanotic cancer there is a detachment and degeneration of cells producing metastasis which exhibits itself later. The general bearing of recent observations suggests the hope that further chemical research may arrive at a means of controlling the disease by therapeutic measures.

Quinin and Urea Hydrochlorid for Lumbago.—In two cases cited Souttar injected 5 c.c. of a 1 per cent. solution of quinin and urea hydrochlorid through a long fine needle into the center of the tender spot. Within ten minutes the acute pain entirely disappeared. A sense of stiffness remained, and a curious feature was that the patient did complain of general malaise.

Effect of Parathyroid Extract on Blood Sugar After Insulin.—It has been reported that when insulin and parathyroid are injected simultaneously into rabbits, convulsions (due to reduction of the amount of sugar in the blood) ensue in a much shorter period and with a much smaller dose of insulin (from one-third to one-fourth of the normal dose). Forrest applied these results to the human subject, and found that parathyroid was almost, if not quite, as efficacious when given by mouth.

Mechanical Intestinal Obstruction.—In Chambers' case, the obstruction resulted from swallowing a rubber preventive (condom) two-thirds filled with fluid and tied at the free end. This object completely obstructed the small bowel about eight inches from the ileocecal valve.

Serum Therapy of Tetanus.—In Corkill's case 89,000 units of antitoxin were administered in the course of fourteen days (39,500 in the first forty-eight hours)—21,500 intrathecally, 3,000 intravenously, 64,500 intramuscularly and locally. The patient recovered.

Edinburgh Medical Journal, Edinburgh

30: 565-620 (Nov.) 1923

Insulin Therapy. D. M. Lyon.—p. 565.
*Hallux Varus. D. M. Greig.—p. 588.
Epidemic of Measles in Highland Division at Bedford, 1914-15. W. Kinnear.—p. 593.
Case of Cleido-Cranio-Dysostosis. E. F. Cyriax.—p. 600.

Hallux Varus.—Greig cites the case of a boy, aged 17, who was hydrocephalic, doubtless from inherited syphilis, for his Wassermann reaction was definitely positive, and as a result of his cerebral affection he was feebleminded. He also had a left hallux varus and a bilateral and almost symmetrical ectrepodactlyly of the index fingers, i. e., a radical deviation of those digits.

Lancet, London

2: 1017-1066 (Nov. 10) 1923

Our Successors. A. E. Naish.—p. 1017.
*Principles of Symptomatology. J. Mackenzie.—p. 1020.
Gynecology and General Medicine. H. Moreland and V. Bonney.—p. 1025.
Unsuspected Nasal Sinus Disease. T. B. Jobson.—p. 1029.

Principles of Symptomatology.—The importance of the afferent nervous system in maintaining health and in the production of symptoms, Mackenzie asserts, is not sufficiently recognized, and it is not realized how little is known of this portion of the nervous system. This lack of knowledge constitutes one of the main reasons for the failure to understand the processes concerned in the production of symptoms. The autonomic nervous system is spoken of as an "efferent" system, and yet there is every reason for assuming that there is also an "afferent" system as large and as important in the maintenance of life as the efferent. The presence and peculiar function of receptors in the viscera is apparent. The organs of the healthy body are continually subject to a stream of impulses which enter from without, or are produced in the body by the activity of the organs themselves. These impulses, wherever they arise, are conveyed by the nervous system to the organs and modify their functional activity. This spreading of impulses in the central nervous system is the occasion of the production of a great many symptoms in widely separated organs, such as nausea, vomiting, sweating, pallor and pain, as in renal colic. Many phenomena are produced by visceral disease which are dependent for their production on stimulation of the afferent nerves. In certain states of ill health careful examination of the abdomen reveals the presence of hard and contracted muscles, and of areas of tenderness, due to a hyperalgestic state of the skin and deeper tissues of the external body wall. These phenomena indicate the presence of some disease process in the abdominal organs. Other phenomena often accompany these signs or appear without them, as nausea and vomiting, increased pulse rate, pallor, sweating, pain, etc. All these phenomena indicate increased activity of the afferent nervous system, and indicate further the presence of some particular stimulus which is capable of acting on the receptors of afferent nerves. There are only a few factors which are capable of producing this adequate stimulus, and Mackenzie has been able to identify only one—impulses arising from the contraction of muscles.

Medical Journal of Australia, Sydney

2: 351-376 (Oct. 6) 1923

*Treatment of Flaccid Paralysis. N. D. Royle.—p. 351.
*Tetanus. E. R. Roseby.—p. 360.
Proctitis with Peri-Anal Cutaneous Tuberculosis. R. W. Cilento.—p. 360.

Active Movements in Treatment of Flaccid Paralysis.—Royle found it impossible to conduct experiments on the effect of active movements on recovering muscles, but there appears little doubt that active movement is the normal physiologic stimulus both for an increase in growth and an increase in strength and that this is practically the only effective treatment at the present time. In the present state of knowledge the most desirable thing appears to be the maintenance of the denervated muscles in such a position that the returning power is able to operate to a maximum effect and the preservation of the normal ranges of movement. Splinting is necessary to effect this, but the splinting must not be rigid nor must it be continuous. Elongation of a paralyzed muscle does not retard the rate of recovery, but there is every indication that muscles which are periodically elongated and whose fibrous tissue is preserved at an adequate length, recover far more quickly than those which are kept in a constant position. Contracture is due not to overaction of the normal groups, but to underaction of the denervated groups and can be prevented by adequate passive movement. Massage is useful in preserving the normal elasticity of the skin, but probably its rôle is much more important after the actual return of the nerve supply, when the elimination of waste products from an intact muscle is necessary. The forms of electrical treatment now in vogue have no apparent beneficial result and certainly increase the cost and often the discomfort of treatment.

Tetanus Following Subcutaneous Injection of Saline Solution.—In a case of threatened miscarriage, Roseby removed a six weeks' ovum, curetted and plugged. About 600 c.c. of saline solution was injected under the right breast. Next evening the temperature was 40 C., the breast being painful and reddened. Twenty-four hours later the temperature had dropped to 37.8 C., the breast looked less angry, but abscess formation was anticipated. On the seventh evening the woman complained of stiffness of the jaw and pain and stiffness of the back of the neck and later similar stiffness of the muscles of the left hand. She was seen about three hours after the onset of these symptoms and then could open her mouth about half the normal extent, but with pain and stiffness. The abscess which had formed in the breast was opened and about 30 c.c. of pus and some gas bubbles escaped. Roseby injected 3,000 units of tetanus antitoxin into the right pectoral muscles. The symptoms gradually disappeared. In this case, the breast infection was evidently due to the saline solution containing tetanus bacilli from a septic douche can.

South African Medical Record, Cape Town

21: 461-484 (Oct. 27) 1923

Aspects of Genito-Urinary Surgery. Anesthesia. R. M. Muir.—p. 462.
Uretheral Catheterization Aid to Diagnosis of Kidney Diseases. E. B. Fuller.—p. 464.
Kidney Function Tests. A. R. McLachlan.—p. 465.
Diagnosis of Urinary Calculus. W. L. Gordon.—p. 467.
Roentgen-Rays in Diagnosis of Kidney and Bladder Diseases. H. W. Reynolds.—p. 468.
Pathology of Tumors of Prostate. T. A. Fuller.—p. 470.
*Activity of South African Grown Digitalis. J. W. C. Gunn and D. Morrison.—p. 471.
*Treatment of Bilharzia Disease in Natal. F. G. Cawston.—p. 472.
Reminiscences of Leprosy and Plague. H. B. Meijer.—p. 475.

Activity of South African Grown Digitalis.—Gunn and Morrison grew *Digitalis purpurea* from seeds. A tincture was prepared according to the British Pharmacopeia and tested on frogs and standardized. As the result of many experiments, it was found that the hourly dose of the tincture prepared from the digitalis grown by the authors was 0.005 c.c. per gm. Several confirmatory experiments on the mammalian circulation were performed. The minimal lethal (intravenous) dose for cats was 1.2 c.c. per kilogram. It would appear, therefore, that imported leaves might be well replaced by those grown in South Africa.

Treatment of Bilharziasis.—A study made by Cawston of patients who have undergone a course of treatment with intramuscular emetin injections reveals the fact that bilharzia patients are more disposed to the formation of renal calculus and appendicitis than other persons. It shows that the treatment must be continued for at least twenty-eight days to produce a permanent cure in the vast majority of cases. The eosinophilia has been shown to be a fair index of the results of treatment, when the test is made before treatment is commenaced and repeated a week or two after treatment has been discontinued. The complement fixation test has also been shown to be confirmatory in certain instances. The potassium salt of antimony has been found the most serviceable one in all cases, except when intravenous medication is contraindicated, as in some children, and a saline solution has been found to procure much less toxic effects than when either the potassium or the sodium salt is dissolved in distilled water. By giving a dose of not more than 1½ grains (0.1 gm.), except in those persons who are able to stand larger doses without showing any reaction, the potassium salt seldom is badly tolerated. With emetin there is always the risk of gradually increasing cardiac depression when from ½ to 1½ grains (0.03 to 0.1 gm.) is injected intramuscularly on alternate days; this depression is apt to be overlooked if the patient is confined to bed. The use of a 1 per cent. phenol solution and an occasional hot sea-water bath is invaluable to prevent irritability in young children as a result of local

discomfort from intramuscular injections. The larger doses of emetin may produce vomiting, as occasionally occurs when the dose of tartar emetic has been increased too rapidly before the usual tolerance for the drug has been acquired.

Annales des Maladies Vénériennes, Paris

18: 577-656 (Aug.) 1923

Administration of Arsenicals. Lévy-Bing et al.—p. 577.
*Saprophytism and Venereal Disease. G. Belgodère.—p. 598.
Primary Gumma of Urethra. B. Valverde.—p. 614.

Saprophytism and Venereal Diseases.—Belgodère points out the possibilities of venereal infection from clinically, though not bacteriologically healthy women. A vulvovaginitis which dated from childhood seemed to be the source of the infection of the husband in one case.

Lyon Chirurgical

20: 553-680 (Sept.-Oct.) 1923

*Autohemotherapy in Furunculosis. J. Nicolas, J. Gaté and D. Dupasquier.—p. 553.
*Ulcers on Lesser Curvature. N. Hortolomei.—p. 562.
*Spontaneous Rupture of Arteries. P. Bonnet et al.—p. 566.
Cancer of Male Breast. R. H. Kummer.—p. 583.
Orthopedics in Austria and Italy. L. Michel.—p. 588.

Autohemotherapy in Dermatology.—Nicolas and Gaté have been experimenting for years with reinjection of own blood in treatment of various skin affections. The treatment succeeded in some cases and failed in others, but in typical furunculosis it has been almost constantly successful. It is by all means the best treatment known to date, they say. They draw the blood from a vein and reinject it at once subcutaneously or into the gluteal muscles. The dose is usually 10 c.c. for an adult and 2 c.c. for a child, repeating every second or third day, to a total of fifteen or twenty injections, to prevent recurrence. Local treatment is not necessary. Nine typical cases are described in detail, and emphasis is laid on the prompt relief of pain and the subsidence of the chronic staphylococcus septicemia. This treatment has never failed them in their two years' experience with it, and they have observed no reaction in furunculosis. Autohemotherapy does not act like a vaccine; the effect is more like a hemoclastic shock. Injection of healthy human, guinea-pig or rabbit blood acts the same way.

Resection for Ulcer of the Lesser Curvature.—Hortolomei reports two cases of longitudinal plastic resection with pyloroplasty, with complete and permanent success.

Spontaneous Rupture of Arteries.—Rupture occurred of the external iliac artery and vein in one of the two cases reported, and of the popliteal artery and vein in the other. There was gangrene of the legs with a diffuse and infected hematoma above the limit of the gangrene. A focus of atheroma in the middle layer of the artery was evidently the primary lesion.

Médecine, Paris

4: 893-968 (Sept.) 1923

Recent Progress in Biology. J. Gautrelet.—p. 893.
The Ninth International Congress of Physiology. M. Tiffeneau.—p. 904.
*Limits of Organotherapy. L. Hallion.—p. 909.
*Insufficiency of the Suprarenals. A. Sézary.—p. 915.
*Suprarenal Organotherapy. J. Gautrelet.—p. 920.
Avitaminoses and Nervous Balance. L. Randoin.—p. 927.
Pilomotor and Sympathetic Reflexes. André-Thomas.—p. 933.
*The Solar Reflex. D. Santenoise.—p. 939.
Linguomaxillary Reflex. H. Cardot and Laugier.—p. 944.
*Estimation of Acidosis. H. Labbé.—p. 945.
Diabetes and Insulin. H. Bierry.—p. 951.

Limits of Organotherapy.—Hallion pleads that physiology should determine the possible limits of organotherapy. The practicable limits, however, can be determined only by clinical observation. An experimental total extirpation of an organ causes a condition which is very different from the little insufficiencies of glands in pathology. It is possible that extracts from organs stimulate an only partially deficient organ, and only a part of their action may be due, as Biedl believes, to a direct substitution.

Insufficiency of the Suprarenals.—Sézary criticizes the present tendency to see insufficiency of the suprarenals in every patient who presents one or two symptoms which are also present in Addison's disease. Pigmentation of the skin even when associated with asthenia is not sufficient for the diagnosis. Langlois found a very characteristic peculiarity of this asthenia, namely, the fatigability of the patient. This recalls Erb-Goldflam's myasthenia. The enumeration of the different conditions that have been attributed to an acute insufficiency of the suprarenals would fill nearly half a page. Sergent makes the diagnosis if there is asthenia, hypotension and the white line on the skin. Sézary points out that the white line is a normal reaction, and the two other symptoms are ordinary phenomena.

Suprarenal Organotherapy.—Gautrelet observed extreme amplitudes of the pulse in dogs after slight compression of the suprarenal glands. The pulse fluctuated as widely as when epinephrin is injected. The action was also clear in a second dog receiving blood from the first, and also in a third, interposed, dog. The compression is not effective after injections of strychnin which apparently empty the glands of their stored secretion. He suggests trying to arrest shock in laparotomies by touching the suprarenal glands. The stimulation from this might act like an injection of epinephrin.

The Solar Reflex.—Santenoise reviews the experimental basis of the solar reflex. This reflex was discovered by Thomas, Roux and Claude, and consists in a diminution of the amplitude of the pulse during and after compression of the region of the solar plexus. The patient has to fast over night, and breathe freely during the experiment. Both hands of the physician press on the epigastrium until the pulsation of the abdominal aorta is felt. The reflex indicates increased tonus of the sympathetic, and is especially marked when the oculocardiac reflex is negative.

Acidosis.—Labbé found a comparatively constant relation between the hydrogen ion concentration of the urine and the ammonia index. The index shows the proportion of ammoniacal nitrogen to the total nitrogen.

Revue Franç. de Gynécologie et d'Obstét., Paris

18: 521-552 (Sept.) 1923

*Treatment of Retention of the Placenta. F. Chatillon.—p. 521.
Hemorrhagic Ovulation. R. Bonneau.—p. 528.
Associated Hematosalpinx, Hydrosalpinx and Fibroma. A. Grosse and M. Pinel.—p. 534.
Myomectomy in Pregnancy. R. Gilles.—p. 539.

Treatment of Retention of the Placenta.—Chatillon reduced by 50 per cent. the number of cases requiring manual extraction of the placenta, by injecting a fluid into the vein of the umbilical cord. This method of turgidization of the placenta was invented by Mojon in 1826, but was then forgotten and has been rediscovered lately. The technic is simple; 200-400 c.c. of saline solution are injected slowly into the umbilical vein, and the injection may be repeated. Three injections are rarely necessary. Manual extraction should not be done until after every other method has failed, for it is well known that the danger of infection is greater in this than in other obstetrical operations.

Archivio Italiano di Chirurgia, Bologna

8: 1-112 (Sept.) 1923

Histology of Repair After Gastro-Intestinal Resection. M. Dogliotti.—p. 1.
*Double Ureters with Pyelonephritis. C. Romiti.—p. 33.
*Precancerous Dermatoses. R. Rinaldi.—p. 75.
*Echinococcus Disease of the Kidneys. O. Cignozzi.—p. 89.

Double Ureters with Pyelonephritis.—Romiti removed the kidney in the five cases described, with complete recovery. In one case partial resection might have answered the purpose, but in all the others conditions called for removal of the entire organ. In the one case the supernumerary ureter was not recognized until the kidney was exposed, and it was too late to apply functional tests to the presumably sound half.

Precancerous Dermatoses.—Rinaldi protests against this term. He prefers to call the condition "Bowen's disease" or "cancer in dyskeratosis." He insists that both Bowen's disease and Paget's disease are malignant from the start. The case described is the fifteenth of Bowen's disease to be published. The patient was a man, aged 68, and the lesion was on the left hand.

Echinococcus Disease of the Kidney.—Cignozzi has had 2 cases of hydatid cyst in the kidney in his 70 cases of echinococcosis. The thorax was the seat of the lesion in 8, and the supraclavicular glands in one; all the others were in the abdomen. The possibility of spontaneous evacuation by the urinary passages is too remote to be counted on; conditions are less propitious for this than in the lungs. Conservative evacuation of the kidney through a lumbar incision was the treatment in his cases, suturing the sac to the muscles. The results of this marsupialization were as good as in his 40 other cases with the cysts in various other organs. This has given 100 per cent. cures, suturing the cyst to the muscles or skin. Healing was complete in forty or fifty days in the kidney cases.

Revista Española de Medicina y Cirugía, Barcelona

6: 557-618 (Oct.) 1923

*Cancer of the Uterus. M. Bonafonte.—p. 557.
*Foreign Body in Mediastinum. Remigio Dargallo and L. Carreras.—p. 559.
*Chronic Tumors of the Adnexa. H. R. Schmidt.—p. 561.
Present Status of Cardiovascular Disease. J. Salvat y Martí.—p. 572.

Cancer of the Uterus.—Bonafonte is professor of gynecology, and he says that one woman in every ten that applies for treatment at his clinic has cancer. He has also noticed that 50 per cent. of the cases of uterine cancer come from three special districts, as do nearly all the women under 30 with malignant disease. At the same time the number of operable cases has dropped in the last six or seven years from 8 or 10 per cent. to zero. This reduction in the number of operable cases he ascribes to the time wasted on radiotherapy while the cancer is progressing to an inoperable stage. The improvement of the surface under roentgen or radium rays does not prevent the steady progress of the cancer in the depths. Even the cases inoperable when first seen, and given palliative radiotherapy, seemed to have their course hastened. He calls a halt in treatment of cancer, saying that we are blinding and leading the public astray by our talk of effectual radiotherapy. There is only one reliable treatment of cancer, namely, excision, and this only in an early stage.

Unsuspected Foreign Body in Mediastinum.—The man had applied to the physician because he had a slight hemoptysis. He had always been clinically healthy since the age of 14 when an empyema had followed a stab wound. The roentgenogram at the age of 31 revealed the blade of a knife in the anterior mediastinum, resting on the left bronchus. Its nearly vertical shadow included two ribs, but its presence for sixteen years had never been suspected. The sputum findings were negative but the left superior laryngeal nerve seemed to be paralyzed.

Chronic Tumors of the Adnexa.—Schmidt reviews the ultimate outcome in the cases at the Bonn gynecologic clinic. They teach that no operation should be attempted as long as there is any fever. Three women died of peritonitis after an operation while there was still slight fever. Operative measures gave permanently good results in 30 per cent. of the cases, while persisting disturbances were manifest in 21.5 per cent. of the conservatively treated cases. Cuneiform excision of the fundus of the uterus with retention of one ovary allows menstruation to continue. Among the disappointing results of conservative operations are the rarity of normal pregnancy and the frequent impairment of the earning capacity. The results were the least favorable after unilateral salpingo-oophorectomy. This intervention should be restricted to cases in which the family is anxious for a child, or, when the inflammatory process is of long standing and provocative measures do not induce fever, the tube and ovary on the sound side seem normal, and adhesions are scarce in the region. The possibility of conception is not great and there is always apprehension that the tube and ovary left behind may develop an inflammatory process.

Revista Médica del Uruguay, Montevideo

26: 389-432 (Sept.) 1923

*Grave Measles. M. A. Jaureguy.—p. 389.
*Alcoholism in Uruguay. J. de Salterain.—p. 394.
*Pneumothorax in Course of Typhoid. J. L. Vera.—p. 414.

Severe Measles.—Jaureguy comments on the peculiar gravity of the last epidemic of measles at Montevideo. In one family three children died, aged 3, 6 and 7, in the course of ten days. The general mortality from it during 1922 and 1923 so far has been 20 or 30 per cent. instead of the previous 2 to 5 per cent. In three cases the temperature was 42 and 42.5 C. The form with symptoms suggesting dysentery or cholera was most common, but necropsy revealed no specific lesions beyond those of ordinary acute gastro-enteritis. No treatment had any effect, except that in one case the condition improved after lavage of the stomach.

Alcoholism in Uruguay.—De Salterain cites a writer long before the Christian era who advocated that crimes committed while in a state of drunkenness should be given double punishment. De Salterain's figures show a decline in recent years in crimes committed under the influence of alcohol. He ascribes this in large part to the government prohibition of the sale of liquor on holidays. But the most promising innovation is the teaching in the grade schools of the evils of alcohol. Every school has been ordered to do some work in this line.

Pneumothorax in Typhoid.—The child aged 5 was in the second week of typhoid when complete left pneumothorax suddenly induced symptoms. Suppuration followed, with pneumococci in the pus. Under drainage and final intrapleural injection of a 10 per cent. medicated oil, for two months, the boy recovered although the pneumothorax recurred several times before the suppuration was finally conquered. In two previous cases the children died.

Semana Médica, Buenos Aires

2: 241-280 (Aug. 9) 1923

*Hematoma Under the Nail. G. Bosch Arana and N. Tagliavacche.—p. 241.
*Sweating Sickness. N. L. Cúneo and G. Segura.—p. 252.
*Phlorizin Test for Early Pregnancy. M. L. Pérez and A. M. Brea.—p. 255.
Insulin in Treatment of Diabetes. H. Chabanier et al.—p. 266.
The Hospital as the Fundamental Basis for the Public Health. N. Capizzano.—p. 269.

Subungual Hematoma.—Bosch Arana and Tagliavacche say that a dentist's revolving-head trephine is the best instrument to use for releasing a hematoma under the nail. It is not necessary to have it electrically driven, as the tissues are not hard. The nail is not sensitive; no anesthetic is required. It is advised to trephine at each end of the hematoma; this releases the fluid blood in acute cases, and a sedative can be injected under the nail if the pain keeps up. In the chronic cases, the coagulated blood is scooped out with a right-angled probe from each trephine opening, after the blood has been softened or dissolved by hydrogen dioxid or other fluid injected through the trephine openings, with or without addition of cocain. The cavity emptied, it can be rinsed out with alcohol, and then dried with a dentist's rubber bulb blower. Then a semifluid, flesh-tinted paste is injected to plug the holes and the cavity, for cosmetic purposes and to keep dirt out. Thirteen illustrations acompany this "new chapter of chiropodic surgery," as they entitle it.

Miliary Sweating Sickness.—The woman was at the eighth month of a pregnancy when she developed headache, sore throat, slight fever and an exanthem and miliary eruption, with palpitations, oppression and paroxysms of sweating so profuse that the bed was wet as if a pail of water had been poured in it. Labor at the fourth day was terminated by forceps extraction of a healthy child and the mother's condition was apparently favorable, but soon grew worse, with pains in shoulders and elbows, fever up to 42 C., and death the tenth day. Necropsy revealed acute myocarditis and nephritis, fatty degeneration of the liver, purulent endometritis, and pleurisy with adhesions. No other cases developed from this.

Phlorizin Test of Early Pregnancy. — Pérez and Brea obtained a positive response in 86.8 per cent. of the women known to be pregnant, and a negative response in 90.10 per cent. of those known to be nonpregnant. They give the tabulated details of nearly 100 cases. In three pregnant women the test was negative at first, but became positive when repeated. In fifty-three of the women the pregnancy was of less than four months' standing.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, JULY-DECEMBER, 1923

The following journals have been abstracted in the Current Literature Department of THE JOURNAL during the past six months. Any of the foreign journals, except those starred, will be lent by THE JOURNAL to subscribers in the United States and to Fellows of the American Medical Association for a period not exceeding three days. Only one journal may be borrowed at a time. Requests for periodicals should be addressed to the Library of the American Medical Association and six cents in stamps should be enclosed. This covers the average expense of mailing a journal. Domestic journals can be obtained by sending the approximate amount direct to the respective publishers. Thus most of the journals indexed are accessible to the general practitioner, no matter where located.

Acta chirurgica Scandinavica. Irregular. 20 kronor. Stockholm.
Acta medica Scandinavica. Irregular. 20 kronor. Stockholm.
Acta Pædiatrica. Irregular. $5 per volume. Uppsala.
Acta scholae medicinalis universitatis imperialis in Kioto. Irregular. 3.30 yen per issue. Kioto.
American Journal of Anatomy. Bi-m. $7.50 per volume. 36th St. and Woodland Ave., Philadelphia.
American Journal of Diseases of Children. M. $4. American Medical Association, 535 N. Dearborn St., Chicago.
American Journal of Hygiene. Bi-m. $6. 310-312 W. Monument St., Baltimore.
American Journal of the Medical Sciences. M. $6. Lea & Febiger, 706 Sansom St., Philadelphia.
American Journal of Obstetrics and Gynecology. M. $6. C. V. Mosby Co., St. Louis.
American Journal of Ophthalmology. M. $10. 7 W. Madison St., Chicago.
American Journal of Physiology. M. $5 per volume. 1222 St. Paul St., Baltimore.
American Journal of Psychiatry. Q. $5 per volume. Johns Hopkins Press, Baltimore.
American Journal of Public Health. M. $5. 370 Seventh Ave., New York.
American Journal of Roentgenology and Radium Therapy. M. $6. Paul B. Hoeber, 67 E. 59th St., New York.
American Journal of Syphilis. Q. $7. C. V. Mosby Co., St. Louis.
American Journal of Tropical Medicine. Bi-m. $5 per volume. Williams & Wilkins Co., Baltimore.
American Review of Tuberculosis. M. $4 per volume. Williams & Wilkins Co., Baltimore.
Anales de la Facultad de Medicina, Universidad de Lima. Bi-m. 1.50 soles per issue. Lima, Peru.
Anales de la Facultad de Medicina, Universidad de Montevideo. M. 6 pesos per year. Montevideo.
Annales de l'Institut Pasteur. M. 55 francs. Paris.
Annales des maladies vénériennes. M. 52 francs. Paris.
Annales de médecine. M. 55 francs. Paris.
Annali d'igiene. M. 60 lire. Rome.
Annali italiani di chirurgia. M. 70 lire. Naples.
Annals of Clinical Medicine. Bi-m. $6. Williams & Wilkins Co., Baltimore.
Annals of Medical History. Q. $8. Paul B. Hoeber, 67 E. 59th St., New York.
Annals of Otology, Rhinology and Laryngology. Q. $6. Times Bldg., St. Louis.
Annals of Surgery. M. $7.50. J. B. Lippincott Co., E. Washington Square, Philadelphia.
Annals of Tropical Medicine and Parasitology. Irregular. £1 2s. 6d per volume. Liverpool.
Archiv für Gynaekologie. Irregular. Price varies. Berlin.
Archiv für Kinderheilkunde. Irregular. 21 Swiss francs per volume. Stuttgart.
Archiv für klinische Chirurgie. Irregular. Price varies. Berlin.
Archiv für Verdauungs-Krankheiten. Irregular. 200 marks per volume. Berlin.
Archives of Dermatology and Syphilology. M. $6. American Medical Association, 535 N. Dearborn St., Chicago.
Archives of Diagnosis. Q. $3. Rebman Co., 141 W. 36th St., New York.
Archives Franco-Belges de Chirurgie. M. 55 francs. Brussels.
Archives of Internal Medicine. M. $5. American Medical Association, 535 N. Dearborn St., Chicago.
Archives Internationales de laryngologie, otologie, rhinologie et bronchoœsophagoscopic. M. 60 francs. Paris.
Archives des maladies de l'appareil digestif et de la nutrition. Monthly except August and September. 45 francs. Paris.
Archives des maladies du cœur, des vaisseaux et du sang. M. $3. Paris.
Archives de médecine des enfants. M. 40 francs. Paris.
Archives de médecine et de pharmacie militaires. M. Paris.
Archives médicales belges. M. 30 francs. Brussels.
Archives of Neurology and Psychiatry. M. $6. American Medical Association, 535 N. Dearborn St., Chicago.
Archives of Occupational Therapy. Bi-m. $5. Williams & Wilkins Co., Baltimore.
Archives of Ophthalmology. Bi-m. $6. G. P. Putnam's Sons, 2 W. 45th St., New York.
Archives of Radiology and Electrotherapy. M. £2, 2 shillings per year. Rebman Co., 141 W. 36th St., New York.
Archives of Surgery. Bi-m. $6. American Medical Association, 535 N. Dearborn St., Chicago.
Archivio italiano di chirurgia. Irregular. 80 francs per volume. Bologna.
Archivio di Patologia e Clinica Medica. Bi-m. 85 lire. Bologna.
Archivio di ostetricia e ginecologia. M. 40 lire. Naples.
Archivos españoles de pediatría. M. 25 pesetas. Madrid.
Archivos latino-americanos de pediatría. M. $5. Buenos Aires.
Atlantic Medical Journal. M. $3. 230 State St., Harrisburg, Pa.
Beiträge zur klinischen Chirurgie. Irregular. Price varies. Tübingen.
Boletin de Medicina y Cirugia. M. Guayaquil, Ecuador.
Boston Medical and Surgical Journal. W. $6. 126 Massachusetts Ave., Boston.
Brain. A Journal of Neurology. Irregular. 24 shillings. London.
Brazil-medico. W. 25 milreis. Rio de Janeiro.
Bristol Medico-Chirurgical Journal. Q. 10s. 6d. per year.
British Journal of Anæsthesia. Q. $10. Manchester.
British Journal of Children's Diseases. Q. 25 shillings per year. London.
British Journal of Experimental Pathology. Bi-m. £2. London.
British Journal of Medical Psychology. Q. $7 net per volume. London.
British Journal of Ophthalmology. M. 2 guineas. London.
British Journal of Surgery. Q. $10. William Wood & Co., 51 Fifth Ave., New York.
British Journal of Tuberculosis. Q. $2.50 per year. London.
British Medical Journal. W. 1 shilling 3 d. per issue. London.
Bulletin de l'Académie de médecine. W. 40 francs. Paris.
Bulletin of the Johns Hopkins Hospital. M. $4. Baltimore.
Bulletin of the Lying-In Hospital, New York. Irregular. $1. Bulletin of Lying-In Hospital Press, New York.
Bulletin médical. Semi-w. 20 francs. Paris.
Bulletin of the Naval Medical Association of Japan. Q. Tokio.
Bulletin of the Porto Rico Medical Association. Bi-m. $3 per year. San Juan, Porto Rico.
Bulletins et mémoires de la Société médicale des hôpitaux de Paris. W. 65 francs. Paris.
Calcutta Medical Journal. M. Rs. 5. Calcutta.
California State Journal of Medicine. M. $4. Balboa Bldg., Second and Market Sts., San Francisco.
Canadian Medical Association Journal. M. $6. 836 University St., Montreal.
Casopis lekaruv ceskych. W. 170 č korun. Prague.
China Medical Journal. M. $5. Shanghai.
Chirurgia degli organi di movimento. Irregular. 80 francs. Bologna.
Colorado Medicine. M. $2. Metropolitan Bldg., Denver.
Crónica médica. M. $3.50. Lima, Peru.
Deutsche medizinische Wochenschrift. W. $6 per year. Leipzig.
Deutsche Zeitschrift für Chirurgie. Irregular. Price varies. Leipzig.
Deutsches Archiv für klinische Medizin. Irregular. Price varies. Leipzig.
Echo medical du nord. W. 15 francs. Lille.
Edinburgh Medical Journal. M. 40 shillings.
Encéphale. M. 70 francs. Paris.
Endocrinology: Bulletin of the Association for the Study of Internal Secretions. Bi-m. $6. 1045-1047 Title Insurance Bldg., Los Angeles.
Finska läkaresällskapets handlingar. Bi-m. 60 Finnish marks per year. Helsingfors.
Gaceta médica de Caracas. Semi-m. 24 bolivares. Caracas, Venezuela.
Gaceta médica de Mexico. Irregular. $6. Mexico City.
Gann. Irregular. Tokio.
Gazette des hôpitaux. Tri-w. 35 francs. Paris.
Geneeskundige Gids. Semi-m. 13 florins, 50 cents. The Hague.
Glasgow Medical Journal. M. 30 shillings per year.
Gynécologie et Obstétrique. M. 65 francs. Paris.
Hospitalstidende. W. 30 kroner. Copenhagen.
Hygiea. Semi-m. 24 kroner. Stockholm.
Illinois Medical Journal. M. $3. 155 N. Ridgeland Ave., Oak Park
Indian Journal of Medical Research. Q. 10s. Calcutta.
Indian Journal of Medicine. Q. Rs. 6. Calcutta.
Indian Medical Gazette. M. Rs. 18. Calcutta.
Indian Medical Record. M. 7 rs. 8 annas. Calcutta.
International Journal of Psycho-Analysis. Q. $6. Richard G. Badger, 194 Boylston St., Boston.
Irish Journal of Medical Science. M. £1 5s. Dublin.
Jahrbuch für Kinderheilkunde und physische Erziehung. M. 800 marks per volume. Berlin.
Japan Medical World (Nippin No Ikai Sha). M. $6. Tokio.
Journal of the American Medical Association. W. $6. 535 N. Dearborn St., Chicago.
Journal of the Arkansas Medical Society. M. $3. 810 Boyle Bldg., Little Rock.

W.—Weekly; M.—Monthly; Semi-m.—Semi-monthly; Bi-m.—Bi-monthly; Q.—Quarterly. * Cannot be loaned.

Journal of Bacteriology. Bi-m. $5 per volume. Williams & Wilkins Co., Baltimore.
Journal of Biochemistry. Q. $5.50 per volume. Tokio.
Journal of Biological Chemistry. M. $5 per volume. Rockefeller Institute for Medical Research, 66th St., and Avenue A, New York.
Journal of Bone and Joint Surgery. Q. $5. 372 Marlborough St., Boston.
Journal of Cancer Research. Q. $5 per volume. Williams & Wilkins Co., Baltimore.
Journal de chirurgie. M. 85 francs. Paris.
Journal of Comparative Psychology. Bi-m. $5 per volume. Williams & Wilkins Co., Baltimore.
Journal of Experimental Medicine. M. $5 per year. Rockefeller Institute for Medical Research, 66th St. and Avenue A, New York.
Journal of the Florida Medical Association. M. $1.50. 602-603 Consolidated Bldg., Jacksonville.
Journal of General Physiology. Bi-m. $5. Rockefeller Institute for Medical Research, 66th St. and Avenue A, New York.
Journal of Immunology. Bi-m. $5 per volume. Williams & Wilkins Co., Baltimore.
Journal of the Indiana State Medical Association. M. $3. 406 W. Berry St., Fort Wayne.
Journal of Industrial Hygiene and Abstract of Literature. M. $6. 240 Longwood Ave., Boston.
Journal of Infectious Diseases. M. $5. 637 S. Wood St., Chicago.
Journal of Iowa State Medical Society. M. $2.75. Des Moines.
Journal of Kansas Medical Society. M. $2. 303 Commerce Bldg., Topeka.
Journal of Laboratory and Clinical Medicine. M. $6. C. V. Mosby Company, St. Louis.
Journal of Laryngology and Otology. M. $10. Edinburgh.
Journal of Maine Medical Association. M. $2. Portland.
Journal de médecine de Bordeaux. Semi-m. 25 francs.
Journal de médecine de Lyon. Semi-m. 32 francs.
Journal of Medical Association of Georgia. M. $3. 208 Professional Bldg., 65 Forrest Ave., Atlanta.
Journal of Medical Research. Irregular. $5 per volume. 240 Longwood Ave., Boston.
Journal of Medical Society of New Jersey. M. $2. 14 S. Day St., Orange, N. J.
Journal of Metabolic Research. M. $10. Physiatric Institute, Morristown, N. J.
Journal of Michigan State Medical Society. M. $5. Powers Theatre Bldg., Grand Rapids.
Journal of Missouri State Medical Association. M. $2. 3529 Pine St., St. Louis.
Journal of Nervous and Mental Diseases. M. $10 per year. 64 W. 56th St., New York.
Journal of Neurology and Psychopathology. Q. 30 shillings. London.
Journal of Obstetrics and Gynæcology of the British Empire. Q. 2 guineas. Manchester.
Journal of Oklahoma State Medical Association. M. $4. 508 Barnes Bldg., Muskogee.
Journal of Oriental Medicine. Q. Dairen, South Manchuria.
Journal of Parasitology. Q. $3. Prof. H. B. Ward, University of Illinois, Urbana.
Journal of Pathology and Bacteriology. Q. 40 shillings. Edinburgh.
Journal of Pharmacology and Experimental Therapeutics. M. $6. Williams and Wilkins Co., Baltimore.
Journal of the Philippine Islands Medical Association. Bi-m. $5. Manila.
Journal of Physiology. Irregular. Price varies. London.
Journal de radiologie et d'électrologie. M. 60 francs. Paris.
Journal of Radiology. M. $5. Radiological Society of North America, 121 S. 33rd St., Omaha, Neb.
Journal of Social Hygiene. Monthly, except July, August and September. $3. American Social Hygiene Association, 370 Seventh Ave., New York.
Journal of South Carolina Medical Association. M. $3. Greenville.
Journal of State Medicine. M. 2 shillings per issue. London.
Journal of Tennessee State Medical Association. M. $2. 154 8th Ave., N., Nashville.
Journal of Tropical Medicine and Hygiene. Semi-m. 30 shillings. London.
Journal d'urologie médicale et chirurgicale. M. 60 francs. Paris.
Journal of Urology. M. $6. Williams & Wilkins Co., Baltimore.
Kentucky Medical Journal. M. $5. State and Twelfth Sts., Bowling Green.
Kitasato Archives of Experimental Medicine. Irregular. 1.20 yen per issue. Tokio.
Klinische Wochenschrift. W. $8 per year. Berlin.
Lancet. W. $12. London.
Laryngoscope. M. $6. 3858 Westminster Place, St. Louis.
Lyon chirurgical. Bi-m. 50 francs.
*Lyon médical. Semi-m. 25 francs.
Médecine. M. 20 francs Paris.
Mededeelingen van den Burgerlijken Geneeskundigen Dienst in Nederlandsch-Indië. Irregular. Price varies. Batavia, Java.
Medical Journal of Australia. W. £2 5s. Sydney.
Medical Journal of South Africa. M. £1 5s. Johannesburg.
Medicina contemporanea. W. Lisbon, Spain.
Medicine. Q. $5 net. Williams & Wilkins Co., Baltimore.
Medizinische Klinik. W. 24 Swiss francs per year. Berlin.
Memorias do Instituto Oswaldo Cruz. Irregular. Rio de Janeiro.
Mental Hygiene. Q. $2. National Committee for Mental Hygiene, Inc., 27 Columbia St., Albany, N. Y.
Military Surgeon. M. $4. Army Medical Museum, Washington, D. C.
Minnesota Medicine. M. $3. 403 Central Bank Bldg., St. Paul.
*Mitteilungen aus den Grenzgebieten der Medizin und Chirurgie. Irregular Jena
Mitteilungen aus der medizinischen Fakultät der kaiserlichen Universitat Kyushu. Irregular. Price varies. Fukuoka.
Mitteilungen aus der medizinischen Fakultät der kaiserlichen Universität zu Tokyo. Irregular. Price varies. Tokio.
*Monatsschrift für Geburtshülfe und Gynäkologie. M. Price varies. Berlin.
Monatsschrift für Kinderheilkunde. M. Price varies. Leipzig.
Münchener medizinische Wochenschrift. W. $6 per year. Munich.
National Medical Journal of China. Q. $1.50. Shanghai.
Nebraska State Medical Journal. M. $2.50. 609 Omaha Loan and Building Association Bldg., Omaha.
Nederlandsch Tijdschrift voor Geneeskunde. W. 34.50 florins. Haarlem, Netherlands.
Néoplasmes. Bi-m. 18 francs. Paris.
New Orleans Medical and Surgical Journal. M. $2. 1551 Canal St., New Orleans.
New York Medical Journal and Medical Record. Semi-m. $6. A. R. Elliott Publishing Co., 53 Park Place, New York.
New York State Journal of Medicine. M. $2. 17 W. 43d St., New York.
Norsk Magazin for Lægevidenskaben. M. 25 kroner per year. Christiania.
Northwest Medicine. M. $2. 323 Cobb Bldg., Seattle, Wash.
Nourrisson. Bi-m. $3. Paris.
Ohio State Medical Journal. M. $3. 131 E. State St., Columbus.
Paris médical. W. 35 francs.
Pediatria. Semi-m. 60 lire. Naples.
Philippine Journal of Science. M. $5. Bureau of Science, Manila, P. I.
Policlinico (sez. chir.) and (sez. med.). M. 45 francs each; (sez. prat.) W. 75 francs. Rome.
Practitioner. M. 2 guineas. London.
Prensa médica argentina. 3 times per month. $6. Buenos Aires.
Presse médicale. Semi-w. 45 francs. Paris.
Progrès médical. W. 25 francs. Paris.
Public Health Journal. M. $2. York Publishing Co., 207 York Bldg., Toronto.
Quarterly Journal of Medicine. 35 shillings. London.
Repertorio de medicina y cirugia. M. $4. Bogota, Colombia.
Revista de la Asociación médica argentina. M. 20 pesos. Buenos Aires.
Revista española de medicina y cirugia. M. 20 pesetas. Barcelona.
Revista médica del Rosario. Bi-m. 10 pesos. Rosario, Argentina.
Revista médica del Uruguay. M. 8 pesos per year. Montevideo.
Revista de medicina y cirugia de la Habana. Semi-m. $4.50. Havana.
Revista Mexicana de Biologia. Bi-m. $4. Mexico City.
Revue de chirurgie. M. 60 francs. Paris.
Revue Française d'Endocrinologie. Bi-m. 30 francs. Paris.
Revue française de gynécologie et d'obstétrique. Semi-m. 30 francs. Paris.
Revue de médecine. M. 52 francs. Paris.
Revue médicale de la Suisse Romande. M. 22 francs. Lausanne.
Rhode Island Medical Journal. M. $2. Rhode Island Medical Society, Providence.
Riforma medica. W. 90 lire. Naples.
Rivista di clinica pediatrica. M. 50 lire. Florence.
Rivista critica di clinica medica. 3 times per month. 36 francs Florence.
Schweizer Archiv für Neurologie und Psychiatrie. Irregular. 35 francs per volume. Zurich.
Schweizerische medizinische Wochenschrift. W. 17.20 francs per half year. Basel.
Sei-I-Kwai Medical Journal. Bi-m. $2. Tokio.
Semana médica. W. $5. Buenos Aires.
Siglo médico. W. 20 pesetas. Madrid.
South African Medical Record. Semi-m. 31 shillings 6 pence. Capetown.
Southern Medical Journal. M. $3. 807 Empire Bldg., Birmingham, Ala.
Southwestern Medicine. M. $2. Dr. Warner Watkins, Box 1328, Phoenix, Ariz.
Surgery, Gynecology and Obstetrics with International Abstract of Surgery. M. $12. Surgical Publishing Co., 30 N. Michigan Ave., Chicago.
Svenska läkaresällskapets handlingar. Q. 24 kronor. Stockholm.
Texas State Journal of Medicine. M. $2.50. 207½ W. 11th St., Fort Worth.
Tohoku Journal of Experimental Medicine. Bi-m. 6 yen per volume. Sendai.
Tubercle. M. 25 shillings. London.
Tumori. Irregular. 50 francs. Rome.
Ugeskrift for Læger. W. 30 kroner plus postage. Copenhagen.
United States Naval Medical Bulletin. M. $1.50. Washington, D. C.
Upsala läkareförenings förhandlingar. Irregular. 10 kronor per volume. Uppsala.
Vida nueva. M. 3 pesos. Havana.
Virginia Medical Monthly. M. $3. Richmond.
West Virginia Medical Journal. M. $3. Huntington.
Wiener Archiv für innere Medizin. Irregular. Price varies. Berlin.
Wiener klinische Wochenschrift. W. $4. Vienna.
Wisconsin Medical Journal. M. $3.50. 514 Wells Bldg., Milwaukee.
Zeitschrift für Geburtshülfe und Gynäkologie. Irregular. Price varies. Stuttgart.
Zeitschrift für Kinderheilkunde. Irregular. Price varies. Berlin.
Zeitschrift für klinische Medizin. Irregular. 36 marks per volume. Berlin.
Zeitschrift für Krebsforschung. Irregular. Price varies. Berlin.
Zeitschrift für Tuberkulose. Irregular. $4 per volume. Leipzig.
Zeitschrift für Urologie. M. $4.50. Leipzig.
Zeitschrift für urologische Chirurgie. Irregular. Price varies. Berlin.
Zentralblatt für Chirurgie. W. 20 Swiss francs per half year. Leipzig.
Zentralblatt für Gynäkologie. W. 20 Swiss francs per half year. Leipzig.
Zentralblatt für innere Medizin. W. 20 Swiss francs per half year Leipzig.

W.—Weekly; M.—Monthly; Semi-m.—Semi-monthly; Bi-m.—Bi-monthly; Q.—Quarterly. * Cannot be loaned.

SUBJECT INDEX

This is an index to all the reading matter in THE JOURNAL. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

The letters used to explain in which department the matter indexed appears are as follows: "E," Editorial; "C," Correspondence; "T," Therapeutics; "Ml," Medicolegal; "P," Propaganda for Reform; "ME," Medical Economics; "ab," abstract; the star (*) indicates an original article in THE JOURNAL.

This is a subject index and one should, therefore, look for the subject word, with the following exceptions: "Book Notices," "Deaths" and "Society Proceedings" are indexed under these titles at the end of the letters "B," "D" and "S." Matter pertaining to the Association is indexed under "American Medical Association." The name of the auther, in brackets, follows the subject entry.

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SOCIETIES

Acad.—Academy
A.—Association
Am.—American
Coll.—College
Conf.—Conference
Cong.—Congress
Conv.—Convention
Dist.—District
Hosp.—Hospital
Internat.—International
M.—Medical or Medicine
Nat.—National
Phar.—Pharmaceutical
Phys.—Physicians
Ry.—Railway
S.—Society
Surg.—Surgical or Surgeon, Surgery

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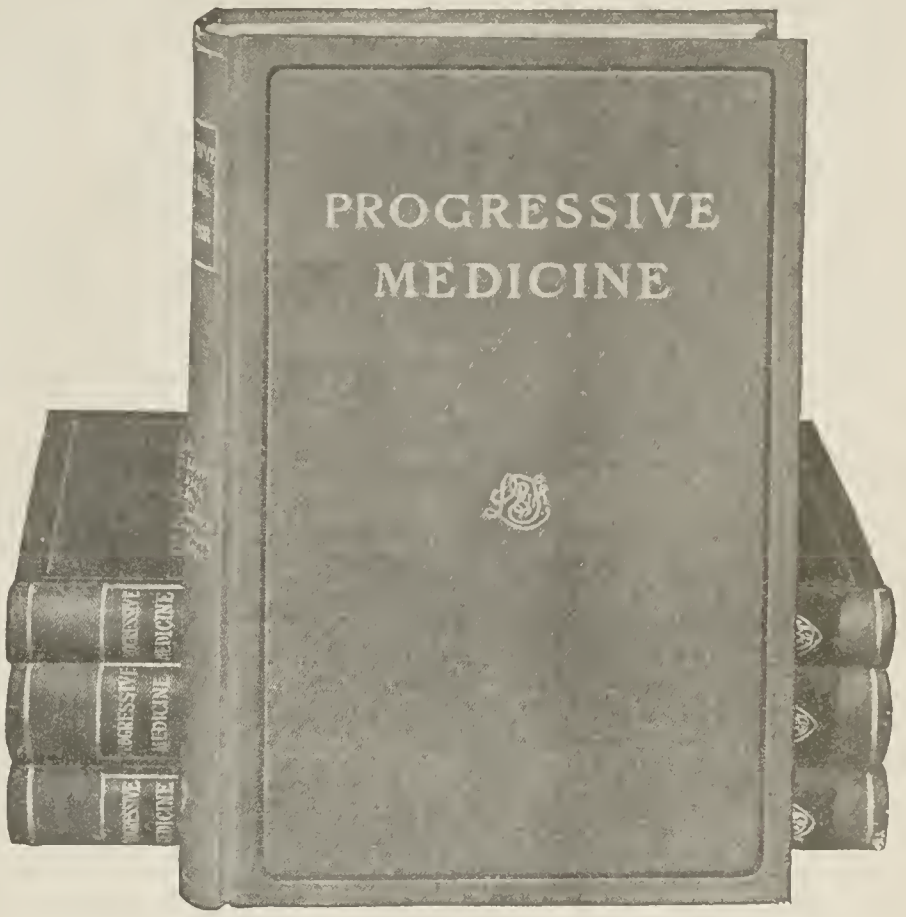
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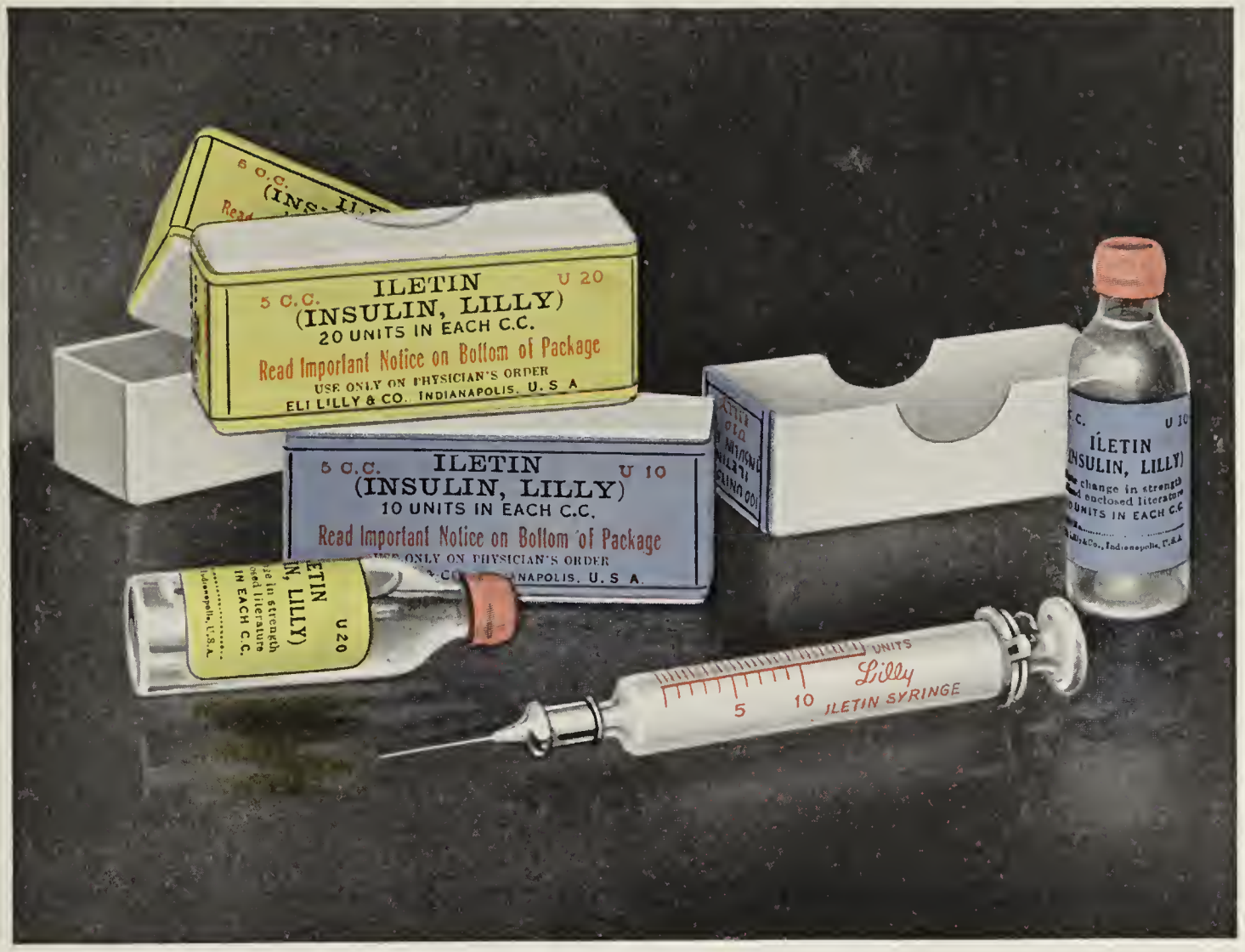
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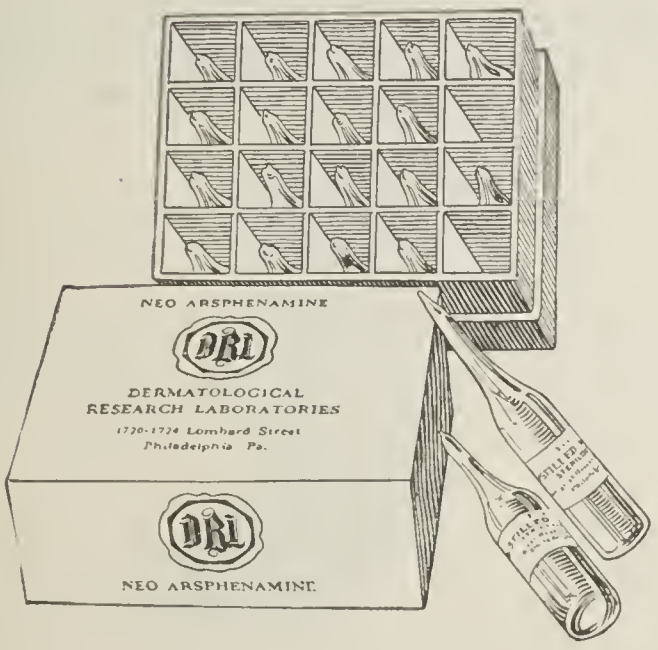
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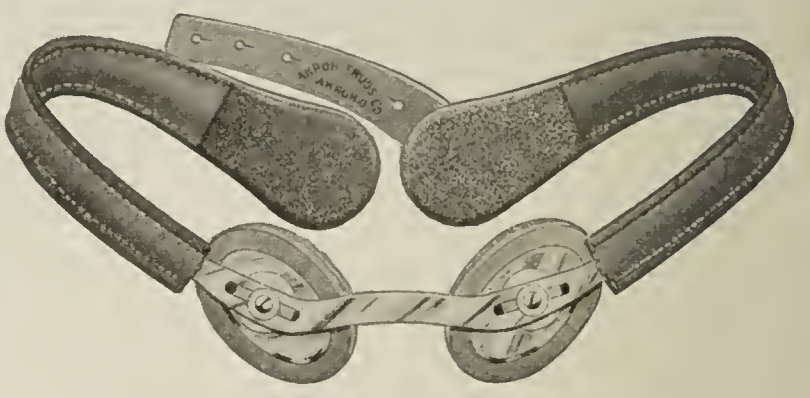
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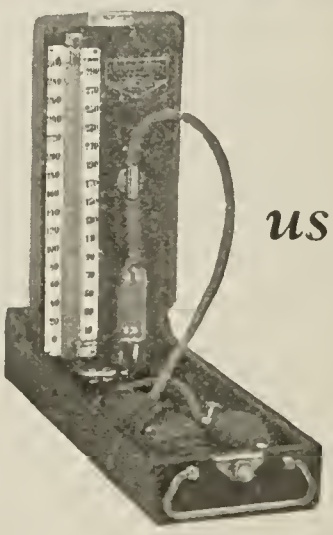
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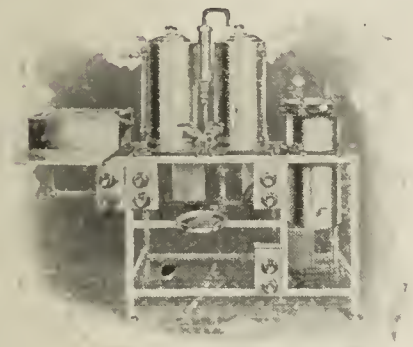
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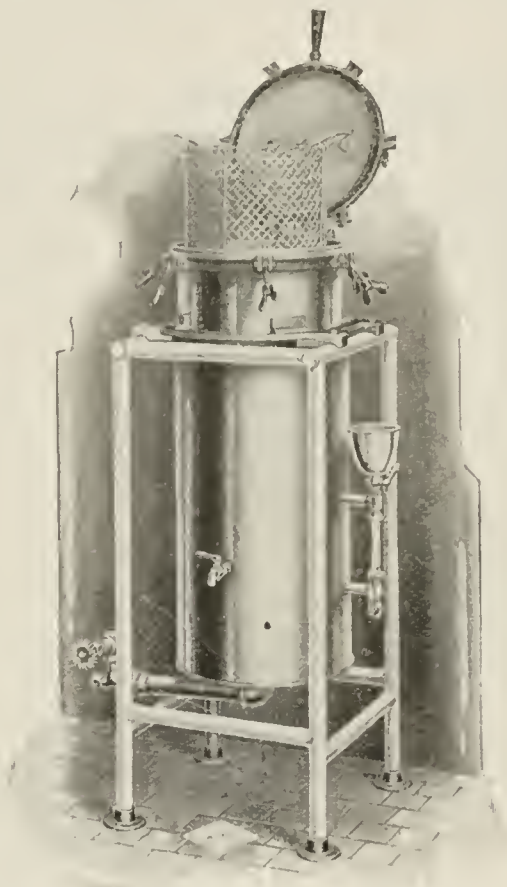
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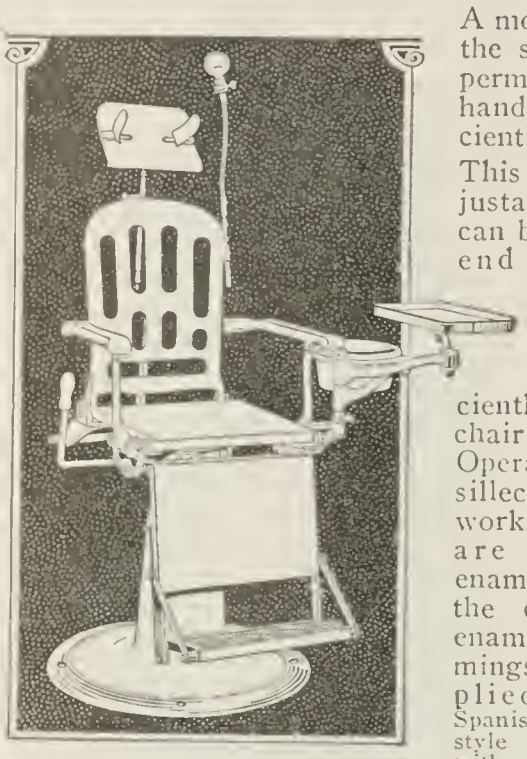
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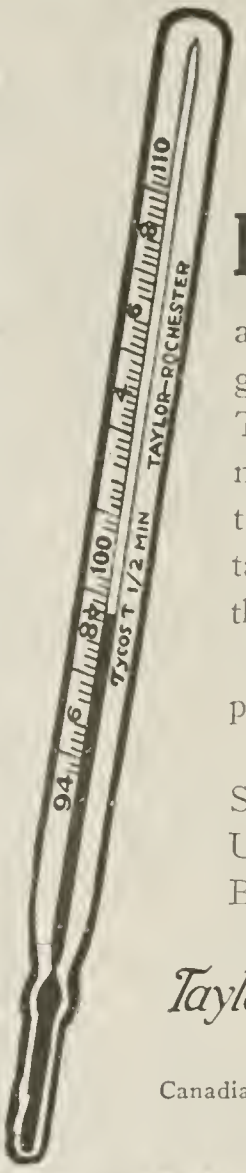
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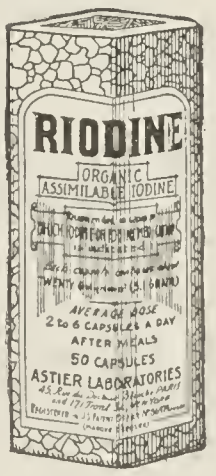
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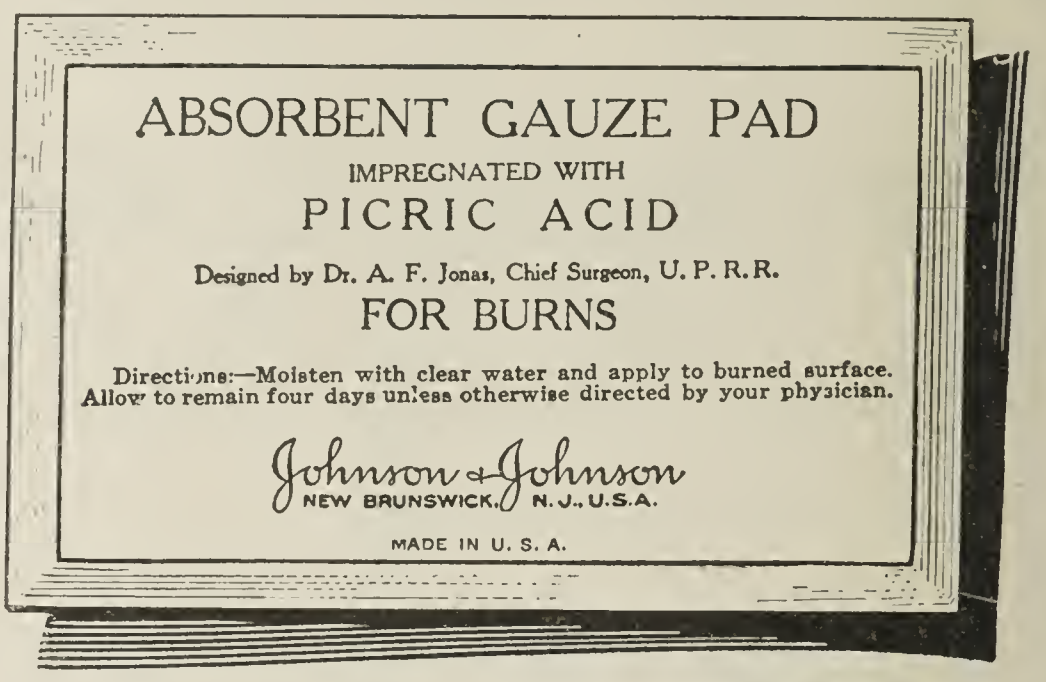
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WARNING: Pay no money to an agent unless he presents a letter showing authority for making collection.

CHANGE OF ADDRESS notice should give both old and new address, and state whether change is *permanent or temporary.*

WHEN COMMUNICATIONS concern more than one subject — manuscript, news items, reprints, change of address, payment of subscription, membership, information wanted, etc.—correspondents will confer a favor and will secure more prompt attention if they will write on a separate sheet for each subject.

ADVERTISEMENTS

First advertising forms go to press ten days in advance of the date of issue. Copy must be sent in time for setting up advertisements and for correcting proof.

CONTRIBUTIONS

EXCLUSIVE PUBLICATION: Articles are accepted for publication on condition that they are contributed solely to this journal.

COPYRIGHT: Matter appearing in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION is covered by copyright. Permission will be granted on request for the reproduction in reputable publications of anything in the columns of THE JOURNAL if proper credit be given. However, the reproduction for commercial purposes of articles appearing in THE JOURNAL or in any of the special journals published by the Association will not be permitted.

MANUSCRIPTS: Manuscripts should be typewritten, double-spaced, and the original, not the carbon copy, submitted. Carbon copies of single-spaced manuscripts will not be considered. Footnotes and bibliographies should conform to the style of the Quarterly Cumulative Index published by the American Medical Association. This requires, in the order given: name of author, title of article, name of periodical, with volume, page, month — day of month if weekly—and year. We cannot promise to return unused manuscript, but try to do so in every instance. *Used manuscript is not returned.* Manuscripts should not be rolled.

ILLUSTRATIONS: Half-tones and zinc etchings will be furnished by THE JOURNAL when satisfactory photographs or drawings are supplied by the author. Each illustration, table, etc., should bear the author's name on the back. Photographs should be clear and distinct; drawings should be made in black ink on white paper. Used photographs and drawings are returned after the article is published, if requested.

ANONYMOUS CONTRIBUTIONS, whether for publication, for information, or in the way of criticism, are consigned to the waste-basket.

NEWS: Our readers are requested to send in items of news, also *marked* copies of newspapers containing matters of interest to physicians. We shall be glad to know the name of the sender in every instance.

PRICE LIST

A price list describing the various publications of the Association will be sent on request.

AMERICAN MEDICAL ASSOCIATION,
535 N. DEARBORN STREET, CHICAGO

ANATOMICAL

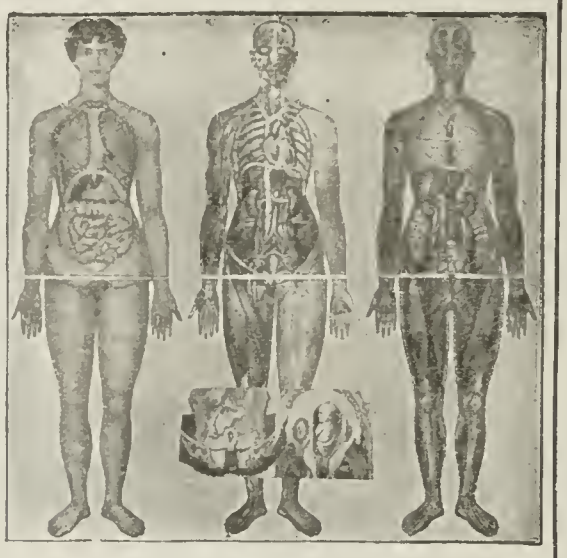
FACTS IN PICTURES

Authentic pictures properly treated tell the story.

Pilz Life-Size Manikin

(5 feet 5 inches high)

is authentic and tells a complete story. It depicts layer upon layer in vivid life-like colors and natural shape each anatomical structure of the human body. Ideal for reference and demonstration.



(30 folds—455 parts)

Female $18.00
(complete with Obstetrical attachment)
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Smaller Edition for Student Use, etc.
Dr. Minder's Manikin 20"x8"
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AMERICAN THERMO-WARE CO., Inc.
16 F Warren Street New York City

Fomon Medical Review Course
732 S. Michigan Ave.
Chicago, Ill.

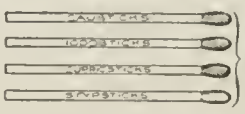
Prepares physicians for State Board, Army, Navy, Civil Service Examinations. Write for free booklet and mail quiz particulars. Chiropractors, drugless healers and other irregular practitioners not accepted.

WASSERMANN LABORATORY
2159 Madison Street, Chicago
REAGENTS FOR SALE

Alcoholic luetic liver extract, Acetone in soluble Antigen, etc. Amboceptors. Wassermann Tests our Specialty.

GUINEA PIGS FOR SALE

Free instruction "How to do the Wassermann Test."

SEND ONE DOLLAR
WITH THIS COUPON
FOR TRIAL PACKAGE

WORTH $2

TAPPAN ZEE SURGICAL CO., Box A, NYACK, N.Y.

If you can't find what you want in the Ads or Adlets, write the Service Department of The Journal.

Business Opportunities

Advertisements under the following headings cost $3 for 35 words or less; additional words 8c each. This rate applies for each insertion.

WANTED	Locum Tenens	Sanitaria
Apparatus	Partner	Drug Stores
Assistant	Partnership	Locations for Sanit.
Books	Situation	FOR RENT
Interns	FOR SALE	EXCHANGE
Nurses	Apparatus	MISCELLANEOUS
Location	Practice	

SPECIAL NOTE.—A fee of 25c is charged advertisers who have answers sent % A.M.A. No information can be furnished on keyed advertisements. Do not wire or write us for an address; mail your letter placing key number on envelope and it will be promptly forwarded.

RESULTS are better when an advertisement receives several insertions, and to those who remit for four consecutive insertions of a classified advertisement we will give, **free, two more insertions** provided the first four do not consummate a deal.

NOTICE FOR FREE INSERTIONS must be received within two weeks following date of last or fourth insertion. Requests with original order for such free insertions will not be considered.

COUNTING WORDS.—Two initials, each abbreviation, figures consisting of five numerals or less are counted as separate words. Headings, and name and address are part of advertisement. When answers are sent % AMA—the key, "Add—% AMA" is considered four words. Count words carefully. Write your copy plainly.

For the following classifications the rate is **$3 for 20 words or less**; additional words 10c each. This rate applies for each insertion. No gratuitous insertions given under these headings.

Abstracting	Medical Brokers	Vacation Trips
Automobiles	Educational	Typewriters
Auto accessories	Publishers	Printers
Carriages	Tr. Sch. for Nurses	Salesmen
Collections	Med. Illustrators	

Miscellaneous Commercial Advts.

Classified Ads. are payable in advance. To avoid delay in publishing, remit with order

OVER 50% of the classified ads are keyed, answers being sent in care of The Journal; each week we transmit to advertisers over 600 replies.

Occasionally we receive notification from one who has answered an advertisement stating that he has had no reply and asking if his letter was transmitted. Letters sent in our care are forwarded promptly, but naturally we cannot compel an advertiser to answer all replies he receives.

It is advisable to send copies instead of original references.

For current issue, ad must reach us by 4:00 p. m. Monday.

Journal A. M. A. 535 N. Dearborn St., CHICAGO

N. B. — We exclude from our columns all known questionable ads. and appreciate notification from our readers relative to any misrepresentation. The right is reserved to reject or modify all advertising copy in conformity with the rules of the advertising committee.

APPOINTMENTS

WANTED—BY AN EASTERN MEDICAL school, full time fellow in internal medicine; duties: electrocardiography, ward teaching, heart clinic; salary plus maintenance in hospital. Add. 7164 A, % AMA.

EXAMINATIONS WILL BE HELD AT the Woman's Hospital, New York City, Jan. 30, 1924, for two appointments on the house staff, the successful candidates to report for duty Feb. 1, 1924. Candidates must be graduates of medicine, preferably with hospital experience and must present satisfactory credentials. Term of service one year, divided as follows: four months junior assistant house surgeon, four months senior assistant house surgeon, four months house surgeon. The junior assistant house surgeons serve two months in the obstetrical department. For further information apply to Dr. Dougal Bissell, Secretary of Surgical Board, Woman's Hospital, 141 W. 109th St., New York City, N. Y.★ A

ASSISTANTS WANTED

WANTED—APPLICATIONS WILL BE received for assistant in psychiatry, New York Psychiatric Institute; male, single; N. Y. license or eligible to take examination; exceptional opportunity to obtain training in neuropsychiatry and to participate in research work; good prospects for advancement; salary, if experienced, $2,000 to $2,600, with full maintenance; if not experienced, $1,600 to $1,900. Address, Director Institute, Ward's Island, N. Y. B

(Continued on page 22)

Specify and Insist on

Armour's

When Prescribing Thyroids

SINCE the advent of Thyroids as a medicinal agent all sorts of "active principles" have been exploited. Trustworthy results have been gotten, however, from Armour's Thyroids in powder and tablets.

The therapeutic value of Thyroids appears to lie in several things present in the gland which are preserved in the substance when carefully prepared.

In the manufacture of Armour's Thyroids the raw material is selected carefully. Fresh normal glands only are used. The finished product is standardized and runs 0.2% Iodine and contains the other elements of Thyroids uninjured by heat.

We supply Thyroid powder and 1-10, 1-4, 1-2, 1 and 2 grain tablets.

Each grain of Armour's Thyroid powder is equivalent to 5 grains of fresh glandular substance and each tablet contains the named amount of powdered Thyroids.

Full literature on request

Pituitary Liquid, standardized, in ampoules. 1-2 c.c. obstetrical, 1 c. c. surgical.

Suprarenalin Solution 1:1000, a water white, stable and non-irritating solution of suprarenal active principle.

ARMOUR AND COMPANY
CHICAGO

PHARMACEUTICAL PRODUCTS

EACH apartment has its sleeping porch.

Each sleeping porch at Cragmor is open on two sides, yet so arranged that each patient has complete privacy.

Tuberculosis in all its forms received.

RATES, $25 TO $60 A WEEK

Including private room, porch, board, tray service, medical attention and general nursing.

Physicians are urged to feel free to write for any information, addressing Alexius M. Forster, M.D., Physician-In-Chief.

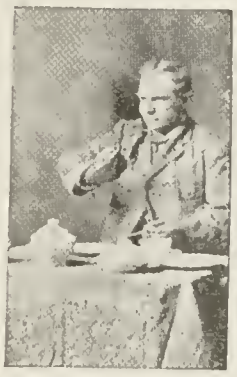


Cragmor Sanatorium
Colorado Springs

ROUTH PINES SCHOOL
BOARDING AND DAY SCHOOL
For Boys and Girls, 6 to 14.
Mild, Invigorating Climate.
Dry, Sandy Soil.
On the Piedmont Plateau in a Long Leaf Pine Belt. Easily accessible from Pinehurst and Southern Pines. Morning School Session. Afternoon Supervised Outdoor Play. Outdoor Sleeping. Horseback Riding, Tennis.
New England Management.
Three Family Cottages for Rent.
Attractive Illustrated Booklet on Request.
ELLEN C. MERROW, Principal.
Samarkand, North Carolina.

SURGEONS

"*Carnes Arm* helps make life worth living."



One of our customers writes, "How many times I ordered Hash! when I wanted a steak, but now with your hand I handle a fork as good as ever and order steak."

Illustrated, descriptive catalog—C-24 sent on request.

CARNES ARTIFICIAL LIMB CO.
904-906 E. 12th St. Kansas City, Mo.

ENGRAVED STATIONERY

for the medical profession. Write for our samples and prices of Note Head, Cards, and Envelope combination set, with Engraved Steel Die complete. We make only Engraved Stationery of all kinds, Announcements, Notices, Cards, etc.

ENGRAVED STATIONERY CO.
153 E. 38th St. New York City

Tonics and Sedatives

THE POET BIOLOGIZES

Ted Robinson in Cleveland Plain Dealer

"Tadpoles will not develop into frogs unless they get some food containing iodine."—Science Note.

I went to the shop and I joyfully bought me
A fish-globe, when coming from town;
Then I went to a pond in the meadow, and caught me
A tadpole, vivacious and brown—
A juvenile tadpole, a frisky young tadpole,
All wriggly and velvety brown.

Then I put in the fishbowl some innocent grasses
And mosses and pebbles, and filled
It with water quite free from the nocuous gases
Of chlorine, and doubly distilled.
From mosses and grasses and pebbles and all
Was the iodine strictly distilled.

And I dropped in the tadpole and murmured with rapture,
"I've overturned Nature's own plan.
O Permanent Pollywog, would I could capture
Thy luck, and transmit it to man!
Be youthful forever, and croak simply never.
Thou cute little brute-Peter-Pan."

But now as in tears I dejectedly loiter
Beside that batrachian's grave,
I wish that my wit had been somewhat adroiter,
My prognosis stronger to save—
He died of a goiter—the sort of a goiter
Whence iodine only can save!

All Safe Now!

Ironton (Ohio) Register

Miss Marion Auia who has been ill with diphtheria the past four weeks has recovered and has been properly fumigated and is out of quarantine. She resumed her studies at the high school, Monday.

LIKE CHATTING WITH THE PLUMBER

"My dentist likes to pause in his work and tell funny stories."

"So does mine, but I don't appreciate funny stories at $10 an hour."—*Boston Transcript.*

HIS OWN DIAGNOSIS

Letter received by a Pennsylvania colleague

Doctor i have cold and stoped up on the Broncal tubes Bathers me to get my Breth my Bones ake and Head Buzes when i stoop over i think it's the grip.

Not Broken But Fractured

Boston Advertiser

Although he is not suffering from a broken leg as was at first reported, O'Hearn's hope of strutting out on to the gridiron again are nil. It is a fractured fibula bone that is keeping O'Hearn confined to a New Haven hospital.

Everything Is Big in California

Headlines in Oakland Tribune

RITES HELD FOR LONG RESIDENT OF SONORA

(Continued on page 24)

(Continued from page 20)

WANTED — EXPERIENCED WOMAN roentgenologist, in 100-bed hospital; Western Pennsylvania; salary $150 and maintenance; send references. Add. 7018 B, % AMA.

WANTED — MASSEUSE, THOROUGHLY experienced in orthopedic work; capable of taking complete charge of massage department for private group of well known surgeons and physicians; northern New York State; give references; experience and salary wanted in first letter. Add. 7197 B, % AMA.

WANTED—LAKE SUPERIOR DISTRICT, assistant in mine dispensary and hospital service; modern location and equipment; fine opportunity for general experience; $175 a month; state experience, whether married or single, nationality, age, religion, fraternal connections, references and when available. Add. 7198 B, % AMA.

WANTED — ASSISTANT PHYSICIAN — Single, comparative recent graduate, in 200-bed tuberculosis sanatorium exclusively for children; state age, experience, and send recent photograph with application addressed to Dr. Cole B. Gibson, Superintendent, Meriden State Tuberculosis Sanatorium, Meriden, Conn. B

WANTED — LABORATORY DIRECTOR and resident pathologist; salary, $225 to $275 per month; applications and experience papers must be in the hands of the Milwaukee County Civil Service Commission, 470 Jefferson Street, Milwaukee, Wis., on or before Dec. 31, 1923; physicians preferably with qualifications conforming to requirements of American Society of Clinical Pathologists should write above address for detailed information. B

WANTED—ASSISTANT PROFESSOR IN pathology and bacteriology in Class A medical school for next school year; state experience and give references in first letter. Add. 7180 B, % AMA.

WANTED—IMMEDIATELY —ASSISTANT physician at state hospital for mental diseases; initial salary $150 per month; single man preferred, if married no children. W. D. McClung, M.D., superintendent, Spencer, W. Va. B

WANTED—ASSISTANT PHYSICIAN IN a hospital for mental diseases; Eastern Pennsylvania; salary $1,800 per annum and maintenance; must be single and a graduate of Class A medical school; write in detail, giving age, nationality, civil condition, education, photograph, etc. Add. 7148 B, % AMA.

WANTED—ASSISTANT PHYSICIAN AT South Dakota State Tuberculosis Sanatorium; prefer recent graduate of A1 school; excellent opportunity for young man; x-ray and modern laboratory; salary $1,800 with maintenance; submit full details and photo in first letter. Add. R. E. Woodworth, Custer, S. D. B

WANTED — IMMEDIATELY—ASSISTANT superintendent; tuberculosis sanitarium; $1,600 a year and maintenance. Apply Superintendent, Western Maine Sanitarium, Hebron, Maine (Postoffice Green Mountain); (Telegraph via Lewiston). B

PHYSICIANS WANTED

WANTED—SENIOR PHYSICIAN—$180 TO $225 per month, plus full maintenance; unmarried preferably, under the age of 38, with special training or experience in tuberculosis work or psychiatry. Write Milwaukee County Civil Service Commission, 470 Jefferson St., Milwaukee, Wis., at once, indicating age, training and experience, whether married or single. C

WANTED—PHYSICIAN TO TAKE CIVIL service examination for position of junior physician at Oak Forest Tuberculosis Infirmary; local residence waived; examination will be held in Room 1007, County Building, Jan. 4, 1924, at 1 p. m. For further information call Chicago Tuberculosis Institute, 8 South Dearborn St., Chicago, Ill. Phone Central 8316. C

WANTED—PHYSICIAN FOR TUBERCULOSIS institution; considerable field and clinic work; excellent opportunity to become familiar with practical details of sanatorium management; single man preferred. No. 451 Aznoe's National Physicians' Exchange, 30 North Michigan, Chicago. ★C

WANTED—CAPABLE EYE, EAR, NOSE and throat specialist (Illinois); please state qualifications and salary expected. Add. 7102 C, % AMA.

(Continued on page 24)

THE MEDICAL MART

Adlets

ADLETS OCCUPY UNIFORM SPACES of 5 and 10 agate lines, first line b. f. type, remainder 5 pt. roman. Insertions may be weekly, e.o.w. or e 4th w. Rates, $6.00 and $10.00 per insertion. Adv. Dept., Journal A. M. A., 535 North Dearborn Street, Chicago.

Auto Accessories



MARK YOUR CAR, DOCTOR
with the
Physician's Auto Emblem.
Many cities grant traffic privileges to cars bearing the Caduceus sign. In gildine metal and crimson enamel.
3¼ inches in diameter.
Ready for any car.
$1.50.
Order from A.M.A

Books—Journals



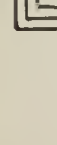
WHAT OF THE NEW DRUGS?
"New and Nonofficial Remedies" lists all newer preparations accepted by the A.M.A. Council on Pharmacy and Chemistry. Gives dosage, properties, uses, distributor. A reliable guide for prescription writers.
$1.50.
AMERICAN MEDICAL ASSN.

Catheters

CATHETERS
Eynard Quality
Regular Ureteral and X-Ray Catheters a specialty—non-graduated and graduated.
C. R. Bard, 37 East 28th Street, New York City.

Charts

ANATOMIC OUTLINE CHARTS
Keep a quick and permanent record of cases with the aid of these charts.



Fifty separate sheets, each 5½ by 8½ inches.
Send for catalog, giving order numbers.
Price per sheet, 1 cent.
One hundred sheets, 80 cents.
American Medical Association.
535 North Dearborn Street, Chicago, Ill.



Diabetic Foods

CELLU FLOUR FOR DIABETES, OBESITY, restricted Diets, etc. Everything for the Diabetic.
Write for information to the
CHICAGO DIETETIC SUPPLY HOUSE, INC.,
1750-52 W. Van Buren St., Chicago, Ill.

Educational

THE NEUROLOGICAL INSTITUTE OF NEW YORK
offers Postgraduate Clerkships
to graduates of recognized medical schools.
For particulars write
Sec'y Medical Board, 149 E. 67th St., New York City.

Foods

CAROLINA SOFT SHELL PECANS — Nourishing, appetizing. Delight alike of epicure and invalid. "Stuarts," 65c lb.; "Schleys," $1.00 lb. Pure "Carolina Cane Syrup," 10 lb. gallon, $2.00. All postpaid. Watson's Pecanwood Plantation, Orangeburg, S. C.

Insurance



$25 Weekly Benefit and $5,000 Death Benefit from our Accident Policy. Those who take advantage of our special offer of two policies receive $50 a week if disabled. $3 membership fee for each policy carries Accident or Health Policy until Dec. 10, 1923. Our policies have been benefitting physicians for over 20 years. No agents. Write for details.
Physicians' Casualty Ass'n, City Nat'l Bldg., Omaha.

Pharmaceuticals



DEPENDABLE DIGITALIS
fresh from the Minnesota leaf, standardized by the Hatcher cat method, is offered in capsule and tincture form. Write for interesting literature.
UPSHER SMITH, INC.,
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Minneapolis.

Publishers and Printers

Archives of Internal Medicine—A.M.A. Publication
Laboratory and clinical studies in this special field make this illustrated monthly at $5 a year a big value. The information and the inspiration gained from these specialized Journals is a distinct aid to the reader.

Publishers and Printers—Continued

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Pediatrics is treated as a medical and social problem in this specialized publication. An illustrated monthly for $1 a year. Supplement your Journal with a specialized A M A publication

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Original articles on nervous and mental diseases by leading authorities, abstracts from foreign literature, book reviews are among the valuable features of this illustrated A.M.A. monthly. $6 a year.

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Devoted chiefly to the clinical and investigative phases of surgery, this bi-monthly publication is a forum of advanced discussion. Practically life-size illustrations. $6 a year. Order from A.M.A.

Archives of Dermatology and Syphilology
General practitioners as well as specialists find much that is of everyday help in this illustrated monthly. $6 a year. Abstracts form a valuable part of this publication of the American Medical Association.

THE U. S. P. AND N. F. CONDENSED
The "Epitome," a small pocket-size book of 250 pages, gives practically all information essential to physicians. 60 cents postpaid
American Medical Assn., 535 N. Dearborn St., Chicago.

Sterilizers

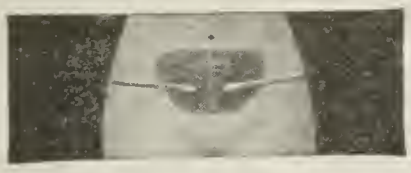


EVERY PATIENT LOOKS
FOR A STERILIZER
And every office needs a good one. Write us for our trade-in proposal on your old Castle for this new 423-S Castle sterilizing outfit.
WILMOT CASTLE CO.,
1167 University Ave.,
Rochester, N. Y.

X-Ray Apparatus and Supplies

SECOND-HAND X-RAY AND PHYSIO THERAPY equipment; Thompson Plaster, Fischer Co. and others. Prices too low to print.
LAYCOCK & GILLESPIE,
1725 Sansom Street, Philadelphia, Pa.

Doctor: When You Read This Page
have on your desk a few postal cards and write for samples or descriptions of the articles mentioned. You will find many items of value.



Applied—front view

Two "Up-to-the-Minute" Appliances of Real Merit

DURABLE Hornbro Seamless COMFORTABLE

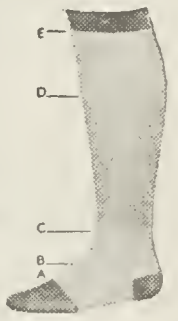
"Curtis" Abdominal Supports

are recommended by many physicians in cases of Floating Kidney, Ventral Hernia, Ptoses, After-Operations, etc.

They give upward pressure of any desired degree on the Abdomen where needed—and not around the entire body, being shaped to fit the pelvis, are quickly and easily applied or removed, and neither bind or cramp the hips.

Surgical Elastic Hosiery

Experience has shown that the fitting qualities and ready adaptability to the shape of the limb make "HORNBRO" Hosiery the most satisfactory compressor and solves the problem for those having Varicose Veins, etc. "HORNBRO" Elastic Hosiery protects and gives comfort.



Garter Stocking

Write for catalog "A" of high grade Hard Rubber and Leather Trusses—also Abdominal Belts and Surgical Appliances of all kinds.

WM. H. HORN & BRO., Inc.

Main Office
451-457 North Third St.

PHILADELPHIA
Established 1842

Fitting Rooms
25 South 16th Street

Electrically Lighted Surgical Instruments

See actual conditions by means of

"E. S. I. Co."
Electrically Lighted Instruments

Nasopharyngoscope—*Holmes.*
Transilluminators—*Sullivan.*
Bronchoscopic, Laryngeal and Oesophageal Instruments—*Jackson, Lynah.*
Cystoscopes—*Braasch, Young, Kelly, E. S. I. Co.*
Urethroscopes — *Swinburne, Young, Gordon, Koch, MacGowan, Ballenger.*
Rectal Instruments—*Tuttle, Lyneh, Axtell, Bassler, Beach, Buie.*
Illuminated Eye Spud, Nasal Snare, Mouth Gag. Vaginal Specula, Rectal Specula.
Auriscopes, Nasal Specula, Tongue Depressors Laryngoscopes.

In order to obtain the most satisfactory service from our instruments, physicians should make certain they are using genuine "E. S. I. Co." lamps. If in any doubt about lamps you have, send them to us for inspection.

Illustrated and descriptive catalogue mailed upon request

ELECTRO SURGICAL INSTRUMENT COMPANY
ROCHESTER, N. Y.

DEPENDABLE **RELIABLE**

THE "OVR-NITE" HEATING PAD



Stays hot 15 hours prepared with one ounce of hot water. No possibility of leakage.

IS SOFT AND PLIABLE

Can be comfortably applied to any part of the body. Does not deteriorate with age. Will last until consumed by actual use. **One hundred and twenty hours' heat guaranteed.**

Sent prepaid for 85 cents

THE BAG-O-HEAT COMPANY
SOLE MANUFACTURERS
305 So. La Salle Street (Not Inc.) Chicago, Illinois
306 Traders Building

SPECIFY 'HEILKRAFT'

SCARLET R. SALVE

Samples Free

Heilkraft Medical Co. Boston, Mass.

Names of Classified Advertisers using key number cannot be given out by THE JOURNAL Kindly do not ask for them.

(Tonics and Sedatives Continued)

An Earnest Plea

Letter received by an Alabama doctor

Say, Nathan Simmons say please wate on his Grand Baby Charge the Schripture to him.

From Nathan Simmon.

The Same Old Error

Alliance (Neb.) Times-Herald

George Van Tiffin of Rushville died here Saturday morning from intestinal nephrites and the body was taken to his old home Saturday night in the Wells & Pryce hearse.

YOU'VE SEEN THESE ROADS

A couple of the many tourists passing through Georgia on their way to Florida came across a road of whose destination they were uncertain. Seeing an old colored woman rocking on a nearby porch, they called to her. "Auntie, can you tell us where this road goes?"

She gazed thoughtfully at the winding country road, and took her pipe out of her mouth long enough to enlighten them.

"Well, Honey," she said, "hit goes fust one place and then another."

The Honest Advertiser

Livingston (Mont.) Enterprise

For Sale or Trade—Good touring car in fine condition for cattle or hogs. Address 380 X.

THE ORDERLY REPORTS

Sir:—As we are firmly convinced that it is as much the duty of psychiatrists to contribute to the gaiety of nations as it is to give ovarian extract to male dementia praecox cases or to psychoanalyze an imbecile, who never had a psyche, we enclose copy of the report of the night watch in one of our wards:

Report 352, Dec. 11, Ward 3.

The same condition exists on this ward at the present time. Those who take spasmotic tablets are loud in their praise for Dr. Henry and his tablets. I am glad something has been discovered to check this awful malady known as Eppilepsy.

The tablets referred to were phenobarbital. *G. W. B.*

The Cotton Tree

From Darwin's Origin of Species

If it profit a plant to have its seeds more and more widely disseminated by the wind, I can see no greater difficulty in this being effected through natural selection that in the cotton planter increasing and improving by selection the down in the pods on his cotton trees.

FROM THE SOCIAL SERVICE RECORD

Recorded in an Iowa Hospital

"In 1911 he was operated on for fistula in the spring and was in the hospital for three months."

"Siblings: John—age 32.
Mary—died, aged 28, after having 5 children—cause unknown."

EVERYTHING'S DIFFERENT IN NEW YORK

An old edition of Morse's geography declares that "Albany has four hundred dwelling houses and twenty-four hundred inhabitants, all standing with their gable-ends to the street."—Quoted from a scrap-book by a resident of Boyds, Md.

(Continued from page 22)

WANTED—PHYSICIAN TO TAKE OVER $9,000 to $12,000 practice in good small town community with hospital; hospital furnishings and upkeep supported by ample donation; a wonderful opportunity for physician and surgeon; requires small capital. Communicate with D. O. Campbell, 911 W. Fifth St., Grand Island, Neb. C

WANTED — HOUSE PHYSICIAN — FOR general hospital; Illinois city of 80,000; good x-ray and laboratory facilities; good opportunity with group later for right man; give age, training, experience and full details; some knowledge of Swedish desirable. Add. 7030 C, % AMA

WANTED — GRADUATE — CLASS A school for staff position in state hospital work; young, single, Gentile preferred, but married men considered if without family; write giving full particulars as to age, date and school of graduation, religion and when you could report for duty; salaries range from $1,500 to $2,000. Address F. A. Carmichael, M.D., Supt., Osawatomie, Kan. C

WANTED — EYE, EAR, NOSE AND throat specialist to handle that department in private hospital in North Carolina; good opportunity for man who is agreeable and don't mind work; must be well trained, capable and reliable; salary; increase to man who can make good; send photograph, references, age, school and training, religion, etc., first letter. Add. 7151 C, % AMA.

WANTED—WOMAN PHYSICIAN IN AN institution caring for one hundred delinquent girls; position now open; information concerning position and salary will be given on application. Add. 7145 C, % AMA.

WANTED — PHYSICIAN — THE OHIO County Tuberculosis Association has been reorganized; it has a small plant which will hold about thirty patients; this has not been used for two years; it has funds in its treasury and it proposes to get more; it is in the field for a regular graduate of medicine, who will combine experience in sanitarium work as well as executive ability, to act as director; it will pay $4,000 to $5,000 yearly to the right man; the opportunity is exceptional to a man of ability, who would like to develop his own ideas, for it is proposed to build a new building in the near future; on the other hand no one except some one with a fair amount of good health and a desire to do steady work with close application in the developing line would answer the purpose; the plant is located a few miles out of Wheeling, in a beautiful district on the national highway (the West to East), on the Baltimore and Ohio railroad, and the suburban lines. Please send information and photograph. Add. 7144 C, % AMA.

WANTED—PHYSICIAN—IN FIRM, PAYing particular attention to medicine; temporarily for 10 or 12 months to help out in general practice; if satisfactory may retain him; young or middle aged man preferred. Write Drs. Reuter, Thompson & Coberth, The Dalles, Ore., for further information. C

WANTED — RESIDENT INTERNIST — Class A graduate; for 35-bed private sanatorium; nervous and mental diseases; salary, $125 per month and maintenance; staff: board of consultants, visiting neurologist; affiliated with Washington University School of Medicine; incumbent may be absent from 9 a. m. till 2 p. m. daily for P. G. or other work. Address giving age and full particulars, Glenwood Sanatorium, Webster Groves, St. Louis, Mo. C

WANTED—CLASS A PHYSICIANS AND surgeons for assistantship, institutional, industrial and group clinic appointments. If you are looking for a permanent position send for our application form. Aznoe's National Physicians' Exchange, 30 N. Michigan Ave., Chicago, Ill. C

WANTED—ANESTHETIST

WANTED—WOMAN PHYSICIAN; EXperienced in anesthesia, by large mid-western hospital; permanent position; please state experience and salary desired. Add. 7147 D, % AMA.★

INTERNS WANTED

Advertisements marked with a star (★) are of hospitals on the list of those approved for intern training by the Council on Medical Education and Hospitals of the A. M. A.

WANTED—INTERN — CHICAGO FRESH Air Hospital; 100 beds; term 6 months; salary. Apply Dr. Ethan A. Gray, 2733 N. Clark St., Chicago, Ill. D

(Continued on page 26)

To Supplement Mother's Milk

THE modern practice of pediatrics, which in many cases advises an early supplementing of maternal feeding, presents to the physician the problem of selecting, for the infant under his care, an artificial food that in safety and digestibility approaches mother's milk.

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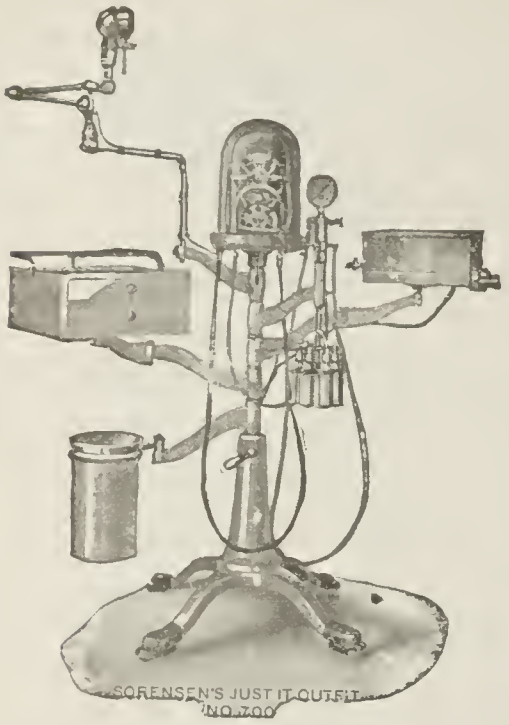
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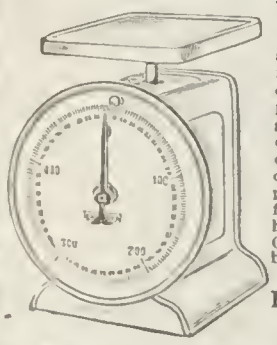
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Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

DIE DIGITALIS UND IHRE THERAPEUTISCHE ANWENDUNG. Im Auftrage des Niederlandischen Reichsinstitutes für Pharmakotherapeutische Untersuchungen. Bearbeitet von Dr. U. G. Bijlsma, Professor Dr. A. A. Hijmans Van den Bergh, Professor Dr. R. Magnus, Dr. J. S. Meulenhoff, Dr. M. J. Roessingh. Autorisierte Deutsche Übersetzung von Professor Dr. P. Neukirch. Paper. Price, $1.35. Pp. 119, with 33 illustrations. Berlin: Julius Springer, 1923.

LES SÉCRÉTIONS INTERNES. Leur Influence sur le Sang. Par Dr. Maurice Perrin, Professeur agrégé à la Faculté de Médecine de Nancy, et le Dr. Alfred Hanns, Chargé de cours à la Faculté de Médecine de Strasbourg. Préface du Professeur A. Gilbert, Professeur de Clinique médicale à la Faculté de Médecine de Paris. Second edition. Paper. Price, 12 francs. Pp. 280. Paris: J.-B. Baillière et Fils, 1923.

HIPPOCRATES AND HIS SUCCESSORS IN RELATION TO THE PHILOSOPHY OF THEIR TIME. The Fitzpatrick Lectures delivered at the Royal College of Physicians 1921-22. By R. O. Moon, M.D., F.R.C.P., Physician to the National Hospital for Diseases of the Heart. Cloth. Price, $2 net. Pp. 171. New York: Longmans, Green & Co., 1923.

BLOOD CHEMISTRY. Colorimetric Methods for the General Practitioner. With Clinical Comments and Dietary Suggestions. By Willard J. Stone, M.D., Attending Physician, Los Angeles General Hospital. Introduction by George Dock, M.D. Cloth. Price, $2.25 net. Pp. 75, with 6 illustrations. New York: Paul B. Hoeber, 1923.

PEDIATRICS. By Various Authors. Edited by Isaac A. Abt, M.D., Professor of Diseases of Children, Northwestern University Medical School. In eight volumes. Cloth. Price, $10 per volume. Volume I: pp. 1240, with 284 illustrations. Volume II: pp. 1025, with 180 illustrations. Philadelphia: W. B. Saunders Company, 1923.

DIE SEELE DES KINDES. Beobachtungen Über die Geistige Entwicklung des Menschen in den Ersten Lebensjahren. Von W. Preyer. Nach dem Tode des Verfassers Bearbeitet und Herausgegeben von Karl Ludolf Schaefer. Ninth edition. Boards. Price, $3.20. Pp. 408, with 4 illustrations. Leipsic: Th. Griebens Verlag, 1923.

BACTERIOLOGICAL STUDIES: 1. Factors Determining Bacterial Virulence. By Arthur Eastwood, M.D.; 2. Agglutination Reactions of Diphtheria Bacilli. By W. M. Scott, M.D. Reports on Public Health and Medical Subjects. No. 22. Paper. Price, 2 shillings net. Pp. 66. London: His Majesty's Stationery Office, 1923.

NOTES ON THE MEDICAL TREATMENT OF DISEASE. For Students and Young Practitioners of Medicine. By Robert Dawson Rudolf, C.B.E., M.D., F.R.C.P., Professor of Therapeutics in the University of Toronto. Second edition. Cloth. Price, $4. Pp. 486. Toronto: University of Toronto Press, 1923.

THE DEVELOPMENT OF THE SCIENCES. By Ernest William Brown, Henry Andrews Bumstead, John Johnston, Frank Schlesinger, Herbert Ernest Gregory, and Lorande Loss Woodruff. Edited by L. L. Woodruff. Cloth. Price, $3.50. Pp. 327, with illustrations. New Haven: Yale University Press, 1923.

LEXIKON DER GESAMTEN THERAPIE DES PRAKTISCHEN AERZTES, MIT EINSCHLUSS DER THERAPEUTISCHEN TECHNIK. Herausgegeben von Walter Marle. Lieferung 6, und 7. Second edition. Paper. Pp. 789-948, 949-1108, with illustrations. Berlin: Urban & Schwarzenberg, 1923.

(Continued on page 28)

(Continued from page 24)

WANTED—INTERN AT ONCE—FOR 200-bed county hospital; general experience; only single recent graduates need apply; salary $50 per month and found, transportation not allowed. Apply to Wm. Friedberger, Supt. San Joaquin General Hospital, French Camp, Calif. D

WANTED — INTERN—175-BED GENERAL hospital; chronic diseases; $75 per month and maintenance. Send qualifications with application at once to Dr. W. J. Monaghan, Medical Superintendent, Hudson County Hospital, Secaucus, N. J. D

WANTED—TWO INTERNS FOR JAN. 1, 1924, in an approved general hospital of 185 beds; rotary service; only graduates of recognized schools need apply; remuneration $300 per annum with full maintenance. Write fully to Superintendent, Waterbury Hospital, Waterbury, Conn.★ D

WANTED—MALE INTERN FOR GENeral hospital; 140 beds; one year rotating service; vacancy Jan. 1, 1924; good salary with bonus. Superintendent, Macon Hospital, Macon, Ga.★ D

WANTED—INTERNS—ST. JOHN'S HOSpital, Brooklyn, N. Y.; vacancies for two interns for six months rotating service; general hospital; 100 beds; city ambulance; $25 a month and maintenance; give references. Address Director, 1521 Atlantic Ave., Brooklyn, N. Y.★ D

WANTED — INTERN — GENERAL HOSpital; 100 beds; salary $100 per month; good references required. Add. 7186 D, % AMA.

WANTED—INTERN—FOR SERVICE IN in general hospital; write for particulars, stating school and other credentials. Address Superintendent North Chicago Hospital, 2551 North Clark St., Chicago, Ill.★ D

REPRESENTATIVES WANTED

WANTED — REPRESENTATIVES — MEN who want a high grade proposition and a good income; a publisher of medical journals wants a few energetic, well educated solicitors; this work is with the medical profession exclusively and good territory is open; instruction and all supplies furnished free; also solicitors now calling on physicians can make some extra money with these journals as a side line; men of good personality and selling ability should investigate at once. For further information add. 5008 JJ, % AMA.

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WANTED—TWO FEMALE TECHNICIANS by Jan. 1, 1924, for pathological laboratory; only those who are qualified to do all routine laboratory work, Wassermann's, tissue mounting, serology, etc.; salary without maintenance, $150 per month; when replying, state experience, age and qualifications. Apply Paterson General hospital, Paterson, N. J.★ V

WANTED — THOROUGHLY TRAINED laboratory technicians and x-ray operators for positions in all parts of the country; must be competent and well educated; A1 references required; correspondence solicited. Aznoe's National Physicians' Exchange, 30 N. Michigan Ave., Chicago, Ill. V

NURSES & DIETITIANS WANTED

WANTED—SUPERINTENDENTS, DIRECtresses of nurses, instructresses, dietitians, general duty and surgical nurses for positions in all parts of the United States. Send for free book. Aznoe's Central Registry for Nurses, 30 N. Michigan Ave., Chicago, Ill. T

NURSES AND DIETITIANS' LOCATIONS WANTED

WANTED — POSITIONS—SUPERINTENdents, directresses of nurses, instructresses, dietitians, general duty and surgical nurses promptly furnished institutions anywhere in the United States: no charge for this service. Aznoe's Central Registry for Nurses, 30 N. Michigan Ave., Chicago, Ill. W

LOCATIONS WANTED

WANTED — MICHIGAN — CONTRACT practice; Class A graduate; 9 years' general practice; 3 years hospitals; 3 years U. S. Public Health Service; 2 years U. S. Army; single; 47; Michigan license; available at once. Add. 7192 E, % AMA.

WANTED — PRACTICE IN WESTERN states; contract or salaried position; am 42 years of age; Shriner, Elk; best of references; do all major surgery and qualified in eye, ear, nose and throat work; what have you? have money to buy and mean business; answer immediately. Add. 7195 E, % AMA.

WANTED — LOCATION — GRADUATE Class A university; experienced private practice; completing six years' training large hospitals; competent obstetrician and major surgeon; Gentile, American; excellent references; will purchase practice, join group or accept position; prefer city 20,000 or more, central states. Add. 7124 E, % AMA.

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WANTED—A DENTIST—OPENING IN A growing Pennsylvania town for a young, up-to-date dentist; no dentist here at present; nothing to sell. If interested, address at once. Add. 7133 % AMA.

SITUATIONS WANTED

WANTED—LOCATION OR SITUATION—Wisconsin preferred; A school, 1916; hospital experience; general practice; Protestant; married, 30; desire plenty of work with good returns; willing to buy equipment. Add. 7012 I, % AMA.

WANTED — PATHOLOGIST WANTS APpointment; class A; has specialized in pathology and bacteriology; very competent as a tissue diagnostician; an efficient laboratory director. No. 455 Aznoe's National Physicians' Exchange, 30 North Michigan, Chicago. I

WANTED—POSITION BY GRADUATE bacteriologist with three years' practical experience; also some x-ray experience; aged 27; reference furnished; give particulars in first letter. James M. Dollison, R. F. D. No. 1, Quaker City, Ohio. I

WANTED—POSITION AS LABORATORY technician; College graduate; six years' experience in bacteriology, tissue work, clinical microscopy and serology; able to do blood chemistry. Mary Stevenson, 501 Prospect, El Paso, Texas. I

WANTED — ASSISTANTSHIP TO BUSY practitioner or surgeon by young physician; 3 years' training surgery and obstetrics in New York; hard worker; single; excellent habits; prefer New York State; good references. Add. 7196 I, % AMA.

WANTED — EYE, EAR, NOSE AND throat assistantship; 18 months in special hospital; am competent to handle work; also two years in surgery, one in medicine; 27 years old, single. Add. 7131 I, % AMA.

WANTED — EXECUTIVE APPOINTMENT by tuberculosis specialist; M.D., University of Michigan; past four years devoted to chest work exclusively; exceedingly well qualified. No. 454, Aznoe's National Physicians' Exchange, 30 North Michigan, Chicago. I

WANTED — POSITION BY EXPERIenced x-ray technician (young lady); preferably in small institution in or near Chicago; best references; available now. Add. 7188 I, % AMA.

WANTED—SITUATION—PHYSICIAN DEsires connection with life or industrial insurance company as medical referee; have rated over 50,000 cases for government compensation; full or part time. Add. 7193 I, % AMA.

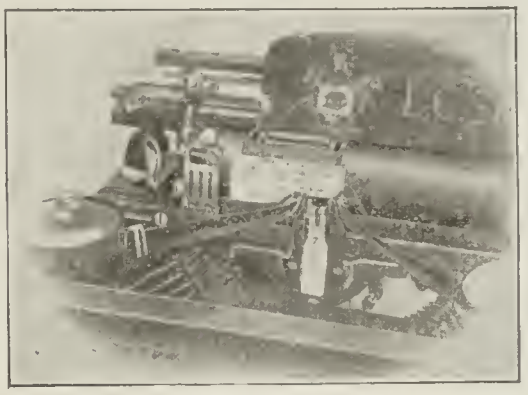
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WANTED — SITUATION — LOCUM tenens; assistantship or contract work; twelve years in hospital and general practice; 35 years of age; Mason; good health; good habits; good mixer; best of references; in Wyoming at present; prefer the west. Add. 7017 I, % AMA.

(Continued on next page)

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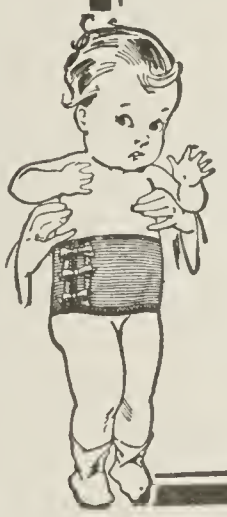
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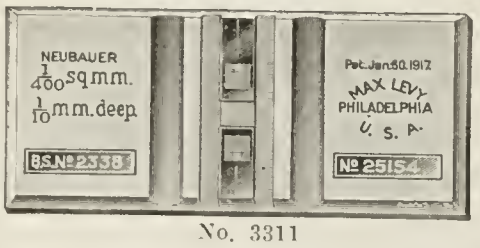
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(Books Received—Continued)

LABORATORY DIAGNOSIS OF SYPHILIS. A Manual for Students and Physicians. By Hideyo Noguchi, M.D., M.S., Ph.D., Member of the Rockefeller Institute for Medical Research. Cloth. Price, $7.50. Pp. 392, with 59 illustrations. New York: Paul B. Hoeber, Inc., 1923.

A MANUAL OF CORRECTIVE GYMNASTICS. By Louisa C. Lippitt, Assistant Professor of Physical Education and Director of Corrective Gymnastics for Women, The University of Wisconsin. Cloth. Price, $1.60. Pp. 249, with illustrations. New York: The Macmillan Company, 1923.

KURZES LEHRBUCH DER CHEMIE IN NATUR UND WIRTSCHAFT. Von Prof. Carl Oppenheimer, Dr. Phil. et Med., nebst einer Einführung in die Allgemeine Chemie, von Prof. Johann Matula. Paper. Price, $5.65. Pp. 862, with 27 illustrations. Leipsic: Georg Thieme, 1923.

PREDICTED GROWTH OF POPULATION OF NEW YORK AND ITS ENVIRONS. By Raymond Pearl and Lowell J. Reed, School of Hygiene and Public Health, The Johns Hopkins University. Paper. Price, 25 cents. Pp. 42. New York: Plan of New York and Its Environs, 1923.

MANUEL DE L'ACCOUCHEUR. Par L. A. Demelin, Professeur en Chef a La Maternité de Paris, et L. Devraigne, chef de Service a La Maternité de l'Hôpital Lariboisière. Paper. Price, 68 francs. Pp. 1515, with 465 illustrations. Paris: Gaston Doin, 1924.

CHILD LABOR ON MARYLAND TRUCK FARMS, By Alice Channing. U. S. Department of Labor, Children's Bureau, Publication No. 123. Paper. Price, 10 cents. Pp. 52, with 9 illustrations. Washington: Government Printing Office, 1923.

THE EVOLUTION AND SIGNIFICANCE OF THE MODERN PUBLIC HEALTH CAMPAIGN. By C.-E. A. Winslow, Dr.P.H., Professor of Public Health, Yale School of Medicine. Cloth. Price, $1.50. Pp. 65. New Haven: Yale University Press, 1923.

LES ULCÈRES DE l'ESTOMAC ET DU DUODÉNUM. Diagnostic Clinique Radioscopique et Radiographique. Par Ed. Enriquez et Gaston-Durand. Paper. Price, 10 francs. Pp. 184, with illustrations. Paris: Masson et Cie, 1924.

A MANUAL OF HISTOLOGY. By V. H. Mottram, M.A., Professor of Physiology in the University of London. Cloth. Price, $6. Pp. 294, with 224 illustrations. New York: E. P. Dutton & Company, 1923.

ALCOHOL AND PROHIBITION IN THEIR RELATION TO CIVILIZATION AND THE ART OF LIVING. By Victor G. Vecki, M.D. Cloth. Price, $2. Pp. 165. Philadelphia: J. B. Lippincott Company, 1923.

OUR FEAR COMPLEXES. By Edward Huntington Williams, and Ernest Bryant Hoag. Cloth. Price, $1.75. Pp. 306. Indianapolis: The Bobbs-Merrill Company, 1923.

ENFERMEDADES DEL HÍGADO Y DEL PÁNCREAS. Por Luis Urrutia. Paper. Price, 30 pesctas. Pp. 608, with 55 illustrations. Madrid: Calpe, 1923.

LE SYMPATHIQUE CERVICO-THORACIQUE. Par le Prof. Thomas Jonnesco. Paper. Price, 40 francs. Pp. 91, with illustrations. Paris: Masson et Cie, 1923.

THE PHYSICAL BASIS OF LIFE. By Edmund B. Wilson. Cloth. Price, $1.50. Pp. 51, with 20 illustrations. New Haven: Yale University Press, 1923.

LA ENSEÑANZA DE LA HIGIENE EN LA FACULTAD DE MEDICINA DE LIMA. Por le Dr. Carlos Enrique Paz Soldan. Paper. Pp. 59. Lima, 1923.

FIRST ANNUAL REPORT OF THE VENEZUELAN SUN LIMITED, MEDICAL DEPARTMENT. Paper. 1923.

TRANSACTIONS OF THE THIRTY-FIFTH SESSION OF THE SOUTHERN SURGICAL ASSOCIATION Volume XXXV. Cloth. 1923.

(Continued from preceding page)

WANTED — ROENTGENOLOGIST WANTS connection; exceedingly well qualified as radiologist; especially good in lung and intestinal work; class A graduate; has had special course in radium therapy. No. 453, Aznoe's National Physicians' Exchange, 30 North Michigan, Chicago. I

WANTED—ASSISTANTSHIP TO INTERNist or pediatrician in Brooklyn or New York; Class A graduate; B.S. degree; aged 28; 2 years hospital; 18 months general practice; best of references. Add. 7000 I, % AMA.

WANTED — BY PSYCHIATRIST—GRADUate Class A school; large experience in hospital, army and private practice; wishes clinical directorship in state or private hospital, or with group; correspondence invited; no rush; Shriner and Elk. Add. 7011 I, % AMA.

WANTED — PHYSICIAN — CLASS A credentials, just completing extensive training in organic and functional neurology and psychiatry in a reputable New York institute, wishes to hear from institutions or communities where such a specialty may be practical. Add. 7167 I, % AMA.

WANTED—WOMAN PHYSICIAN, CLASS A, desires appointment; for three years served as medical advisor to women students of a large university; experienced in public health work. No. 452, Aznoe's National Physicians' Exchange, 30 North Michigan, Chicago. I

WANTED — POSITION — YOUNG LADY, graduate, experienced technician in Wassermann, Hecht-Gradwohl tests, blood and urine chemistry, bacteriology, serology. Add. 6910 I, % AMA.

WANTED — EYE, EAR, NOSE AND throat assistantship or location; age 28; Class A school; two years general hospital; graduate 16 months course Illinois Charitable Eye and Ear Infirmary; Gentile; available January 1; best of references. Arthur F. Daly, M.D., 904 W. Adams St., Chicago, Ill. I

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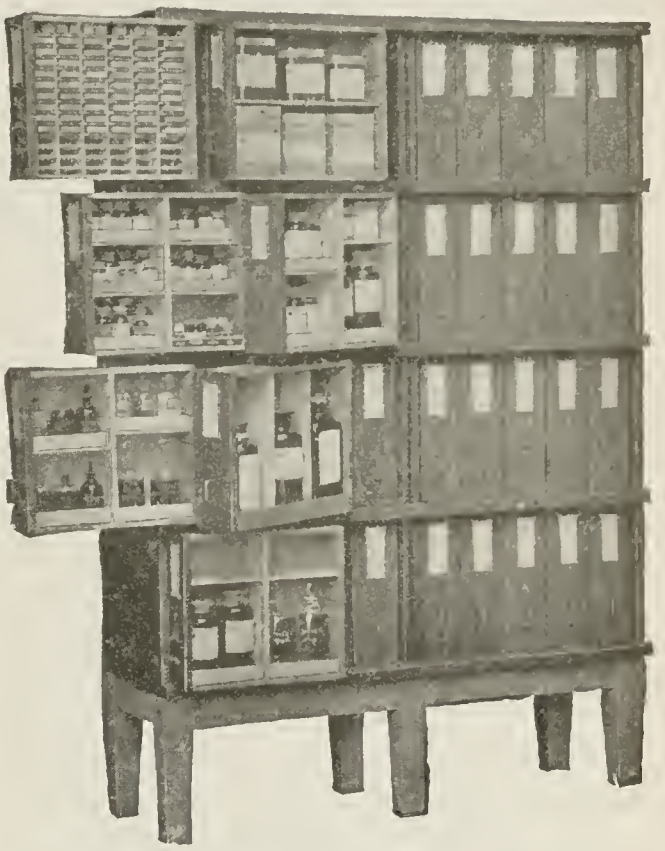
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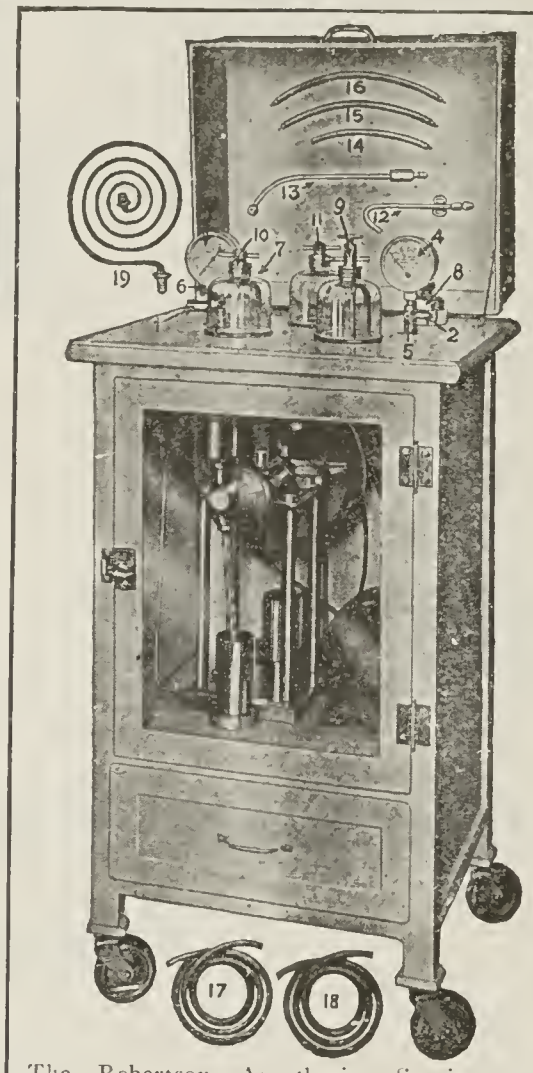
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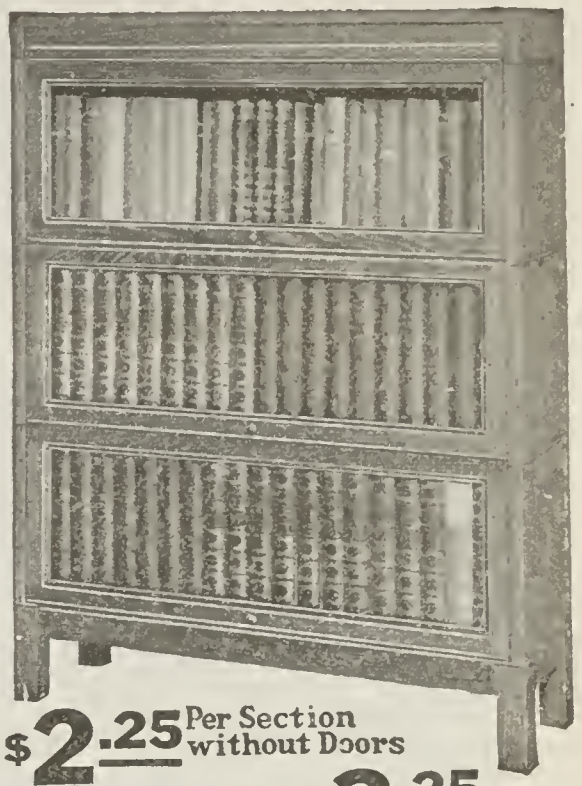
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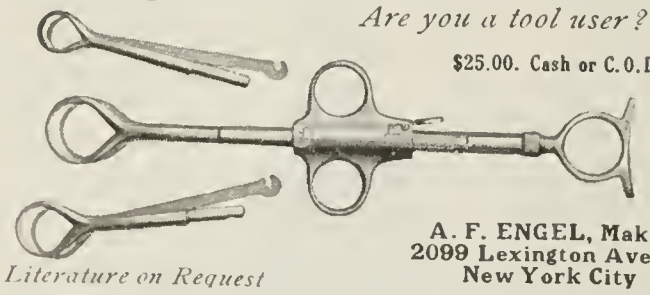
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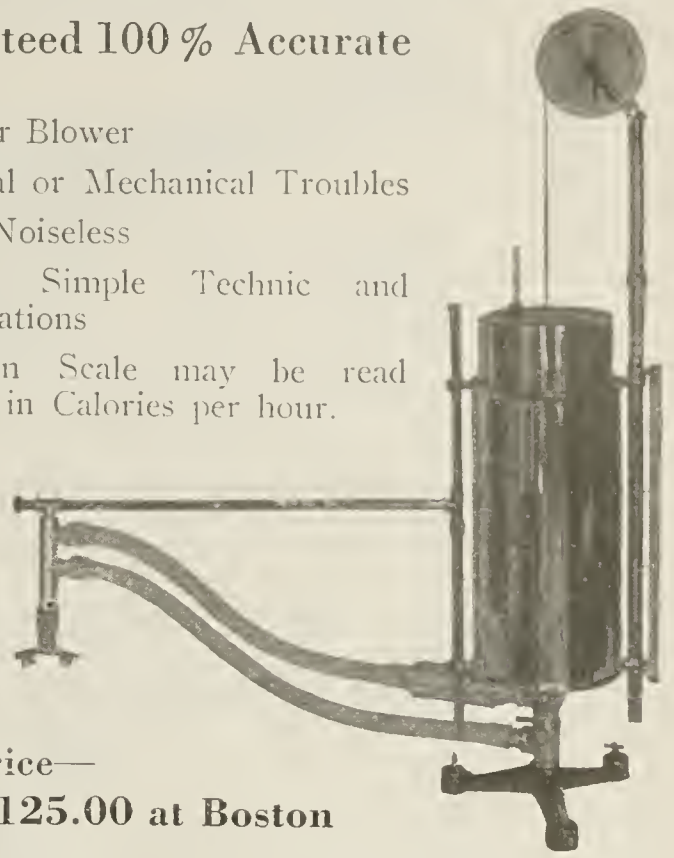
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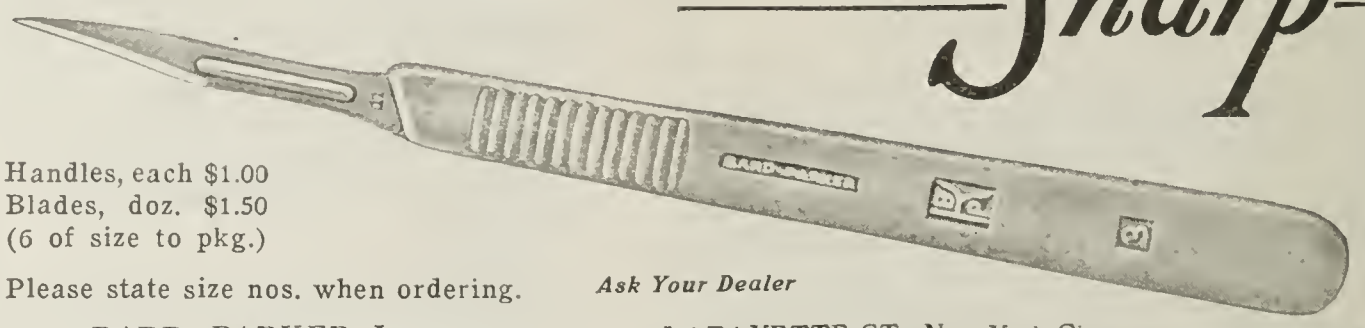
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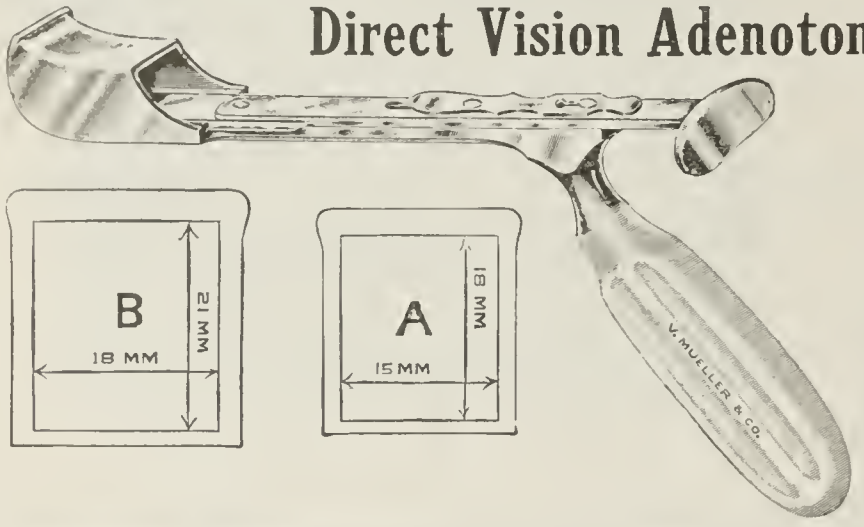
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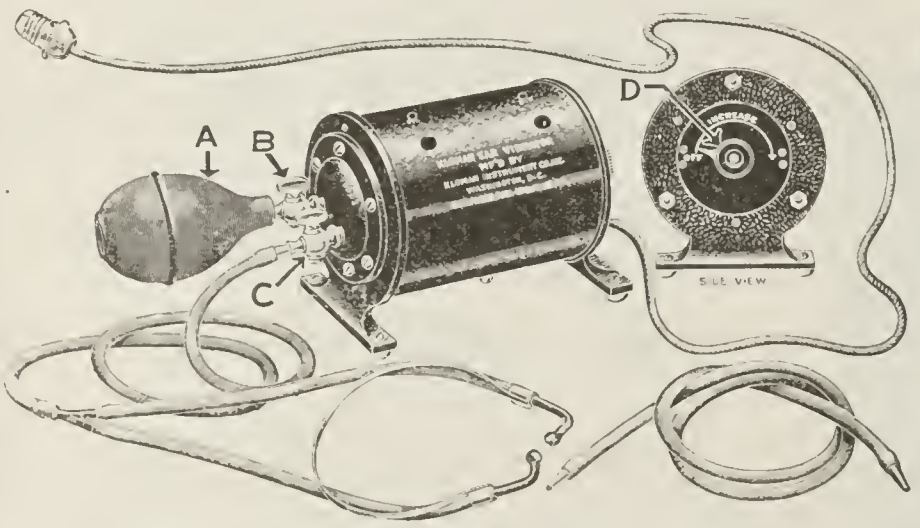
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Send me the free booklet I have indicated.

- ☐ Filling the Sunshine Prescription (For Health Seekers)
- ☐ El Paso and the New Southwest (The general story of El Paso)
- ☐ Farming that PAYS (For those interested in Farming)

*Name*_____

*Address*_____



Watch the Wording—

If You Want Best Results From Your Classified Ad

This Ad brought replies from 17 prospective buyers.

FOR SALE — CONNECTICUT—PRACTICE —Established 30 years—given to purchaser of doctor's residence in one of the most desirable New England cities; population over 20,000; colonial house with wing for offices; all improvements; sun room, sleeping porch; grounds attractively planted and two-car garage; excellent schools and well-known university; splendidly equipped hospital; retiring; will also sell new Packard coupe, library, instruments, etc., if desired; an opportunity for man seeking good income, together with atmosphere of culture. Add. 10225 N, % AMA.

Not just 17 idle inquiries, but 17 definitely interested, desirous buyers who had a clear conception of this particular practice and home for sale because of the specific details. The seller painted a word picture so that the sleeping porch, two-car garage and other features could be visualized. But he did not stop there—he gave the "atmosphere" as well.

No Answers! Such an unusual occurrence suggests a reason. Compare wording with above Ad.

FOR SALE — MICHIGAN — WILL GIVE strictly high class, lucrative practice to purchaser of beautiful home, in one of largest cities in east central states; same terms as property will be offered to realtors; good opportunity for right man. Add. 10007 N, % AMA.

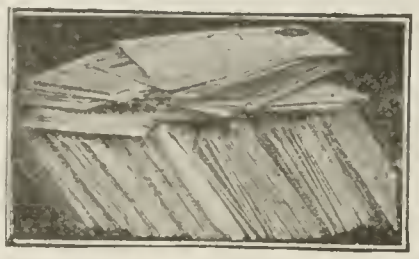
When other advertisements in the same issue are receiving as high as 73 replies—something must be wrong. No doubt the failure of this ad is largely due to its vagueness, its lack of those specific details which give a clear word picture.

TELL IT WELL to MAKE IT SELL

Whatever you are seeking through the JOURNAL'S classified columns, either as a buyer or seller—whether you are describing real estate, practice, or your own qualifications, ask yourself the questions you would want answered if you knew nothing about the proposition. Then answer those questions specifically in your ad

Approximately 10,000 classified ads appear annually in THE JOURNAL. Over 31,000 replies to keyed ads alone are received in one year through this department. You will receive your share of these answers if you TELL IT WELL.

ONE DAY'S MAIL



This illustration shows mail received in one day for advertisers who had answers to their advertisements sent in care of The Journal. On an average over 600 replies are transmitted each week.

The Bancroft School

A Home School for

SUBNORMAL CHILDREN

Physicians who desire to retain supervision of patients placed in the School will receive the fullest co-operation of the medical and educational staffs. The equipment is unexcelled. There is a winter home near Philadelphia and a summer home on the Maine coast. Many of the rooms have private bath. In addition to the school work, corrective gymnastics, massage and electro-therapy are provided. For circular, address

Box 150, Haddonfield, N. J.

E. A. FARRINGTON, M.D. JENZIA COULSON COOLEY

IDEAL REST SANATORIUM *for* TUBERCULOSIS

A private hospital for the care and treatment of Tuberculosis. All stages admitted; no restrictions to creed, race or color. Seven buildings, 112 beds. Modern and homelike. In the foothills of the Adirondacks. Climate unexcelled. Rates, $3.50 per day. Vacancies now.

P. D. BAILEY, M.D. A. G. DUNBAR, M.D.
F. L. JEANES, Sec.
ORWELL, OSWEGO COUNTY, NEW YORK

THE MERCER SANITARIUM

FOR Nervous and Mild Mental Disorders, Alcoholic and Drug Addictions. Located at Mercer, Pa., midway between Pittsburgh and Erie. Farm of 75 acres, with registered, tuberculin-tested herd. Reeducational measures emphasized, especially arts and crafts and outdoor pursuits. Modern laboratory facilities. Address

W. W. RICHARDSON, M.D.
Medical Director, Mercer, Pa.
(*Formerly Chief Physician, State Hospital for Insane Norristown, Pa.*)

Grandview Sanitarium

Mental and Nervous Diseases

Especial Feature of Treatment Is INDIVIDUAL CARE

A well wooded park of twenty-five acres, retired, yet accessible. Modern equipment.

Descriptive Circular on Request
T. A. RATLIFF, M.D.
Resident Medical Director
Glenway Avenue, Price Hill, - CINCINNATI

The Easton Sanitarium

EASTON, PENNSYLVANIA

Established 25 years. Licensed.

A PRIVATE INSTITUTION for the care and treatment of nervous and mental disorders, conditions of semi-invalidism, aged people and selected cases of drug addiction and alcoholism. Homelike atmosphere; personal care; outdoor recreation and occupation year round; delightfully located overlooking the Delaware River and the city of Easton; 2 hours from New York City; 68 miles from Philadelphia. For booklet and particulars address Medical Director, S. S. P. Wetmore, M.D., or phone 166 Easton.

Marshall Sanitarium

TROY, N. Y.

A Private Hospital for the care and treatment of Mental and Nervous Cases. Beautiful location and modern equipment. Terms moderate.

C. J. PATTERSON, M.D., Physician in Charge

ELLA OLIVER HOME, MEMPHIS, TENN.

A private maternity home for care of unfortunate young women during pregnancy and confinement. Hospital facilities and graduate nurse. Under board of Women's Christian Association. Adoption or board arranged for babies. Strictly confidential. Rates very reasonable.

Address ELLA OLIVER HOME, 903 Walker Ave.
Memphis, Tenn., Phone Walnut 639

"NORWAYS" HOSPITAL FOR GENERAL DIAGNOSIS AND NERVOUS DISEASES

1820 East 10th Street, Indianapolis, Ind.

Devoted to the solution of all problems in Medicine, particularly Neurology, based on intensive study, research examination and observation of each individual case. Staff of skilled specialists in close co-operation.

DR. ALBERT E. STERNE, Chief of Staff.
DR. LARUE D. CARTER, Med. Director.

OXFORD RETREAT and THE PINES



A Private Hospital for Nervous and Mental Diseases, Alcoholic and Narcotic Inebriety

A Neuropathic Hospital for Women Only



Write for Descriptive Booklet

R. HARVEY COOK, M.D., Physician in Chief

OXFORD, OHIO

GREEN GABLES—Lincoln

THE DR. BENJ. F. BAILEY SANATORIUM NEBRASKA

Green Gables, operated by the Dr. Benj. F. Bailey Sanatorium Co. MAIN EXECUTIVE BUILDING for all non-contagious non-mental diseases. REST COTTAGE for selected mental cases. Solid brick and stone buildings widely separated. Twenty acres of land, independent water and lighting plants, fully equipped in every particular. Write for illustrated pamphlet giving full particulars and rates.

DR. BARNES SANITARIUM

Stamford, Conn.

A Private Sanitarium for Mental and Nervous Diseases, also Cases of General Invalidism. Cases of Alcoholism and Drug Addiction accepted.
A modern institution of detached buildings situated in a beautiful park of fifty acres, commanding superb views of Long Island Sound and surrounding hill country. Completely equipped for scientific treatment and special attention needed in each individual case.
Fifty minutes from New York City. Frequent train service. For terms and booklet address

F. H. BARNES, M.D., Med. Supt. Telephone 1867 Stamford, Conn.



A Place for the Treatment of Nervous and General Diseases

Near Pasadena, California

Situated in a grove of 20 acres of Live Oaks in the country near Pasadena. Large central building and cottages. All chronic organic disorders received. No cases of Tuberculosis or Insanity received.

Board of Directors: Drs. Norman Bridge, H. G. Brainerd, J. H. McBride, W. J. Barlow, F. C. E. Mattison.

STEPHEN SMITH Med. Director
Pasadena, California

STAMFORD HALL

(DR. GIVENS' SANITARIUM)

STAMFORD, CONN. PHONE 70

Fifty minutes from Grand Central Station on the New Haven Railroad.

For scientific treatment of nervous and mental diseases, drug addiction and alcoholism, and general invalidism. Detached buildings insure privacy. Beautiful park of 100 acres. Exceptional facilities in hydro and electro therapy and massage. Particular attention paid to amusement of patients—moving pictures, sports, etc. Occupational work under skilled director—needle work, bead work, weaving, basketry, etc. Special facilities for care of elderly people.

FRANK W. ROBERTSON, M.D., the President and Medical Director, can be seen at his New York City Office, 412 West End Avenue, Corner 80th St., on Mondays, Wednesdays or Fridays, at Noon. New York Telephone, Endicott 7796.

The Norbury Sanatorium

JACKSONVILLE ILLINOIS

Incorporated and Licensed

For the treatment of Nervous and Mental Disorders

Dr. Frank P. Norbury, Medical Director
Dr. Albert H. Dollear, Superintendent
Dr. Frank Garm Norbury, Dr. Samuel N. Clark } Associate Physicians

Address Communications

THE NORBURY SANATORIUM, Jacksonville, Illinois

APPALACHIAN HALL

ASHEVILLE, NORTH CAROLINA

An Institution for the treatment of Nervous and Mental Diseases. Selected Cases of Alcoholic and Drug Habituation.

Located in a beautiful park of twenty-five acres, in one of the famous all-the-year-round climates of the world.

The two physicians in charge reside in the Institution and devote their entire time to the care and treatment of the patients.

For information and booklet write Drs. Griffin and Griffin.

POTTENGER SANATORIUM

For Diseases of the Lungs and Throat

MONROVIA, CALIF.

F. M. Pottenger, A.M., M.D., LL.D., Med. Director.
J. E. Pottenger, A.B., M.D., Asst. Med. Director, and Chief of Laboratory.

Situated in a beautiful park on the southern slope of the Sierra Madre Mountains. Magnificent valley and mountain views. Elevation 1,000 feet. Winters delightful, summers cool and pleasant. Rooms and bungalows with modern conveniences. Thoroughly equipped for the scientific treatment of tuberculosis. Competent staff. Close personal attention. Excellent cuisine. Near Los Angeles and Pasadena.

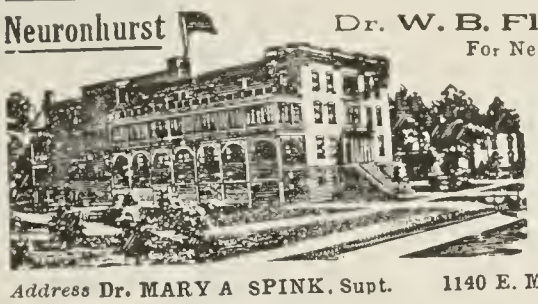
Address POTTENGER SANATORIUM, Monrovia, Calif., for particulars.

Los Angeles Office, 1045-6-7 Title Insurance Bldg., Fifth and Spring Sts.

Neuronhurst

Dr. W. B. Fletcher's Sanatorium

For Nervous and Mental Diseases



Strictly psychopathic hospital for treatment of all forms of disease arising from organic or functional derangement of Brain and Spinal Cord. Buildings fully and modernly equipped. Electro- and Hydrotherapeutic advantages unexcelled. Physicians desiring to place patients in our care will receive every ethical attention.

Address Dr. MARY A SPINK, Supt. 1140 E. Market St., Indianapolis, Indiana

THE WINYAH SANATORIUM

OPERATED BY THE VON RUCK MEMORIAL SANATORIUM, Inc.

Established 1888 by Dr. Karl von Ruck, ASHEVILLE, N. C.

MEDICAL STAFF

Dr. R. E. Flack Dr. Geo. Alexander Dr. Edw. W. Schoenheit Dr. Louis Dienes

A modern and completely equipped institution for the treatment of tuberculosis. High-class accommodations. Strictly scientific methods. For particulars and rates write to WM. A. SCHOENHEIT, Business Manager.

(Please mention this journal)

WALLACE-SOMERVILLE SANITARIUM

Succeeding the Pettey & Wallace Sanitarium

MEMPHIS, TENN.



Walter R. Wallace, M.D., William G. Somerville, M.D. For the treatment of DRUG ADDICTIONS, ALCOHOLISM, MENTAL AND NERVOUS DISEASES. Located in the Eastern suburbs of the city. Sixteen acres of beautiful grounds. All equipment for care of patients admitted.

Glenmary Sanitarium

OWEGO, TIOGA CO., N. Y.

For the care and treatment of a limited number of selected cases of Nervous and Mental Diseases. Voluntary cases admitted. Epileptics treated and cared for. Absolute privacy and special ethical treatment for Alcoholic and Drug Addictions. Special accomodations for feeble-minded cases. Close co-operation at all times with the family physician.

ARTHUR J. CAPRON, M.D., *Physician in charge*

THE WILGUS SANITARIUM

ROCKFORD, ILL.

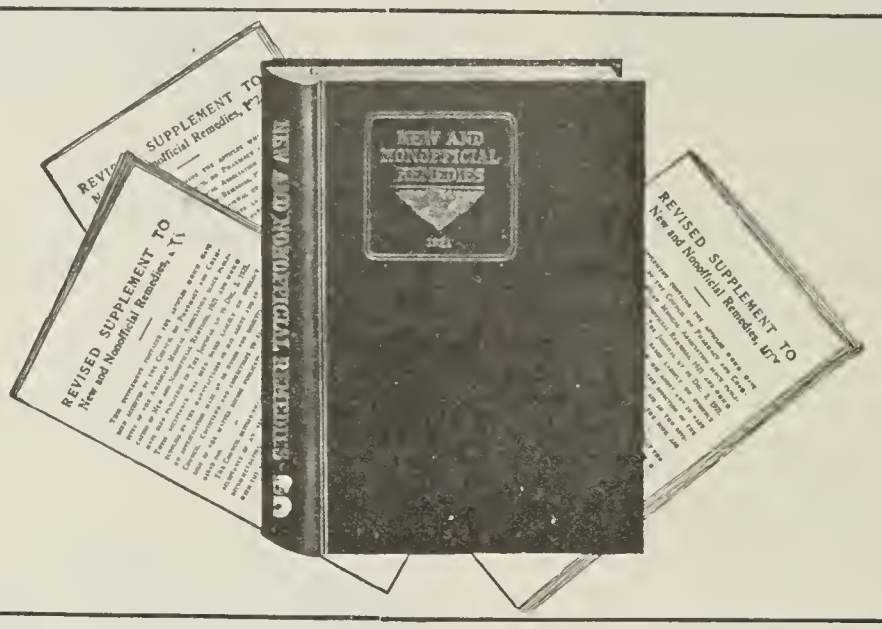
For Mental and Nervous Diseases and Selected Cases of Alcoholic or Narcotic Addiction

Under the supervision of DR. SIDNEY D. WILGUS, formerly superintendent Elgin and Kankakee State Hospitals. Address DR. SIDNEY D. WILGUS, Box 304. Rockford, Ill. Long distance Bell phone 3767. Chicago address. 25 E. Washington St.

Send for a pamphlet. Telephone Central 1098

Let the Council Help You In Selecting Efficient Drugs and Biologicals

THE Council on Pharmacy and Chemistry of the American Medical Association is doing a vast amount of work to investigate and pass on the merits of the many new remedies constantly coming on the market. This work is solely in the interest of better and more efficient prescribing. Every physician can participate in these benefits by having up-to-date copies of the Council's publications.



THE PHARMACOPEIA *of the* NEWER DRUGS

"NEW AND NONOFFICIAL REMEDIES"

The only source from which the physician can secure up-to-date, unbiased information on the newer medicinals. It is a convenient handbook of reference that at once gives you the findings of the Council in respect to hundreds of drugs and biologicals. It is the crystallization of the Council's extensive work brought to you in usable form.

WHAT IT CONTAINS

Official Council Rules showing basis on which articles are considered.
Description of accepted articles, including composition, tests of identity and purity, actions, uses, dosage and name of manufacturer.
General Index—All articles conveniently arranged in alphabetical order.
Index of distributors listing 105 firms and all products which stood accepted at the date of publication.
Index to products not accepted, furnishing references to articles on these products, which have appeared in The Journal, Annual Reports of the Council, etc.

New and Nonofficial Remedies for 1923 has 451 pages, is handsomely bound in green cloth and is kept up to date by supplements which are issued from time to time and sent free to each purchaser of the book. Price, $1.50, postpaid.

Other Council Publications That Aid the Practitioner

"USEFUL DRUGS"

The multiplicity of drugs presented to the medical profession is an acknowledged evil. The number described in the Pharmacopeia alone is far too large for intelligent, practical use.

To meet this situation, the book "Useful Drugs" has been presented.

This little volume gives a list of those drugs which seem sufficient for the practitioner's purpose. It has been adopted by many medical schools and state examining boards as the basis for instruction and examinations in materia medica. Each article is described as simply and briefly as possible—long technical discussions being omitted and emphasis being placed on actions and uses and dosage.

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PROPAGANDA FOR REFORM IN PROPRIETARY MEDICINE, VOLUME II

This book gives some illuminating facts on many proprietaries whose manufacturers are exploiting the medical profession.

It is a reliable guide to the physician who does not care to jeopardize results of his treatment by uncertainty as to virtues of the medicinals he prescribes. It makes clear the work of the Council, the American Medical Association's Chemical Laboratory and THE JOURNAL A.M.A. in their several capacities as servants to the medical profession and as champions of rational medicine.

Handsomely bound in cloth; 604 pages. Complete index including references to both Volume II and also to Volume I. Price of Volume II, $2.00; Both Volumes I and II, $3.00.

Use This Form—Remit with Order

AMERICAN MEDICAL ASSOCIATION, 535 North Dearborn Street, Chicago

Gentlemen: You may send me the following:

....copies of "New and Nonofficial Remedies" at $1.50 each.
....copies of "Useful Drugs" at 60 cents each.
....Propaganda for Reform Vol. II at $2.00; both Vol. II and Vol. I for $3.00

Name ..... Address .....

MEAD'S

WHAT'S IN A NAME?

Whose name is signed to infant feeding instructions in your community —the manufacturer's or yours? You are the doctor.

Does the family physician instruct the mother of a baby to go to a drug store and follow the druggist's advice as to the selection of a food for the infant's requirements? Hardly ever.

Generally the doctor writes his feeding formula just as he does any other prescription and changes it from time to time to suit the requirements of the individual infant. His name and reputation are at stake. The baby's nutrition must be considered and possibly its life may be saved by proper food.

First thought

BREAST MILK

Second thought

Cow's Milk, Mead's Dextri-Maltose and Water

The physician who uses Mead's Dextri-Maltose when artificial feeding is necessary controls his case. There is no outside interference and his creative talent has full scope because Mead's Dextri-Maltose is supplied without directions on the packages and no advertising is done to the laity.

An ethical product offered exclusively to the medical profession must have merit. Will you investigate?

Pamphlet describing methods for prolonging breast milk and samples of Mead's Dextri-Maltose will be sent to physicians on request.

Mead Johnson Policy

Mead's Infant Diet Materials are advertised only to physicians. No feeding directions accompany trade packages. Information in regard to feeding is supplied to the mother by written instructions from her doctor, who changes the feedings from time to time to meet the nutritional requirements of the growing infant. Literature furnished only to physicians.

INFANT DIET MATERIALS MEAD'S

MEAD JOHNSON & COMPANY, EVANSVILLE, IND., U. S. A.

Canadian Address:
163 Dufferin Street
Toronto, Ont.

London Address:
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Gonococcus Glycerol-Vaccine-*Lederle*

Stable and Effective

Advantages:

1-Will not deteriorate.

2-Free from autolytic products.

3-In clinical trials has not produced toxic reactions.

Packages:

A complete treatment package contains fifteen graduated doses, each of which is accompanied with a vial of sterile diluent.

The types of cases favorably influenced by Gonococcus Glycerol-Vaccine Lederle are acute complications of gonorrheal infections, including gonorrheal rheumatism, epididymitis, prostatitis and posterior urethritis.

FULL PARTICULARS UPON REQUEST

LEDERLE ANTITOXIN LABORATORIES
511 FIFTH AVE., NEW YORK CITY

MUCOUS COLITIS



COUNCIL ACCEPTED

Bacillus Acidophilus Milk
Lederle

Is Used With Marked Success in mucous colitis. The abdominal pain and intestinal gas are relieved; mucus and blood disappear from the stools, which gradually become soft and formed. Bacteriologically, the intestinal flora becomes simplified with the Bacillus acidophilus as the predominant organism.

Packages containing six 8 oz. bottles, $1.75 per package plus delivery charges.

FULL INFORMATION AND SAMPLE ON REQUEST

LEDERLE ANTITOXIN LABORATORIES
511 FIFTH AVE., NEW YORK CITY

ASK YOUR DEALER

WRITE FOR LITERATURE

There can be but one "best" of anything



Baumanometer

"STANDARD FOR BLOODPRESSURE"

Are you using it?

W. A. BAUM CO., Inc.
NEW YORK

THE ORIGINAL

The Excellent Nutritional Results

obtained by the medical profession for many years, justifies the extensive use of Horlick's Malted Milk in infant feeding and in the dietetic requirements of older patients.

Literature and samples at your request

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AVOID IMITATIONS

MEAD'S

WHEN THE DOCTOR FEEDS THE BABY

His first consideration is—

BREAST MILK

Next—Knowledge of Baby's weight to determine if the Baby is underfed or overfed.

Next—Knowledge of Manual Expression of Milk to empty both breasts so as to prolong lactation.

Next—Knowledge of regular feeding intervals.

Next—Knowledge of the advantages of rest and sleep for both Baby and Mother.

Next—Knowledge of plenty of light, fresh air and cleanliness to prevent Rickets and infectious diseases.

Next—Knowledge of the use of Fresh Cow's Milk, Water and suitable Infant Diet Materials to complement a failing supply of Breast Milk to keep the Baby from being underfed.

Next—Knowledge of how to obtain cooperation and willing assistance from the Mother.

Next—Knowledge of the advantage of frequent examinations of the Baby in order to discover and treat parenteral infections, etc., promptly.

It has been demonstrated by thousands of physicians that mothers do not take the above factors into consideration.

That is why Mead's Infant Diet Materials are not advertised to the laity.

Please write for our box of tools for Individual Feeding. It will help you to carry out all of these points.

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